

ABSTRACTS

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ORIGINAL RESEARCH

ADR/Drug Interactions

1395. Short versus Prolonged Intravenous Methocarbamol Use: a Retrospective Safety Analysis

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Introduction: Intravenous methocarbamol (IVM) contains polyethylene glycol. Limited duration (≤ 72 h) is recommended, but extended treatment is occasionally used with close monitoring. Safety outcomes with prolonged IVM are unknown.

Research Question or Hypothesis: What is the safety of short versus prolonged IVM therapy?

Study Design: Retrospective, single-center study at a quaternary referral, academic medical center

Methods: Adult patients admitted to surgery services and receiving IVM were included. Patients with urologic obstructions, creatinine clearance (CrCl) < 30 mL/min, pregnancy, and prisoners were excluded. Patients were classified into short (≤ 72 h) or long (> 72 h) groups. The primary outcome compared acute kidney injury (AKI), defined as serum creatinine (Scr) increase by ≥ 0.3 mg/dL within 48 h or to ≥ 1.5 times baseline. Secondary outcomes described AKI severity, compared Scr and bicarbonate change from baseline, and low bicarbonate (bicarbonate reduction to < 21 mEq/L). Outcomes were assessed for 7 days after therapy completion or until discharge, whichever came first. Data presented as n (%) or median (IQR).

Results: A total of 80 (36 short, 44 long) patients were included. Baseline characteristics were similar between groups except the short group received a lower cumulative IVM dose [2000 (1000–3750) mg vs 9000 (7125–12,750) mg; $p < 0.001$] and had a higher baseline Scr (0.93 [0.77–1.15] mg/dL vs 0.75 [0.60–0.90] mg/dL; $p = 0.001$). There was no difference in AKI between groups (1 [3%] vs 3 [7%]; $p = 0.623$) and all were stage 1. Scr change was similar between groups (0 [0–0.07] mg/dL vs 0 [0–0.10] mg/dL; $p = 0.574$). A higher bicarbonate reduction occurred in

the long group (0 [0–2] vs 1.5 [0–3]; $p = 0.042$) but there was no difference in low bicarbonate (4 [11%] vs 1 [2%]; $p = 0.169$).

Conclusion: This study found no difference in renal function or low bicarbonate in patients treated with > 72 h compared to ≤ 72 h of IVM. It may be reasonable to extend treatment with close monitoring if clinically indicated.

Adult Medicine

1371. Adherence to Extended Infusion β -Lactam Antimicrobial Dosing Guidelines in Hospitalized Patients

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Introduction: Extended infusion dosing of time-dependent β -lactam antimicrobials is recommended to optimize pharmacokinetic and pharmacodynamic target attainment, particularly in severe infections. Despite guideline support, adherence to extended infusion dosing and loading dose recommendations in routine clinical practice is variable. This quality improvement project evaluated real-world adherence to an institutional extended infusion antimicrobial dosing guideline, with relevance to antimicrobial stewardship and clinical pharmacy practice.

Research Question or Hypothesis: Among hospitalized patients receiving cefepime, meropenem, or piperacillin-tazobactam, what is the rate and nature of adherence to institutional extended infusion dosing and loading dose recommendations?

Study Design: This was a retrospective, single-center quality improvement project.

Methods: Adult patients who received cefepime, meropenem, and/or piperacillin-tazobactam at a community hospital between October 1, 2025, and January 1, 2026, were identified using the electronic health record. Every fifth eligible patient was randomly selected for inclusion. Data collected included agent, indication, dosing regimen, infusion duration, loading dose, and renal function. Adherence was defined as receipt of

the recommended dose and extended infusion duration for the documented indication, including completion of a 30-minute loading dose regardless of renal function. Outcomes were analyzed descriptively.

Results: A total of 113 patients were included, representing 132 antimicrobial courses. Overall guideline adherence was observed in 70% of antimicrobial administrations. Thirty-seven dosing or loading dose deviations were identified. Piperacillin-tazobactam accounted for 65% of all deviations, most commonly involving incorrect maintenance dosing following an initial loading dose. Cefepime errors were exclusively related to incorrect dosing, while meropenem deviations were limited to omission of the recommended loading dose.

Conclusion: In this completed quality improvement project, adherence to dosing guidelines was suboptimal, with clinically relevant dosing and loading dose discrepancies identified. These findings support targeted pharmacist-led stewardship interventions, including education, dosing verification, and workflow optimization.

1477. Predictors of Sleep Quality and Associated Clinical Consequences of Poor Sleep in Hospitalized Patients with Acute Exacerbation of Chronic Obstructive Pulmonary Disease

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Introduction: Decreased sleep quantity and quality has been implicated as a risk factor for the development of acute exacerbations of chronic obstructive pulmonary disease (AECOPD, COPD). Treatments used in the treatment of AECOPD may cause insomnia and wakefulness. Causes of disrupted sleep and/or the presence of a relationship between sleep quality and disease trajectory in hospitalized patients with AECOPD has not been previously investigated.

Research Question or Hypothesis: The objective of this study is to investigate for a correlation between iatrogenic causes of sleep disturbances and sleep quality in hospitalized patients with AECOPD. Additional objectives include correlating sleep quality and hospital length of stay (LOS) in patients admitted with AECOPD.

Study Design: Prospective observational study

Methods: Hospitalized patients with AECOPD were contacted for study enrollment on hospitalization day 2 or 3. Enrolled subjects were administered a questionnaire using items from the Patient-Reported Outcomes Measurement Information System (PROMIS) Sleep Disturbance item bank to quantify degree of sleep disruption from the previous night. Spearman correlations were assessed between causes of iatrogenic sleep disruption and raw PROMIS scores. Spearman correlations were also conducted between raw PROMIS scores and LOS. Data were analyzed using the Microsoft Excel plug-in Analyse-it 5.90.

Results: Hospital medicine service teams were surveilled daily from July 2025 through February 2026. A total of 37 patients met study inclusion criteria, of whom 11 consented for study

enrollment. Exposure to potential causes of iatrogenic sleep disruption were not correlated with worse sleep quality (Spearman's r_s 0.421, $p = 0.1967$). Increased raw PROMIS scores were correlated with a longer hospital LOS (Spearman's r_s 0.767, $p = 0.0059$).

Conclusion: The smaller than expected sample size enrolled precludes firm conclusions on the effect of medications and procedures on sleep quality in patients hospitalized with AECOPD. Larger studies may investigate whether sleep quality may be used as a prognostic marker in hospitalized patients with AECOPD.

1486. Evaluation of Inpatient Opioid Use in Opioid Naïve Patients without an Acute Pain Indication

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Introduction: In hospitalized patients, opioid administration carries risks including respiratory depression, delirium, constipation, and potential long-term dependence, with opioid-naïve individuals being particularly at risk for adverse outcomes when exposed. Characterizing opioid use in the opioid naïve population represents an important opportunity for opioid stewardship and quality improvement.

Research Question or Hypothesis: Does the presence of pre-emptive as-needed (PRN) pain medication options increase the total inpatient opioid exposure for opioid-naïve patients without an acute pain indication?

Study Design: Single-center, retrospective observational cohort study.

Methods: This single-center, retrospective observational study included opioid-naïve adults (≥ 18 years) admitted to selected medical floors for at least 24 h with an "Admit to Med Surg" orderset placed within 24 h. Opioid-naïve status was confirmed using medication history and insurance claims. Patients were excluded for operative procedures requiring anesthesia, chronic or acute pain conditions, active cancer, opioid use disorder, pregnancy, incarceration, or hospice/palliative care enrollment. Patients were grouped based on whether the PRN pain protocol was ordered from the orderset. The primary outcome was inpatient opioid exposure, measured in morphine milligram equivalents (MME), during the first seven days of hospitalization. Secondary outcomes included the proportion of patients receiving opioids within seven days, opioid prescriptions at discharge, and opioid-related adverse events requiring naloxone administration or intubation.

Results: A total of 198 patients were included (65 with PRN opioids, 133 without PRN opioids). Mean opioid exposure over the first seven days of admission was higher in patients with PRN opioid orders compared to those without ($p < 0.001$, 95% CI 1.66(1.4997–1.8203)).

Conclusion: Opioid-naïve patients without acute pain indications who received PRN pain orders experienced higher inpatient opioid exposure. These findings support opportunities to standardize pain management strategies to reduce unintended opioid exposure and promote opioid stewardship.

1527. Disagreement in Rivaroxaban Dosing Between Cockcroft–Gault and eGFR Equations in Non-Valvular Atrial Fibrillation: A Statewide Analysis

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Introduction: Rivaroxaban dosing for non-valvular atrial fibrillation (NVAf) is based on Cockcroft–Gault creatinine clearance using actual body weight (CG-CrCl-ABW) per FDA labeling. Recent recommendations from the National Kidney Foundation-American Society of Nephrology Task Force support utilizing the race-free CKD-EPI 2021 equation for estimating kidney function. However, it is unknown whether substituting estimated glomerular filtration rate (eGFR) for CG-CrCl-ABW would alter dosing recommendations.

Research Question or Hypothesis: Is there a difference in rivaroxaban dosing recommendations when renal function is estimated using CG-CrCl-ABW compared with CKD-EPI 2021?

Study Design: Retrospective, statewide cohort study

Methods: Adults (≥ 18 years) with NVAf prescribed rivaroxaban according to FDA labeling were identified from the Michigan Anticoagulation Quality Improvement Initiative (MAQI2) registry. The primary outcome was rivaroxaban dosing disagreement, defined as a difference in dose between CG-CrCl-ABW and CKD-EPI 2021 with body surface area (BSA) adjustment using the Du Bois formula. Secondary comparisons included CKD-EPI 2009, MDRD, and BSA adjustment using the Mosteller formula. Agreement between methods was assessed using Cohen's kappa.

Results: A total of 476 NVAf patients were included. The mean age was 69.7 years, weight was 95.6 kg and serum creatinine was 0.96 mg/dL. Dosing disagreement occurred in 4.8% of patients after adjustment using the CKD-EPI 2021 equation with substantial agreement ($\kappa = 0.61$) compared with CG-CrCl-ABW. The majority of these cases (87.5%) would have resulted in a higher rivaroxaban dose. Patients with dosing disagreement had higher CHA₂DS₂-VAsC and HAS-BLED scores.

Conclusion: Use of eGFR by CKD-EPI 2021 resulted in dosing disagreement compared with CG-CrCl-ABW. Patients with disagreement in dosing had higher predicted risks of stroke and bleeding. When disagreement exists, rivaroxaban dosing should follow CG-CrCl-ABW in accordance with FDA labeling until additional clinical outcome data becomes available.

1555. Evaluation of the Impact of Nursing-Driven Naloxone Administration Protocol

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Introduction: Opioid-induced respiratory depression is a major risk in hospitalized patients. Although naloxone is effective, delays can lead to respiratory arrest and invasive interventions. Strategies to reduce time to administration may improve safety. The purpose of this study was to evaluate the impact of a nursing-driven naloxone administration protocol on patient outcomes.

Research Question or Hypothesis: Did the implementation of a nursing-driven naloxone administration protocol reduce the time to naloxone administration and improve patient outcomes?

Study Design: This retrospective observational study evaluated naloxone utilization and timing before and after implementation of a nursing-driven naloxone administration protocol.

Methods: The primary outcome was time to naloxone administration before (1/1/2024–6/30/2024) and after (1/1/2025–6/30/2025) protocol implementation. Secondary outcomes included the number of patients requiring intubation following naloxone administration and descriptive analysis of naloxone use pre- and post-implementation. Safety outcomes included respiratory rate < 8 breaths/minute, POSS sedation level of 4, oxygen saturation $< 88\%$, total opioid dose prior to naloxone administration, and changes in opioid prescribing before and after naloxone use. Inclusion criteria were age ≥ 18 years and receipt of naloxone. Exclusion criteria included end-of-life or hospice care, opioid administration in the operating room or PACU, intubation prior to naloxone administration, or ICU admission prior to naloxone administration. Data were analyzed using descriptive statistics.

Results: Thirty-eight patients met inclusion criteria, with 19 patients in both the pre- and post-implementation groups. Average time to naloxone administration decreased from 7 min 38 seconds in the pre-protocol group to –6 seconds in the post-protocol group. Six patients in each group required intubation following naloxone administration. Documentation of safety markers and opioid exposure was inconsistent, limiting interpretation of safety outcomes. Naloxone prescribing at discharge was infrequent in both groups.

Conclusion: Implementation of a nursing-driven naloxone protocol was associated with reduced time to naloxone administration, suggesting nursing-driven protocols may enable faster intervention during opioid-induced respiratory depression.

Ambulatory Care

1435. Assessing Efficacy of GLP-1 and GLP-1/GIP Receptor Agonists in a Real-World Population with Type 2 Diabetes Mellitus

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Introduction: Randomized trials demonstrate significant glyce-

insulinotropic polypeptide receptor agonists (GLP-1/GIPRAs). However, comparative real-world data remain limited.

Research Question or Hypothesis: Determine if there are efficacy differences between liraglutide, dulaglutide, injectable semaglutide, or tirzepatide in the setting of a disproportionate share hospital.

Study Design: This retrospective, multi-clinic cohort study included adults with T2DM prescribed a selected GLP-1RA or GLP-1/GIPRA by a MetroHealth provider between January 1, 2023 and June 30, 2024. Patients who were GLP-1/GIPRA-naïve and received ≥ 6 months of therapy were included.

Methods: The primary endpoint was percent change in HbA1c from baseline to 52 weeks or treatment discontinuation in patients taking the selected GLP-1RA or GLP-1/GIPRAs. Secondary endpoints included weight change, HbA1c goal attainment, treatment persistence, renal markers, and antihyperglycemic medication burden. Continuous variables were compared using ANOVA. Categorical variables were compared using chi-square or Fisher's exact tests with a post-hoc Bonferroni adjusted z-test. Statistical significance was defined as $p < 0.05$.

Results: A total of 180 patients (45 per group) were included. Mean HbA1c reduction was greatest with tirzepatide (-2.0%), followed by dulaglutide (-1.4%), semaglutide (-1.3%), and liraglutide (-1.1%) ($p = 0.086$). HbA1c goal attainment ($\leq 7\%$) was highest with tirzepatide (93.3%) and differed significantly across agents ($p = 0.002$). Percent weight reduction was highest with tirzepatide (-11.6%), followed by semaglutide (-6.8%), liraglutide (-5.0%), and dulaglutide (-2.1%) ($p < 0.001$). Discontinuation or switching was most frequent with liraglutide (62.2%) ($p < 0.001$). Reduction in total oral antihyperglycemic medications ($p = 0.012$) and medication classes ($p = 0.005$) differed significantly across treatment groups. Renal outcomes did not differ significantly.

Conclusion: In this real-world cohort of underserved patients, tirzepatide demonstrated the greatest reduction in HbA1c and bodyweight percentage. These findings offer real-world context for practitioners regarding potential differences between selected GLP-1RAs or GLP-1/GIPRAs.

1451. A Comparison of Proportion of Days Covered for Denosumab under Usual Care versus Pharmacist Intervention

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Introduction: Denosumab is a potent osteoporosis therapy requiring ongoing adherence to a six-month dosing schedule. Recently, ambulatory pharmacists have assumed responsibility for several aspects of denosumab management within the health system described. Although pharmacist involvement improves adherence in other chronic therapies, evidence specific to denosumab, particularly in ambulatory settings, remains limited.

Research Question or Hypothesis: Does pharmacist involvement in denosumab management in the ambulatory setting improve adherence and recommended monitoring compared with usual care?

Study Design: Retrospective cohort study comparing usual care with a pharmacist-managed intervention period.

Methods: Patients receiving ≥ 1 denosumab dose between 7/1/22–12/31/23 (usual care) or 7/1/24–12/31/25 (pharmacist intervention) were included. Proportion of days covered (PDC) was calculated for each 182-day dosing interval, reflecting 26 weeks between recommended doses, and averaged per patient. PDC was defined as total days covered divided by 182. Median PDC values were compared using Wilcoxon rank-sum tests. Adherence (PDC > 0.9) was compared using chi-square tests. Secondary outcomes included completion of biennial bone mineral density (BMD) testing and annual calcium and vitamin D-25 hydroxy monitoring.

Results: Median PDC was high in both groups (0.980 [IQR 0.93–1.00] vs 0.983 [0.96–1.00]). Median PDC and the proportion of patients with PDC > 0.9 were significantly higher during the pharmacist intervention period ($p < 0.001$ for both). BMD monitoring increased from 53.0% to 99.4% ($p < 0.001$). Calcium monitoring increased from 74.5% to 99.0% ($p < 0.001$). Vitamin D-25 hydroxy monitoring increased from 63.4% to 97.4% ($p < 0.001$). The proportion of patients with denosumab ordered but never received did not differ significantly (2.3%, $p = 0.252$).

Conclusion: Pharmacist involvement was associated with improved denosumab adherence and substantially higher completion of recommended monitoring. Although adherence was high at baseline, these findings suggest meaningful improvements with pharmacist-managed care. Interpretation is limited by retrospective design and nonequivalent comparison groups.

1470. Impact of Utilizing Continuous Glucose Monitoring at Hospital Discharge on A1c Reduction in Patients with Diabetes

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Introduction: The clinical impact of initiating continuous glucose monitors (CGMs) at hospital discharge remains limited, particularly in underserved populations. This study evaluated outcomes in a safety-net population with type 1 or type 2 diabetes utilizing real-time or intermittently scanned CGMs, regardless of insulin requirements.

Research Question or Hypothesis: Does CGM initiation at hospital discharge improve hemoglobin A1c (HbA1c) and longitudinal clinical outcomes compared to standard care?

Study Design: Retrospective observational cohort study compared patients discharged with CGM to a control group discharged without devices, using systematic chart review.

Methods: The primary outcome was change in HbA1c from baseline to six months. Secondary outcomes included HbA1c changes at nine and twelve months, time to outpatient follow-up, diabetes related emergency department visits and readmissions, hypoglycemic episodes within 30 days, and pharmacy management referrals. HbA1c changes were analyzed using repeated-measures mixed models adjusted for baseline factors, with significance defined as $p \leq 0.05$.

Results: Sixty patients were included, 30 per cohort. At baseline, the intervention group was younger (52.87 ± 18.1 vs 64.20 ± 15.36 years), had higher HbA1c ($11.82\% \pm 2.46$ vs $7.85\% \pm 1.96$), greater insulin utilization (93.3% vs 73.3%), and more Medicaid coverage (43.3% vs 23.3%). While the intervention group achieved significant HbA1c reductions at six, nine, and twelve months (-2.27% , -3.08% , -1.78%), between-group differences were not statistically significant after adjustment for baseline characteristics ($p = 0.8648$, 0.1679 and 0.8910). ED visits, readmissions, and hypoglycemia rates were similar between cohorts. Four patients (6.7%) received pharmacy referrals. Among nine CGM users with available data, mean 30-day time-in-range was 52.6%, and glucose management indicator was 7.61%.

Conclusion: Initiating CGM at hospital discharge in a safety-net population showed a trend toward improved glycemic control. Significant between-group differences were not sustained after adjusting baseline disparities. Larger prospective studies are needed to determine whether CGM initiation during transitions of care can bridge gaps in glycemic management.

1509. Achievement of KDIGO Blood Pressure Targets in Patients with Chronic Kidney Disease and Hypertension in Primary Care Clinics

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Introduction: Improvement in blood pressure (BP) in those with chronic kidney disease (CKD) has shown to lower the risk of three-point major adverse cardiovascular events and heart failure.

Research Question or Hypothesis: Are patients with CKD and hypertension achieving the 2021 Kidney Disease Improving Global Outcomes (KDIGO) target of a systolic blood pressure (SBP) < 120 mmHg in primary care clinics managed by usual care?

Study Design: This retrospective, single health system analysis evaluates adherence to the 2021 KDIGO guideline-recommended BP goals across primary care clinics with access to an embedded pharmacist.

Methods: Medical records of patients aged 18 to 89 with Stage III CKD and a documented BP between September 1st to 30th, 2025, were reviewed until 10 patients were included from each clinic. The primary outcome was the percentage of patients who achieve a SBP < 120 mmHg. Secondary outcomes include the percentage of patients with a diastolic blood pressure (DBP) < 80 mmHg, a SBP 120–129 mmHg, and a SBP 130–139 mmHg; average SBP; occurrence of adverse events related to hypotension or antihypertensives; and rationale for clinical decision-making in patients with a SBP ≥ 120 mmHg where no therapeutic changes were made. Results were analyzed using descriptive statistics.

Results: Of the 160 patients included, 27.5% achieved a SBP < 120 mmHg, 36.3% achieved a SBP 120–129 mmHg, and 23.1% achieved a SBP 130–139 mmHg. A DBP of < 80 mmHg occurred in 69.4% of patients. The average BP was 123/73 mmHg. Adverse events occurred in 19 patients, and a high incidence of

undocumented BP interpretations was observed in patients with SBP readings ≥ 120 mmHg where no therapeutic changes were made.

Conclusion: BP managed by usual care in the primary care setting within this health system is not meeting the KDIGO guideline-recommended target of a SBP < 120 mmHg in the majority of patients with CKD and hypertension.

1530. Exploring Medical Spanish Proficiency and Relevance for Language Training Among Ambulatory Care Pharmacists: A Survey Study

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Introduction: Ambulatory care (ambcare) pharmacists play a critical role in chronic disease management, where clear communication is essential for safe medication use. California has 1.9 million Spanish-speaking patients, with 40% residing in Orange and Los Angeles counties. Barriers exist when language-concordant care is not provided. However, Spanish proficiency among California ambcare pharmacists or their interest in medical Spanish training is poorly characterized.

Research Question or Hypothesis: What is the level of Spanish proficiency among California ambcare pharmacists, and how relevant is Spanish training to their practice?

Study Design: This descriptive study used a cross-sectional survey design.

Methods: We assessed self-reported Spanish proficiency (primary outcome) and perceived relevance of Spanish training (secondary outcome). Eligible participants included California pharmacists who practiced in ambulatory care or held Board Certification in Ambulatory Care Pharmacy (BCACP). BCACP pharmacists were identified using the BPS website and CMS NPI registry and contacted up to three times. Qualtrics surveys were distributed via phone, email, or the Orange County Pharmacists Association listserv. Survey questions were tested for face validity, and assessed demographics, Spanish proficiency, percentage of Spanish-speaking patients, effects of language barriers, and interest in medical Spanish training. Data was analyzed using descriptive statistics in Microsoft Excel.

Results: Among 42 respondents, 57% identified as Asian American or Pacific Islander and 74% were female. Only 17% reported Spanish fluency; 71% reported prior Spanish education. Most (57%) reported $\geq 30\%$ Spanish-speaking patient populations. The majority agreed that language barriers negatively impact care (74%), Spanish proficiency would improve culturally competent care (90%), and Spanish proficiency is relevant to their current practice (76%).

Conclusion: Despite caring for many Spanish-speaking patients, few pharmacists reported Spanish fluency. Most recognized the importance of language concordance and relevance of Spanish proficiency to their practice. Medical Spanish training is a potential strategy to improve communication and promote equitable healthcare for Spanish-speaking communities.

Cardiovascular

1367. Does Optimised Oral Anticoagulant Therapy during Hospitalisation Persist and Improve Clinical Outcomes in Patients with Non-Valvular Atrial Fibrillation?

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Introduction: We examined non-persistence with in-hospital-optimised stroke prevention therapy after discharge in patients with non-valvular atrial fibrillation (NVAf) and its association with clinical outcomes.

Research Question or Hypothesis: Non-persistence with in-hospital-optimised stroke prevention therapy within 12 months of discharge occurs in a significant proportion of patients and is independently associated with higher risks of stroke/transient ischaemic attack (TIA), venous thromboembolism (VTE) and cardiovascular (CV) hospitalisation.

Study Design: This study was a nationwide retrospective cohort study using linked administrative hospital data.

Methods: We analysed nationwide linked hospital data of patients (aged ≥ 18 years) hospitalised with NVAf between 1 July 2017 and 30 June 2022, and whose stroke prevention therapy was optimised during hospitalisation. The primary outcome was non-persistence with hospital-optimised stroke prevention therapy 12 months post-discharge. Secondary outcomes included stroke/TIA, VTE and CV hospitalisation. We used multivariable logistic regression and the Cox proportional hazards model.

Results: Among 22,993 patients (mean age 74.7 [± 11.5] years; 43.2% female), 12.6% (95% confidence interval [CI]: 12.2–13.1%) were non-persistent with optimised stroke prevention therapy within 12 months of hospital discharge using the 60 day permissible gap. Non-persistence was 25.3% with a 30-day gap and 8.9% with a 90-day gap in our sensitivity analyses. Dementia (adjusted odds ratio [aOR]: 1.60) and chronic kidney disease (aOR: 1.18) increased the odds of non-persistence, whereas older age (65–74 years: aOR: 0.88; ≥ 75 years: aOR: 0.90) and hyperlipidaemia (aOR: 0.89) were associated with lower non-persistence. Non-persistence was associated with higher risks of stroke/TIA (adjusted hazards ratio [aHR]: 1.36; 95%CI: 1.13–1.64), VTE (aHR: 1.47; 95%CI: 1.09–1.98), and CV hospitalisation (aHR: 1.23; 95%CI: 1.17–1.30).

Conclusion: Non-persistence with in-hospital-optimised stroke prevention therapy occurred in one in eight patients 12 months post-discharge, and this was associated with higher stroke and CV hospitalisation. Enhancing transition of care, post-discharge follow-up and ongoing monitoring, is essential to maintain benefits and reduce preventable stroke and CV hospitalisation.

1455. Efficacy and Safety of Rivaroxaban in Hemodialysis Patients with Symptomatic Peripheral Artery Disease

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Introduction: In patients with symptomatic peripheral artery disease (PAD), combining rivaroxaban 2.5 mg twice daily with aspirin reduces major adverse cardiovascular and limb events. However, hemodialysis patients were excluded from major trials. The clinical effects of rivaroxaban in this population remains uncertain.

Research Question or Hypothesis: To evaluate the effectiveness and safety of rivaroxaban-based therapy (RBT) compared with non-rivaroxaban-based therapy (NRBT) in symptomatic PAD patients receiving hemodialysis.

Study Design: A retrospective observational study conducted at a single tertiary medical center.

Methods: Patients aged ≥ 40 years receiving hemodialysis who underwent revascularization for PAD between 2020 and 2024 were included. Patients were classified into RBT (rivaroxaban alone or in combination with antiplatelet agents) and NRBT (aspirin and/or clopidogrel). The composite effectiveness outcome included myocardial infarction, ischemic stroke, cardiovascular death, revascularization, or major amputation. The safety outcome was any bleeding defined by TIMI criteria. Subgroup analysis compared rivaroxaban plus single antiplatelet therapy (SAPT) with SAPT alone. Outcomes were assessed using logistic regressions and Kaplan-Meier analysis.

Results: A total of 55 patients were included (RBT $n = 23$; NRBT $n = 32$). Baseline characteristics were comparable between the groups. The effectiveness outcome occurred in 45.8% of the RBT group and 34.4% of the NRBT group (adjusted OR: 1.29; 95% CI: 0.28–5.96). The primary safety outcome occurred in 13.0% vs 18.8%, respectively (adjusted OR 0.97, 95% CI 0.11–8.51). Kaplan-Meier analysis for subgroups showed similar effectiveness ($p = 0.68$) and safety ($p = 0.91$) between rivaroxaban plus SAPT and SAPT alone.

Conclusion: While RBT did not demonstrate superior effectiveness over NRBT, RBT did not significantly increase the risk of bleeding in hemodialysis patients. The safety profile suggests that rivaroxaban is a viable option for high-risk PAD patients on dialysis, though further large-scale validation is warranted.

1508. Association of Low Albumin With Bleeding Risk in Patients Receiving Apixaban or Rivaroxaban for Atrial Fibrillation

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Introduction: Apixaban and rivaroxaban are commonly used for atrial fibrillation/flutter (AF), with bleeding as the primary safety concern. Because both agents are highly protein bound,

low albumin may increase free drug concentrations and bleeding risk. Hypoalbuminemia is independently associated with increased thromboembolic risk, but clinical impact while on anticoagulants has not been well characterized.

Research Question or Hypothesis: Among adults receiving apixaban or rivaroxaban for AF, is lower albumin associated with greater bleeding risk?

Study Design: Retrospective cohort study using TriNetX, a global federated health research network of electronic health records across healthcare organizations.

Methods: Adults with AF receiving apixaban or rivaroxaban were included. Patients were excluded for liver fibrosis/cirrhosis, thrombocytopenia, pregnancy, or cancer. Patients were categorized by albumin level, < 3.7 g/dL or ≥ 3.7 g/dL. The primary outcome was major bleeding; secondary outcomes included bleeding location and thromboembolism, all assessed for 1-year and identified using previously validated ICD codes. Propensity score matching was performed including: age, sex, body mass index, chronic kidney disease, peptic ulcer disease, venous thromboembolism, bilirubin, alanine/aspartate aminotransferase, alkaline phosphatase, creatinine, and baseline use of non-steroidal anti-inflammatory drugs, proton pump inhibitors, and antiplatelets. Time-to-event analyses were conducted in matched cohorts using Kaplan-Meier and Cox proportional hazards models. Significance value was set at $p < 0.05$. Analyses were performed in TriNetX(3/20/2026).

Results: After propensity score matching, 538,057 patients were included in each group. In the lower versus higher albumin groups, mean (standard deviation (SD)) age was 73.7 (11.8) versus 73.6 (11.7) years and albumin was 3.2 (0.5) versus 3.9 (0.5) g/dL ($p < 0.001$). Lower albumin was associated with increased major bleeding risk (hazard ratio (HR) 1.282; 95% confidence interval (CI) 1.271–1.293) and thromboembolism (HR 1.168; 95% CI 1.159–1.177).

Conclusion: In adults with AF receiving apixaban or rivaroxaban, low albumin was associated with increased bleeding and thromboembolic risk. Albumin may be a clinically relevant marker for identifying patients who warrant closer monitoring.

1516. Medication Mismatch: Evaluating the Association Between Potentially Inappropriate Medications and GDMT Optimization in HFrEF

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Introduction: Patients with heart failure with reduced ejection fraction (HFrEF) often have complex medication regimens that include guideline-directed medical therapy (GDMT) and treatments for comorbid conditions. While polypharmacy has been associated with poorer GDMT implementation, mechanisms underlying this relationship remain unclear. Potentially inappropriate medications (PIMs) may contribute, but their independent impact on GDMT optimization is not defined.

Research Question or Hypothesis: We hypothesize that PIM exposure will be associated with lower GDMT intensity in ambulatory patients with HFrEF.

Study Design: Retrospective observational cohort study.

Methods: Adults with HFrEF with ≥ 1 outpatient cardiology, internal medicine, or family medicine encounter at an urban academic center (July 2023 - June 2024) were included. Ten PIMs were identified from the literature and clinical expertise, and adjudicated for appropriateness. The primary outcome was GDMT quality measured per the Modified Continuous 4-Pillar Score (mC4P), a continuous metric incorporating GDMT use and target dose. Multivariable linear regression evaluated associations between PIM exposure, medication burden, and mC4P, adjusting for clinically relevant covariates.

Results: Among 411 patients (mean age 61.4 ± 14.3 , 65.5% male), patients were prescribed 10.7 ± 4.8 medications, including 0.29 ± 0.60 PIMs, with approximately 25% receiving ≥ 1 PIM. Median final mC4P was 12.0 (IQR: 8.5–14.0). PIM exposure was not independently associated with mC4P (β 0.35, $p = 0.31$). Increasing age was associated with lower mC4P (β -0.07 per year, $p < 0.001$), while hypertension (β 1.99, $p < 0.001$) and greater healthcare engagement (encounters: β 0.12 per visit, $p = 0.028$) were associated with higher mC4P. Non-GDMT medication burden demonstrated a trend toward lower mC4P (β -0.09 , $p = 0.054$).

Conclusion: GDMT optimization in HFrEF appears more strongly driven by patient factors and healthcare engagement than by isolated PIM exposure, while overall medication complexity may represent a more relevant barrier to optimal therapy and target for deprescribing.

1549. Prevalence and Clinical Outcomes of off-Label Reduced-Dose Apixaban in Atrial Fibrillation: A Retrospective Cohort Study

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Introduction: Off-label reduced-dose apixaban is frequently prescribed for stroke prevention in non-valvular atrial fibrillation (NVAf) despite limited outcome data.

Research Question or Hypothesis: Among adults with NVAf, is off-label reduced-dose apixaban associated with

different effectiveness and safety outcomes than standard-dose apixaban?

Study Design: Retrospective cohort study.

Methods: Electronic medical records from a tertiary hospital were reviewed. Adults with NVAf who initiated apixaban between January 1, 2017, and August 31, 2024, were included. Follow-up was from the first apixaban prescription until the first outcome event or August 31, 2025. Off-label reduced dose was defined as apixaban 2.5 mg twice daily prescribed to patients meeting 0 or 1 dose-reduction criterion (age $\geq$ 80 years, weight $\leq$ 60 kg, or serum creatinine $\geq$ 133 μ mol/L). Patients receiving off-label reduced dosing were compared with those receiving standard-dose apixaban 5 mg twice daily. Multivariable Cox proportional hazards models evaluated stroke, systemic embolism, and major bleeding.

Results: Among 1276 patients, the median follow-up was 750 days (interquartile range, 660 days). Standard dosing was used in 751 patients (58.9%), off-label reduced dosing in 393 (30.8%), and appropriate reduced dosing in 132 (10.3%). Compared with the standard-dose group, off-label patients were older (74.7 vs 66.3 years) and had higher CHA₂DS₂-VA and HAS-BLED scores (all $p < 0.001$). Off-label reduced dosing was associated with higher major bleeding (14.2% vs 6.3%; adjusted HR 1.66, 95% CI 1.07–2.58; $p = 0.025$). No significant differences were observed for stroke (6.9% vs 3.5%; adjusted HR 1.66, 95% CI 0.94–2.92; $p = 0.079$) or systemic embolism (2.3% vs 1.3%; adjusted HR 1.19, 95% CI 0.46–3.08; $p = 0.722$).

Conclusion: Off-label reduced-dose apixaban is common in clinical practice and is associated with a higher risk of major bleeding compared with standard dosing, without significant differences in stroke or systemic embolism. These findings suggest that current label-based dose-reduction criteria may not fully capture the overall risk profile of high-risk patients and warrant further investigation.

1556. Pharmacist-Led Optimization of Guideline Directed Medical Therapy in Patients with Heart Failure with Reduced Ejection Fraction

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Introduction: Guideline-directed medical therapy (GDMT) reduces morbidity and mortality in patients with heart failure with reduced ejection fraction (HFrEF), yet real-world implementation remains suboptimal. Pharmacist-led GDMT titration clinics may improve timely medication initiation and up-titration. This study evaluated the effect of a pharmacist-led heart failure clinic on GDMT optimization.

Research Question or Hypothesis: Does enrollment in a pharmacist-led GDMT clinic improve GDMT uptake in patients with HFrEF?

Study Design: Single-center, retrospective cohort study.

Methods: Adult patients with HFrEF seen in the institutional pharmacist-led GDMT clinic were included. The primary endpoint was median change in modified Optimal Medical Therapy (mOMT) score from baseline to clinic discharge. The mOMT score quantifies use and dose optimization across the four

GDMT pillars and is categorized as suboptimal (0–4), acceptable (5–7), and optimal (8). Secondary endpoints included change in left ventricular ejection fraction (LVEF) and worsening heart failure, defined as a composite of heart failure-related hospitalization, sustained increase in loop diuretic dose, urgent outpatient encounters requiring intravenous diuretics, and cardiovascular mortality.

Results: Thirty-nine patients were included in the analysis. The median age was 62 years, 33% were female, 61% had New York Heart Association (NYHA) class II symptoms, and median baseline LVEF was 28%. Median mOMT improved from 6 (interquartile range [IQR] 3–7) at baseline to 7 (IQR 6–8) at clinic discharge ($p < 0.001$), with the proportion receiving optimal therapy increasing from 10% to 39%. Among 17 patients with follow-up echocardiography after clinic discharge, median LVEF improved from 28% to 43% ($p < 0.001$). Patients completed a median of 5 clinic visits over 8 weeks before discharge. No episodes of worsening heart failure or cardiovascular death occurred during clinic participation or within 30 days after discharge.

Conclusion: Enrollment in a pharmacist-led GDMT clinic significantly improved GDMT optimization and facilitated timely achievement of optimal therapy without worsening heart failure or cardiovascular mortality.

Clinical Administration

1472. Intravenous Smart Pump Setup in Intensive Care Units: Observed Practices Relative to Manufacturer Instructions for Use

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Introduction: Intravenous smart pumps (IVSPs) are widely used to deliver medications in acute care settings. The most common IVSPs use linear peristaltic pumping technology, which requires specific pump and fluid positioning to achieve accurate flow. Human factors research demonstrates that systems relying on precise manual setup and strict human compliance are inherently vulnerable to error. Other infusion pump technologies are available that are less dependent on external setup conditions, yet they remain less widely used. The extent to which recommended setup conditions are achieved in real-world clinical environments remains poorly characterized.

Research Question or Hypothesis: How frequently do IVSP setups in ICUs align with manufacturer IFU requirements?

Study Design: Multi-site, non-interventional observational study of IVSP setup during routine ICU care.

Methods: Structured bedside observations were conducted at three Level I trauma centers, each using a different IVSP. Adult ICU patients receiving ≥ 3 active intravenous infusions were eligible. Data were collected using a standardized electronic case report form capturing pump and bag setup along with variables

related to patient care complexity. Following data cleaning, analyses were performed using R.

Results: A total 806 infusions were observed using linear peristaltic pumps. The pumps for only 42 infusions (5.2%) were positioned within ± 2 inches of the phlebostatic axis and 84.5% of observed primary infusions did not meet manufacturer fluid head-height recommendations. Overall, 9 infusions (1.1%) met both pump height and fluid head-height criteria simultaneously. Observed setup patterns were similar across ICU types and facilities.

Conclusion: These findings highlight a key human factors challenge: although setup requirements for linear peristaltic pumps appear straightforward, alignment with IFU recommendations was rarely achieved in routine clinical care. Systems that rely on precise manual setup and strict human compliance are inherently vulnerable to error; therefore, infusion technologies that are less dependent on rigid positioning requirements may better support safe medication delivery in complex clinical environments.

1510. Evaluation of Adherence to Extended Infusion β -Lactam Antimicrobial Dosing Guidelines in Hospitalized Patients

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Introduction: Extended infusion dosing of time-dependent β -lactam antimicrobials is recommended to optimize pharmacokinetic and pharmacodynamic target attainment. Institutional guidelines have been developed to standardize extended infusion dosing for agents such as cefepime, meropenem, and piperacillin-tazobactam. Despite established guidance, real-world adherence to extended infusion dosing recommendations has not been systematically evaluated at Aurora BayCare Medical Center.

Research Question or Hypothesis: How frequently do providers at Aurora Baycare Medical Center deviate from the institutional guidelines for extended infusion dosing of cefepime, meropenem, and piperacillin/tazobactam?

Study Design: This retrospective quality improvement study utilized patient electronic health records to identify the frequency of prescribing deviations from the institutional guidelines.

Methods: Patients who received cefepime, meropenem, and/or piperacillin-tazobactam at Aurora BayCare Medical Center between October 1, 2025, and January 1, 2026, were included. Patients were identified using the electronic health record, and every fifth patient was randomly selected for inclusion. Data collected included antimicrobial agent, documented indication, infusion dosing and duration, loading dose administration, and renal function. Guideline adherence was defined as administration of the recommended dose and infusion duration for the documented indication, including completion of a 30-minute loading dose regardless of renal function. Data were analyzed descriptively.

Results: A total of 136 patients were included in the analysis (cefepime $n = 60$; meropenem $n = 11$; piperacillin/tazobactam $n = 65$). Of the included patients, 112 patients (82.4%) received appropriate loading and extended infusion doses adherent to the Aurora Baycare Medical Center guideline. Of the other 24 patients (17.6%), 16 received a loading dose with a non-recommended infusion dose, and 8 did not receive a loading dose but received extended infusion therapy.

Conclusion: Although the majority of the utilization of β -lactam antibiotics followed institutional guidelines, deviations from the guideline were still present. The findings of this study indicate a potential benefit in pharmacist-led educational initiatives, guideline clarification, and antimicrobial stewardship interventions aimed at improving adherence to institutional guidelines.

1521. Discovering Decision Drivers: Developing a Patient-Service-Specific Complexity Scoring Tool for Clinical Pharmacy Human Resource Allocation

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Introduction: Limited human resources for optimal patient care remains a challenge for healthcare-systems pharmacy leaders. Sharing deciding factors related to prioritizing patient-service areas may facilitate reliable and predictable delivery of clinical pharmacy care within and across hospitals.

Research Question or Hypothesis: Determine factors that pharmacy professionals consider when allocating human resources across patient care areas, to inform the development of a patient-service-specific clinical pharmacy intensity scoring tool.

Study Design: International, mixed-methods study utilizing an organization-level online survey and virtual focus groups.

Methods: The survey was distributed, via professional associations communication networks, to pharmacy departments throughout Canada and USA using purposive, population-based, multi-channel sampling. A key informant methodology was used to elicit coordinated institutional responses. Respondents were asked to select, rank, and compare pharmacy-specific decision-making factors adapted from general patient resource intensity weights (e.g., Comorbidity Level). Results were summarized descriptively. Respondents were invited to participate in a facilitated focus group, where asked to expand upon summarized responses elicited during the survey. Data were analyzed using an inductive thematic analysis approach. Results would inform a scoring tool.

Results: Complete survey responses were received from 39 hospitals/healthcare-systems (10 Canada; 29 USA). Three focus groups were conducted with 14 participants. Most sites responded that certain areas are prioritized for pharmacist coverage during staffing shortages; 28/39 sites prioritize for short-term (e.g., sick calls), and 22/39 for long-term (e.g., resignations). Prioritized areas included Critical Care (almost all), followed by Emergency (approximately half). Top reasons for prioritization were 'Patient Acuity', 'High-risk

Patient Population', 'Medication Complexity', and the 'Existence of Interdisciplinary Rounds'. Least-weighted considerations differed whether it was a short- or long-term vacancy; 'Dedicated Funding (from unit/service-line)' and 'Spatial Location' consistently ranked among the lowest.

Conclusion: Based on a majority of respondents consistently prioritizing certain patient care areas, and information gathered regarding the importance of multiple decision-making considerations, results were used by the research team develop a patient-service-

Community Pharmacy Practice

1490. Are Community Pharmacists Ready for Medical Cannabis? Evidence from the First National Survey in Türkiye After Regulatory Reform

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Introduction: Medical cannabis (MC) regulations are expanding globally, placing pharmacists at the center of dispensing and patient counseling. In July 2025, Türkiye introduced new legislation allowing MC to be dispensed through community pharmacies under physician prescription. However, community pharmacists' (CPs) preparedness to implement this policy remains unclear.

Research Question or Hypothesis: This study evaluated CPs' knowledge, regulatory awareness, attitudes, and preparedness regarding MC following recent regulatory changes in Türkiye.

Study Design: A national cross-sectional study.

Methods: A structured 54-item online survey was conducted between September and October 2025 among community pharmacists in Türkiye. The questionnaire assessed CPs' pharmacotherapeutic knowledge of MC, regulatory awareness, attitudes, self-confidence, and perceived barriers. Data were analyzed using IBM SPSS (Version 25.0). Non-parametric tests (Mann-Whitney U, Kruskal-Wallis) were applied, and associations were examined using chi-square and Spearman correlation analyses ($p < 0.05$).

Results: A total of 399 CPs participated, with 89.5% reporting no prior MC-related training. The most commonly identified FDA-approved indication was chemotherapy-induced nausea (45.4%). The most commonly recognized adverse effects of MC among pharmacists were memory impairment (66.9%) and tachycardia (66.7%). Awareness of drug-drug interactions was limited, with correct identification rates ranging from 30.1% (diphenhydramine) to 59.1% (alprazolam). Pharmacists who had received prior MC training demonstrated significantly higher knowledge, self-confidence, and regulatory awareness ($p < 0.05$).

Furthermore, 61.4% of pharmacists reported insufficient knowledge regarding patient access procedures, and only 12.3% felt confident answering legal questions. Lack of information was identified as the primary barrier to MC dispensing and patient counseling among pharmacists.

Conclusion: Despite recent regulatory changes enabling MC dispensing through community pharmacies in Türkiye, pharmacists demonstrate important knowledge gaps during early implementation. These gaps may compromise safe dispensing and effective patient counseling. Findings suggest that regulatory approval alone may not fully ensure effective integration into practice, underscoring the need for targeted training, clearer clinical guidance, and practice-oriented education.

Critical Care

1425. Safety of Common QT-Prolonging Medications in Patients with Bundle Branch Block: A Stratified Cohort Analysis of Arrhythmia Risk in Left Bundle Branch Block vs. Right Bundle Branch Block Phenotypes

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Introduction: Bundle branch block (BBB) affects 11%–17% of adults over 80 years. Conventional QTc correction formulae systematically overestimate repolarization time in wide QRS complexes, rendering electrocardiographic monitoring unreliable and creating a clinical dilemma where symptom-management therapies are withheld based on inaccurate measurements. This study addresses whether arrhythmogenic risk differs by drug class and BBB phenotype.

Research Question or Hypothesis: Do distinct classes of QT-prolonging medications demonstrate differential arrhythmogenic risk in critically ill patients with left (LBBB) versus right (RBBB) BBB, and does this risk persist with QTc > 500 ms?

Study Design: Retrospective cohort study using the MIMIC-IV database (2008–2019).

Methods: Adult ICU admissions with BBB (ICD-10 codes I44.7, I45.0, I45.10) were stratified by drug exposure: (1) amiodarone, (2) high-risk anti-arrhythmics (sotalol, dofetilide, procainamide, ibutilide, quinidine, disopyramide), and (3) common non-cardiac QT-prolonging agents (haloperidol, ondansetron, quetiapine, methadone, levofloxacin, azithromycin). The primary outcome was composite ventricular arrhythmias (VT/VF) and/or cardiac arrest identified via ICD codes (PPV 82%). Multivariable logistic regression (*Python statsmodels*) adjusted for age, sex, mechanical ventilation, and heart failure history. Pre-specified subgroup analysis examined patients with Bazett's QTc > 500ms. Statistical significance was $p < 0.05$.

Results: Among 4,029 patients (LBBB $n = 3006$; RBBB $n = 1023$), common non-cardiac QT agents showed no association with arrhythmia in RBBB (aOR 0.72, 95% CI 0.41–1.25, $p = 0.24$) or LBBB (aOR 0.96, 95% CI 0.72–1.29, $p = 0.79$). High-risk anti-arrhythmics were strongly associated with the primary

outcome (aOR 7.06, 95% CI 3.71–13.44, $p < 0.01$), as was amiodarone (aOR 3.66, 95% CI 2.81–4.77, $p < 0.01$). In the high-risk subgroup with QTc > 500ms ($n = 1615$), common non-cardiac agents remained safe in both LBBB (aOR 0.89) and RBBB (aOR 0.81).

Conclusion: Common QT-prolonging agents (haloperidol, ondansetron) were not associated with increased arrhythmia risk in either BBB phenotype, even with QTc > 500ms, while high-risk anti-arrhythmics demonstrated markedly elevated risk. Withholding symptom-management therapies solely due to QT prolongation in BBB may be unwarranted. Medication safety alerts should incorporate drug class stratification.

1456. Evaluating the Association Between the Medication Regimen Complexity-ICU (MRC-ICU) Score and Pharmacist Interventions in Critically Ill Oncology Patients

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Introduction: Critically ill oncology patients often have cancer- and treatment-related complications that require complex medication regimens distinct from those of other critically ill patients. The Medication Regimen Complexity-ICU (MRC-ICU) score quantifies pharmacotherapy complexity and correlates with pharmacist workload, but its validity in oncology populations has not been evaluated

Research Question or Hypothesis: Is there an association between MRC-ICU score and interventions of pharmacists managing critically ill oncology patients?

Study Design: A retrospective observational study conducted at a comprehensive cancer center in Jordan.

Methods: Adult oncology patients admitted to the intensive care unit for ≥ 24 h between December 2023 and December 2024 were included. The 39-item MRC-ICU score was calculated based on medications prescribed within the first 24 h of ICU admission. Pharmacist interventions for each admission were obtained from the electronic pharmacist interventions system. The association between the 24-h MRC-ICU score and number of pharmacist interventions was assessed using Spearman's correlation. A regression model was used to estimate the relative change in pharmacist interventions with each 1-point increase in MRC-ICU score.

Results: A total of 1125 ICU admissions with 6745 pharmacist interventions were analyzed. Patient median age was 59 years and 56% were males. Median ICU length of stay was 2 days (IQR 1–3). Median MRC-ICU score at 24 h was 9 (IQR 5–13), and median number of pharmacist interventions per admission was 2 (IQR 0–6). The most frequent interventions were drug therapy recommendations (21.2%). The MRC-ICU score correlated with the number of interventions (Spearman's $\rho = 0.367$; $p < 0.001$). Each 1-point increase in MRC-ICU score was associated with a 7.5% increase in pharmacist interventions.

Conclusion: The MRC-ICU score was significantly associated with pharmacist interventions in adult oncology patients, supporting its use for quantifying medication regimen complexity

and prioritizing pharmacist involvement in oncology critical care.

1532. Fixed Versus Weight-Based Dosing of Prothrombin Complex Concentrate for Factor Xa Inhibitor Reversal

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Introduction: Optimal dosing of four-factor prothrombin complex concentrate (4F-PCC) for factor Xa inhibitor reversal remains unclear. Both weight-based and fixed dosing strategies are utilized within our health system.

Research Question or Hypothesis: Does fixed-dose 4F-PCC provide similar efficacy and safety compared with weight-based dosing for factor Xa inhibitor reversal?

Study Design: Retrospective, observational cohort study of adults receiving 4F-PCC for apixaban or rivaroxaban-associated bleeding at an academic medical center and three affiliated community hospitals.

Methods: Weight-based doses were within 10% of 50 units/kg, while 2000-unit fixed doses ranged from 1600 to 2480 units due to vial size variability. Patients receiving 4F-PCC for other indications were excluded. The primary endpoint was hemostatic efficacy, a composite of clinical, laboratory, and imaging criteria. Secondary endpoints included thromboembolic events, in-hospital mortality, and time from order entry to administration. Subgroup analyses were performed based on intracranial hemorrhage (ICH) presence, factor Xa inhibitor, and anticoagulation indication.

Results: A total of 130 patients were included (80 weight-based, 50 fixed-dose). The median weight-based dose was 4256 units (3500–4580), or 49.4 units/kg (47–51), compared with fixed dosing of 2070 units (2000–2187), or 25 units/kg (23–30). Hemostatic efficacy occurred in 51.2% of the weight-based group vs. 64% of the fixed-dose group (OR 0.59, 95% CI 0.29–1.22; $p = 0.154$). In the ICH subgroup, hemostasis was achieved in 41% vs. 54.5% (OR 0.58, 95% CI 0.20–1.66; $p = 0.309$). Results were consistent across subgroups, although numerically higher hemostasis rates were seen with fixed doses. Thromboembolic events within 30 days occurred in 13.4% vs. 7.3% (OR 1.96, 95% CI 0.50–7.75; $p = 0.529$). In-hospital mortality was similar. Time to order administration was 48 vs. 41.5 min ($p = 0.073$).

Conclusion: Hemostatic efficacy did not differ significantly between 50 units/kg and fixed 2000-unit 4F-PCC dosing for factor Xa inhibitor reversal. Safety outcomes were similar. Fixed-dose 4F-PCC may represent a reasonable and practical strategy.

Drug Information

1433. Evaluation of Finerenone in Patients with Chronic Kidney Disease and Type 2 Diabetes

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Introduction: Finerenone is a selective, non-steroidal mineralocorticoid receptor antagonist (MRA). Unlike steroidal MRAs (e.g., spironolactone), it offers balanced heart-kidney distribution and lower hyperkalemia risk. It inhibits MR overactivation to suppress inflammation and fibrosis, preventing progressive organ damage. Trials confirm finerenone reduces eGFR decline, end-stage kidney disease, and cardiovascular events in patients with type 2 diabetes and chronic kidney disease.

Research Question or Hypothesis: Can finerenone effectively reduce the urinary albumin-to-creatinine ratio (UACR) in patients with T2D and CKD?

Study Design: A retrospective electronic medical record analysis of the use of finerenone in a regional hospital outpatient clinic from 2025/06 to 2025/10.

Methods: This retrospective analysis reviewed electronic medical records from a regional hospital (June–October 2025). Included outpatients received finerenone for ≥ 3 months and were on stable, optimized ACEI/ARB therapy for ≥ 4 weeks prior to initiation. Descriptive statistics were used to compare baseline UACR with 3-month follow-up values.

Results: Twelve patients were included (75% male; mean age 60 years). Baseline UACR ranged from 94 to 10,312 mg/g. All participants received concomitant SGLT2 inhibitors. Dosing included 10 mg QD ($n = 10$) or QOD ($n = 2$). After three months, eight patients (67%) showed a reduction in UACR, with a mean decrease of approximately 37% (range -2.6% to -72%). The remaining four patients, UACR increased approximately 45% (range 9.3% to 90.1%). Several clinical factors may have contributed to the heterogeneity in response, including paradoxical eGFR elevation ($n = 2$), sub-therapeutic dosing ($n = 1$), or severe baseline proteinuria ($n = 1$). No patients required dose reduction or discontinuation due to hyperkalemia.

Conclusion: In this retrospective analysis of 12 outpatients with CKD and T2D receiving optimized ACEI/ARB therapy, the majority demonstrated a reduction in UACR after three months of finerenone treatment. Further validation in larger, adequately powered trials is required to evaluate the clinical efficacy and safety of this regimen.

1444. Comparison of the Cockcroft–Gault Creatinine Clearance and BSA-Adjusted CKD-EPI eGFR for Carboplatin Dosing in Adults with Cancer

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Introduction: Recent guidelines recommend using body surface area-adjusted estimated glomerular filtration rate using the CKD-EPI equation (BSA-adjusted CKD-EPI eGFR) for

medication dosing instead of estimated creatinine clearance from the Cockcroft–Gault equation (eCrCl_{CG}). Although Cockcroft–Gault has limitations, including variability across populations and development using non-standardized creatinine assays, it remains widely used due to its simplicity. Carboplatin dosing is determined using the Calvert formula, which incorporate renal function estimate; therefore differences between equations may influence dosing.

Research Question or Hypothesis: What's the impact of using Cockcroft–Gault versus BSA-adjusted CKD-EPI eGFR on carboplatin dosing calculated using the Calvert formula?

Study Design: Single-center retrospective cohort study.

Methods: Over the study period (Jan 2025–July 2025), adults (≥ 18 years) receiving carboplatin were identified from the institutional billing system. Only the first treatment cycle was included. Renal function was estimated using eCrCl_{CG} and BSA-adjusted CKD-EPI eGFR, and carboplatin doses were recalculated using the Calvert formula. Differences were expressed as percentages, with $\leq 10\%$ considered acceptable. Multivariate analysis evaluated factors including (age, weight, srCr, BMI) associated with dosing differences.

Results: Among 366 patients, median age was 58 years (IQR 47–65), and 271 (74%) were female. Median eCrCl_{CG} was 82 mL/min (IQR 68–97) versus 91 mL/min (IQR 80–103) using BSA-adjusted CKD-EPI eGFR. Differences $> 10\%$ in renal estimates occurred in 179 patients (49%). Carboplatin dosing differences $> 10\%$ were observed in 142 patients (39%), including 20 patients (14%) whose renal function estimates differed by $\leq 10\%$. eCrCl_{CG}-based doses were higher in only 2 patients (1.5%). Older age, and male gender was associated with higher odds of dose difference ($p < 0.001$).

Conclusion: Use of BSA-adjusted CKD-EPI eGFR instead of eCrCl_{CG} resulted in clinically meaningful carboplatin dosing differences in significant proportion of patients. These findings suggest that the choice of renal function equation may significantly influence carboplatin dosing and warrants further evaluation in clinical practice.

Education/Training

1436. A Custom GPT Tool for Simulated Patient Counseling Practice in a Pharmacy Skills Course

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Introduction: Pharmacy students learn medication counseling through classroom instruction or role-play, but opportunities for realistic patient practice may be limited by time and faculty availability. Large language models (LLMs) can simulate patient interactions, allowing learners to practice medication counseling with feedback.

Research Question or Hypothesis: Practice with LLM-simulated patients will improve pharmacy students' confidence in medication counseling and support preparation for a counseling objective structured clinical examination (OSCE).

Study Design: This study used a single-group pre-post mixed-methods design to evaluate impact of a custom GPT model (OpenAI) on pharmacy students' confidence, perceptions, and

performance related to hospital discharge medication counseling. The study was conducted among second-year Doctor of Pharmacy students enrolled in a required skills course at the University of the Pacific School of Pharmacy.

Methods: Students completed a baseline survey, followed by self-directed practice with the custom GPT via voice/text while the model simulated patient responses and generated feedback aligned with the course OSCE rubric. At semester end, students completed a second survey after the OSCE. The primary outcome was change in counseling confidence from pre- to post-intervention. Secondary outcomes included perceived helpfulness and OSCE performance. Paired *t*-tests assessed changes in confidence and comfort using LLMs, while nonparametric tests explored associations between GPT usage and OSCE performance. Qualitative responses were analyzed using thematic analysis. Statistical significance was defined as $p < 0.05$. Quantitative analyses were conducted using Microsoft Excel.

Results: Fifty-one students were included in the analysis. Mean counseling confidence increased from 3.22 ± 0.73 to 4.35 ± 0.65 ($p < 0.001$). Comfort using LLMs also increased (3.84 ± 0.86 vs 4.41 ± 0.67 , $p < 0.001$). Among GPT users ($n = 40$), mean helpfulness was 4.0/5 and satisfaction was 4.05/5. Mean OSCE score was 98.6%, with no association between GPT use and OSCE score ($p = 0.81$).

Conclusion: Interaction with custom GPT significantly improved pharmacy students' counseling confidence and was perceived as a helpful method for OSCE preparation.

1467. Evaluation of Item Difficulty and Discrimination Across Multiple Pharmacy Course Examinations

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Introduction: Item analysis is widely used in pharmacy education to evaluate assessment quality, yet interpretation of item statistics is often inconsistent. Metrics such as item difficulty (Diff *p*), discrimination index (DI), and point-biserial correlation (RPBI) are influenced by exam context and score distributions, which may lead to misclassification of items or faculty performance. Evaluating these measures across multiple exams may clarify interpretation and inform assessment improvement strategies.

Research Question or Hypothesis: To characterize patterns in item difficulty and discrimination across multiple pharmacy course examinations and determine whether variation is primarily attributable to item-level, exam-level, or faculty-level factors.

Study Design: Retrospective descriptive and comparative analysis of examination items from two semesters of a required Pharm.D. course.

Methods: All multiple-choice items from five exams in Fall 2024 and five exams in Spring 2025 were analyzed ($n = 596$). Item Diff(*p*), DI, and RPBI were calculated for each item. Items were flagged for review using conventional thresholds (Diff $p < 0.70$; DI or RPBI < 0.15). Differences across exams and faculty groups were evaluated using one-way ANOVA with Tukey

post-hoc testing. Variance decomposition estimated the proportion of variation attributable to item- versus faculty-level factors.

Results: Mean Diff(*p*) was 0.84 ± 0.15 (range 0.14–1.00); 46 items (7.7%) had perfect scores. Sixteen percent of items had Diff(*p*) < 0.70 , 45.5% had DI < 0.15 , and 26.3% had RPBI < 0.15 . Significant differences in difficulty were observed across exams ($F[9,586] = 5.69$, $p < 0.001$), largely driven by a small number of outlier exams. Faculty comparisons showed statistically significant but small effect sizes ($\eta^2 \approx 0.08$ –0.10). Approximately 90% of variation in discrimination occurred at the item level and ~10% between instructors. Item difficulty values were clustered toward easier ranges.

Conclusion: Variation in discrimination statistics was largely explained by item-level variation and difficulty distribution rather than faculty-specific effects. Interpretation of item analysis metrics should consider exam context and difficulty distributions to avoid misclassification of functioning items or faculty performance.

1500. Student Pharmacists' Views toward Access Considerations for Gender Affirming Care

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Introduction: The World Professional Association for Transgender Health (WPATH) established standards of care for Gender Reassignment Surgeries (GRS) and hormonal drug therapies. Pharmacists manage medications that affirm gender identities and insurance coverage for GRS. Although student pharmacists learned about payment structures from a healthcare delivery course during the first professional year, they have limited knowledge and exposure to clinical decision making and coverage of GRS. This project assessed student pharmacists' qualitative responses to predetermined GRS scenarios in a women's health elective.

Research Question or Hypothesis: We hypothesized that student pharmacists who completed structured GRS education within a women's health elective will agree to cover GRS and support predetermined funding decisions.

Study Design: This qualitative data analysis reported themes from student pharmacists' decision-making rationales to funding decisions regarding GRS through a written survey.

Methods: Second- and third-year student pharmacists enrolled in Mercer University's Women's Health elective attended two 90-minute sessions focused on terminology, medication management, and pharmacists' roles in transgender care. Then, they wrote individual open-ended responses to three GRS-related scenarios and government funding: facial feminization surgery (FFS), vaginoplasty, and phalloplasty. These prompts required participants to defend funding decisions. We categorized and analyzed the responses using Qualitative Data Analysis (QDAcity) software.

Results: Over two elective cohorts, 36 student pharmacists' provided responses to three scenarios. In scenario one, 75% supported Medicaid's decision to cover FFS, 16.7% disagreed with Medicaid's decision, and 8.3% were undecided. In scenario two, 72.2% supported Medicaid's decision to cover the vaginoplasty, 22.2% disagreed with Medicaid's decision, and 5.6% were undecided. In scenario three, 80.5% supported Medicaid's decision

not to cover the phalloplasty, 13.9% disagreed with the decision, and 5.6% were undecided.

Conclusion: This study analyzed participants' decision-making rationales regarding GRS. Participant responses varied within and across cohorts. These variations reflect how personal beliefs can affect clinical decision making.

1503. Student and Presenter Perspectives on a Novel Pharmaceutical Industry Elective in a Pharm.D. Curriculum

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Introduction: While the pharmaceutical industry represents an expanding career pathway for pharmacists, standard Pharm.D. curricula provides students with limited exposure. The University of Connecticut School of Pharmacy and Pharmaceutical Sciences introduced a new elective course titled Pharmaceutical Industry Fundamentals for Pharmacists. The course had a series of facilitated panel discussions for each functional area and a live event with small group interaction with industry professionals.

Research Question or Hypothesis: The purpose of this study was to assess student and industry professional perspectives on course structure and impact.

Study Design: Survey of enrolled students and another for industry professionals.

Methods: The two surveys each included 18 questions including Likert-scale, multiple-choice, and open-ended items and were distributed electronically at the conclusion of the course. Survey responses were collected in Microsoft OneDrive and analyzed in Microsoft Excel. Descriptive statistics were used to summarize quantitative responses, while qualitative responses were reviewed to identify common themes.

Results: All 27 enrolled Pharm.D. students completed the survey. Most respondents reported that the course met or exceeded expectations (96%) and improved their understanding of pharmaceutical industry topics. Many students (85%) reported increased preparedness for industry internships or fellowships. Student engagement with presenters was high, with most respondents (67%) reporting outreach to at least one presenter following the sessions. The panel discussion format and live networking event were widely viewed as effective learning experiences. Eleven presenters completed the survey (32%), and all preferred the panel discussion format over giving a traditional lecture. Most presenters (82%) reported that the course provided meaningful exposure to pharmaceutical industry careers for pharmacy students.

Conclusion: The inaugural offering of Pharmaceutical Industry Fundamentals for Pharmacists was well received by both students and presenters, demonstrated value in increasing student exposure to pharmaceutical industry career pathways, and gave students networking contacts in the pharmaceutical industry.

1531. Interprofessional Education for Tobacco Cessation: Evaluating the Impact on Student Perceived Confidence and Collaboration

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Introduction: Interprofessional education (IPE) is essential for preparing healthcare professionals for collaborative, team-based care. However, traditional IPE activities can be resource intensive. In the context of public health challenges such as tobacco use, interprofessional education offers unique opportunities to develop strategies that leverage the expertise of diverse healthcare providers. Creating an asynchronous tobacco cessation IPE experience offers an opportunity to enhance the skills of future clinicians with potentially less resources.

Research Question or Hypothesis: To evaluate the impact of an asynchronous tobacco cessation IPE module on health professional students' self-perceived knowledge, confidence, and attitudes toward interprofessional collaboration.

Study Design: A retrospective pre-post survey design was used.

Methods: Students from the colleges of pharmacy, nursing and medicine participated in an asynchronous IPE module on tobacco cessation. A post-event survey asked students to retrospectively rate their knowledge, confidence, and attitudes "before" and "after" the experience using 5-point Likert scales. As difference scores were non-normally distributed, data were analyzed using the Wilcoxon signed-rank test, with $\alpha = 0.05$. Medians and interquartile ranges (IQR) were used for descriptive statistics.

Results: A total of 217 participants completed the survey. Statistically significant improvements were observed in 9 of 10 survey items assessing self-perceived knowledge, confidence, and collaborative attitudes ($p < 0.001$). For these items, median scores increased from 3 to 4 (before) to 4 to 5 (after). The single item that showed no significant change ($p = 0.32$) assessed the perceived need for interprofessional learning, for which students already reported high agreement pre-module.

Conclusion: Participation in an asynchronous IPE tobacco cessation module significantly improved students' self-reported knowledge, confidence, and attitudes toward interprofessional collaboration. These findings suggest that integrating asynchronous IPE modules into health-professional curricula may be an effective strategy to enhance student readiness for team-based patient care in critical public health areas like tobacco cessation.

1536. Comparison of Leadership Strengths Among Pharmacy Students Pre- and Post-Accreditation

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Introduction: Marshall B. Ketchum University College of Pharmacy (MBKU-CoP) began teaching classes in 2016 and achieved full accreditation in 2021. Anecdotally, faculty have noticed that students with different strengths chose to matriculate before and after accreditation.

Research Question or Hypothesis: Do students with different leadership strengths matriculate in a new pharmacy school after it achieves full accreditation?

Study Design: Retrospective cohort study

Methods: MBKU-CoP students took the CliftonStrengths assessment, a widely-utilized survey of leadership strengths, as part of first-year coursework. The assessment produced a list of top five Strengths out of 34 possibilities, which can furthermore be categorized into four distinct leadership Domains: Executing, Influencing, Relationship Building, and Strategic Thinking. Each of these four Domains was separately analyzed in a 2×2 chi-square analysis, which compared whether that student was in that Domain (yes/no), and when that student matriculated (before/after MBKU-CoP received full accreditation).

Results: Students in the Executing Domain increased from 27.12% pre-accreditation to 45.83% after accreditation, $p = 0.22$. Before accreditation, 8.47% of students were in the Influencing Domain, which decreased to 0.00% after accreditation, $p = 0.13$. Small changes occurred in the Relationship Building (49.15% and 41.67%, $p = 0.42$) and Strategic Thinking (15.25% and 12.50%, $p = 0.65$) Domains before and after accreditation.

Conclusion: Although none of the results achieved statistical significance, notable differences in the Executing and Influencing Domains suggest that different types of students are attracted to a new pharmacy school before and after it achieves full accreditation.

1537. Description of Workload Related Residency Components Amongst California Postgraduate Year One and Two Pharmacy Residency Programs

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Introduction: Amongst American Society of Health-System Pharmacists (ASHP) accredited residency programs, program components such as workload are not standardized and may be contributors to burnout. Prior literature has demonstrated that burnout can impact patient care quality, career sustainability, well-being, and professional development. Information surrounding workload, such as staffing requirements or wellness programs, is important for applicants to have available. However, variation amongst programs in implementation of these components is not available within the ASHP Residency Directory.

Research Question or Hypothesis: What are current trends in staffing requirements, wellness programs, on call requirements, and moonlighting specifications amongst ASHP-accredited California pharmacy residency programs?

Study Design: This was a cross-sectional descriptive analysis of all ASHP accredited California pharmacy residency programs listed in the ASHP Residency Directory.

Methods: Data was collected from March 19, 2026 to March 22, 2026 through the Residency Directory and supplemented by manual searches on each residency program's website. Staffing requirements, presence of a wellness program, presence of on call requirements, and moonlighting permissions were collected and summarized using descriptive statistics.

Results: Out of $N = 209$ accredited programs, 58 (27.8%) had no staffing requirement listed, with three out of the 58 (5.2%) advertising a wellness program. Amongst the 151 programs (72.2%) with a staffing requirement, 48 (31.8%) did not specify what the requirements were, and 34 (22.5%) advertised a wellness program. Amongst programs with a staffing requirement, the most common way to specify baseline weekend staffing requirements was as "every 3 weeks" (14.8%). Five programs (2.4%) listed on call requirements. 158 programs (75.6%) did not advertise any specifications about moonlighting, whereas 12 (5.7%) programs did not allow moonlighting, whether internal or external.

Conclusion: ASHP accredited residency programs vary widely in staffing requirements and other components related to burnout. Applicants using the ASHP Residency Directory may benefit from these requirements being listed.

Emergency Medicine

1502. Alteplase vs Tenecteplase Utilization for Acute Ischemic Stroke

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Introduction: Early reperfusion therapy in acute ischemic stroke (AIS) is essential to restore cerebral blood flow and improve patient outcomes. While alteplase (tPA) has historically been the thrombolytic of choice, the 2026 American Heart Association/American Stroke Association guidelines endorse either tPA or tenecteplase (TNK). TNK offers practical advantages, including single-bolus administration and shorter preparation time. However, evidence remains conflicting regarding whether TNK reduces door-to-needle (DTN) time.

Research Question or Hypothesis: Does transitioning from tPA to TNK reduce DTN time for patients with AIS treated in the emergency department at MetroHealth Main Campus Medical Center?

Study Design: Single-center retrospective cohort study comparing DTN times between tPA and TNK.

Methods: Adult patients (≥ 18 years) receiving thrombolytic therapy for AIS between January 1, 2022 and July 1, 2025 were included. Patients treated with tPA (January 1, 2022–July 1, 2023) were compared with those treated with TNK (January 1, 2024–July 1, 2025). Patients were excluded for in-hospital stroke, stroke mimic, non-cerebral infarction, intra-arterial thrombolytics, treatment at an outside facility or mobile stroke unit, incomplete time data, or pregnancy. The primary outcome was mean DTN time. Secondary outcomes included intracranial hemorrhage within 36 h, angioedema within 24 h, 90-day mortality, hospital length of stay, and documented treatment delays.

Continuous variables were compared using Student's *t*-test and categorical variables using chi-square or Fisher's exact tests ($p < 0.05$).

Results: Among 116 patients included, 49 received tPA and 67 received TNK. Mean DTN time did not differ significantly between tPA and TNK (48.22 vs 48.12 min; $p = 0.9833$). No significant differences were observed in treatment delays or safety outcomes. Intracranial hemorrhage rates were similar between tPA and TNK (2.0% vs 4.5%; $p = 0.6369$), as were rates of angioedema (0% vs 1.55%; $p = 1.000$).

Conclusion: There were no statistically significant differences between tPA and TNK in DTN times, safety outcomes, or treatment delays.

1526. Guidelines vs Frontlines: Benzodiazepine Dosing in Seizure Management

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Introduction: Status epilepticus (SE) is a neurological emergency defined as a seizure lasting longer than 5 min or recurrent seizures without return to baseline. Current guidelines recommend benzodiazepines as first-line therapy. Despite these recommendations, inadequate or underdosing of benzodiazepines is frequently reported in the literature. The purpose of this study is to evaluate the dosing strategies of lorazepam and outcomes in patients experiencing seizures, specifically assessing compliance with established guideline recommendations.

Research Question or Hypothesis: Among adults presenting to the emergency department (ED) with seizure activity, is initial intravenous lorazepam dosing < 4 mg associated with increased need for repeat benzodiazepine dosing compared with guideline-recommended dosing.

Study Design: Multicenter retrospective observational cohort study.

Methods: Adult patients (≥ 18 years) receiving intravenous lorazepam in the ED for acute seizure between January 2021 and December 2025 were included. Patients were excluded for pregnancy, hypoglycemia, weight < 40 kg, alcohol withdrawal, or acute neurologic injury. Patients were stratified by initial lorazepam dose (< 4 mg vs 4 mg). The primary outcome was repeat benzodiazepine dosing. Secondary outcomes included additional anti-seizure medications used, requiring advanced respiratory support (mechanical ventilation), hospital length of stay (LOS), and ICU LOS.

Results: A total of 180 patients were included (< 4 mg $n = 108$; 4 mg $n = 72$). There was no significant difference in repeat benzodiazepine dosing between groups (median 1 vs 2 doses; $p = 0.294$). Patients receiving 4 mg had higher rates of mechanical ventilation (41.7% vs 14.8%, $p < 0.001$), ICU LOS (48.6% vs 25.9%, $p = 0.003$), and hospital LOS (88.9% vs 66.7%, $p = 0.001$). No differences were observed in hospital or ICU LOS.

Conclusion: Initial lorazepam dosing 4 mg was not associated with reduced need for repeat benzodiazepine dosing but was associated with higher rates of mechanical ventilation and hospital-level care. These findings highlight the complexity of benzodiazepine dosing in acute seizure management and underscore the need for further evaluation of patient-specific factors influencing outcomes.

1529. Comparing Outcomes Between Available Alcohol Withdrawal Treatment Regimens

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Introduction: There are multiple treatment strategies for severe alcohol withdrawal. Commonly used regimens include trigger-based benzodiazepine therapy through the Clinical Institute Withdrawal Assessment for Alcohol Revised scoring (CIWA), scheduled long-acting benzodiazepines in addition to CIWA (BZD), along with the addition of phenobarbital (PHB). There is no preferred method at the study center, but admitting patient characteristics may be useful in guiding therapy.

Research Question or Hypothesis: Are there differences in treatment outcomes between the commonly used regimens for acute alcohol withdrawal?

Study Design: Retrospective chart review

Methods: Discharge diagnoses for alcohol withdrawal were screened for significant cases (defined as CIWA > 9) for inclusion. Patients admitted to the mental health ward or facility transfers were excluded. A convenience sample of 100 patients was evaluated: CIWA $n = 55$, BZD $n = 37$, PHB $n = 8$. Baseline characteristics were collected. The primary outcome was total benzodiazepine requirements throughout admission. Secondary outcomes included duration of benzodiazepine treatment, ICU admission, mean CIWA scores, length of stay (LOS), and proportion of severe withdrawal defined as CIWA > 20 . Nominal outcomes were compared using Chi Square or Fisher's Exact with Bonferroni correction. Continuous outcomes were compared with a one-way ANOVA or Kruskal-Wallis test as appropriate in Rstudio.

Results: The PHB group required the most benzodiazepine equivalents (26mg) compared to scheduled BZD (14mg) and CIWA (4mg; $p < 0.001$). However this was coupled with a higher proportion of severe withdrawal (88%, 32%, 18%) as well as higher mean CIWA scores (10.5, 7.5, 6.3) respectively ($p < 0.001$). The PHB group had more ICU admissions and longer treatment durations that corresponded with a longer LOS.

Conclusion: A multi-faceted withdrawal regiment required more total BZD for longer durations. However this likely reflects the severity of withdrawal symptoms and a prospective approach would better define the best regimen. Moving forward, the study center will work to correlate baseline characteristics upon admission to help identify which patients should be prioritized for multi-faceted treatment.

Endocrinology

1412. Trends in Weight-Loss Attempts, Strategies, and Clinically Meaningful Weight Loss Among US Adults With Hypertension and Overweight or Obesity, NHANES 1999–2023

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Introduction: Weight loss is a core recommendation for adults with hypertension and excess weight, but it is unclear whether more patients are attempting weight loss, which strategies they are using, and whether those attempts lead to clinically meaningful weight loss.

Research Question or Hypothesis: Among US adults with hypertension and overweight or obesity, how have weight-loss attempts, strategies, and achievement of clinically meaningful weight loss changed from 1999 to 2023?

Study Design: Repeated cross-sectional study

Methods: Adults aged 20 years or older with hypertension and body mass index of 25 kg/m² or greater were included. Weight-loss attempt was defined as self-reported trying to lose weight during the prior 12 months. Among those attempting, clinically meaningful success was defined as loss of at least 5% or at least 10% of body weight over the prior year. Weight-loss strategies were self-reported. Survey-weighted logistic regression evaluated temporal trends and associations between strategies and successful weight loss.

Results: A total of 17,383 adults were included. Overall, 57.6% reported attempting weight loss. This increased from 55.9% in 1999–2000 to 60.4% in 2021–2023, *P* for trend = 0.002. Among those attempting weight loss, 33.4% achieved at least 5% loss and 14.7% achieved at least 10% loss. Neither improved over time, *p* for trend = 0.976 and 0.174, respectively. The most commonly reported strategies were eating less food (65.3%), exercising (52.4%), drinking large volumes of water (38.3%), eating less fat (36.8%), and choosing low-calorie foods (36.4%). Reduced fat intake and changing eating habits were associated with higher odds of success, whereas use of diet foods or products was associated with lower odds of at least 10% loss. Weight-loss surgery was strongly associated with success but was rarely reported (0.4%).

Conclusion: Weight-loss attempts increased among US adults with hypertension and excess weight, but clinically meaningful weight-loss success did not improve. More accessible, structured, and evidence-based weight-management pathways are needed in hypertension care.

Health Services Research

1379. Social Drivers of Health and Medication Adherence: Informing a Pharmacist-Led Predictive Model

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Introduction: Medication adherence is significantly influenced by social drivers of health (SDOH) with 80% of health outcomes shaped by non-medical factors such as food insecurity, low health literacy, and unstable living conditions. Current studies offer limited evidence on pharmacy-specific interventions, and there is a need to identify actionable SDOH domains where pharmacists can intervene directly. This study evaluated health literacy, depression, transportation access, and financial strain, and their association with adherence to antihypertensive and antidiabetic medications, measured by proportion of days covered (PDC), to inform the development of a pharmacist-led predictive model for nonadherence.

Research Question or Hypothesis: Patients with SDOH risk factors will be less likely to achieve PDC ≥ 80%.

Study Design: Retrospective, observational study

Methods: Baseline demographics were analyzed descriptively through frequencies, means, and percentages. Logistic regression analyses were used to assess associations between SDOH variables to quantitative dependent (PDC) variables. Odds Ratios, Confidence Intervals, and *p* values were generated to determine the magnitude of effect.

Results: Between September 1, 2019, and September 1, 2024, 11,929 patients met inclusion criteria. Most were female (53%), aged 18–64 years (72%), White (53%), not of Hispanic/Latino origin (89%), with commercial insurance (40%). The mean social vulnerability index was moderately high (0.62 ± 0.26). Patients with government insurance or with medium-risk health literacy demonstrated increased odds of nonadherence compared with patients with commercial insurance and those with low-risk health literacy (OR 1.406; 95% CI 1.196–1.654, OR 1.25; 95% CI 1.066–1.467, respectively). Patients who identified as female or who had met transportation needs had lower odds of nonadherence compared to male patients or those with unmet transportation needs (OR 0.918; 95% 0.861–0.979 and OR 0.813; 95% 0.701–0.944, respectively).

Conclusion: These risk factors provide a foundation for developing a pharmacist-led predictive model to identify high-risk patients and guide targeted interventions to optimize chronic disease management.

1392. Evaluating Ambient AI Listening Tools in Medication Therapy Management Practice

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Introduction: Clinical documentation in electronic health records (EHRs) represents a source of professional burnout associated with reduction in work effort and turnover across health-care professions. Ambient artificial intelligence (AI) uses generative AI to listen to clinical encounters and draft structured clinical notes. Ambient AI scribe platforms have demonstrated benefits in multiple physician studies including work satisfaction, enhanced documentation efficiency, and reductions in mental demand. To date, there is no published evidence of pharmacists' experience with ambient listening tools.

Research Question or Hypothesis: > 75% of Medication Therapy Management (MTM) pharmacists will report satisfaction with ambient listening visit documentation.

Study Design: Single-center survey of pharmacists with an MTM practice.

Methods: A survey consisting of 6 Likert-scale, 2 multiple-choice, and 5 open-ended questions was conducted between December 1 - 31, 2025. Survey invitations were sent via an institutional listserv to 121 MTM pharmacists who had access to the ambient listening tool. Participation was voluntary and assessed frequency of use, satisfaction, barriers, and improvement opportunities. Results were summarized using descriptive statistics.

Results: Of 41 active users, 29 responded, with 22 complete responses. Primary practice settings included specialty services (50%), primary care (46%), and inpatient/hospital (4%). All respondents agreed or strongly agreed the tool reduced documentation time (100%, 21/21); most reported that it integrated smoothly with pharmacist workflows (90%, 19/21) and was accurate (79% 15/19). Overall, 90% (19/21) of pharmacists were satisfied with the ambient listening tool. However, most disagreed it improved documentation of medication-specific details (22%, 4/18). Few used ambient listening for every visit (27%, 6/22); use for new patient consults was more common than returns. Themes related to barriers include being designed for physician/APP workflows and technology incompatibilities.

Conclusion: The majority of pharmacists were satisfied with an ambient listening documentation tool while pharmacists uniquely reported a need for improved specialty specific documentation.

Hematology/Anticoagulation

1378. Apixaban Lead-in versus Lead-in Omission in Hospitalized Adults with Acute Venous Thromboembolism: A Retrospective Safety Analysis

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Introduction: Apixaban for acute VTE is dosed with an intensified 7-day lead-in period to decrease recurrence. The optimal dosing for initiation in hospitalized patients remains unknown.

Research Question or Hypothesis: What is the safety and efficacy of apixaban initiation with maintenance versus lead-in dose for hospitalized patients with acute VTE?

Study Design: This is a retrospective, single-center study conducted at a quaternary referral, academic medical center.

Methods: Adult patients diagnosed with acute VTE during hospitalization who received ≥ 1 dose of apixaban were eligible for inclusion. Patients initiated on apixaban ≥ 7 days from VTE or anticoagulated within 3 months prior to admission were excluded. Patients were grouped into two cohorts: (1) maintenance dose (MD) – no apixaban 10 mg dose (2) lead-in dose (LD) – received ≥ 1 apixaban 10 mg dose. The primary outcome compared a composite endpoint of major and non-major clinically relevant bleeding (NMCRB) between groups. The secondary outcome compared a composite endpoint of recurrent VTE and all-cause mortality (VTE-M) between groups. Outcomes were assessed for 3 months following apixaban initiation. Data presented as n (%) or median (IQR).

Results: A total of 200 (28 MD, 172 LD) patients were included. Patients were 61 (48–72) years old and admitted 5 (2–12) days. Baseline characteristics were similar between groups. Parenteral anticoagulation was administered in 90% [25 (89%) MD, 156 (91%) LD] of patients prior to apixaban initiation. Time on therapeutic parenteral anticoagulation was longer in MD [61 (37–88) h] compared to LD [40 (18–65) h] patients [$p = 0.02$]. Composite major and NMCRB occurred in 6 (21.4%) MD and 21 (12.2%) LD patients [$p = 0.19$]. Composite VTE-M occurred in 2 (7.1%) MD and 16 (9.3%) LD patients [$p = 0.71$].

Conclusion: This study found no statistical difference in bleeding or VTE-M in hospitalized patients with acute VTE receiving apixaban LD versus MD. Higher powered studies are needed to further define optimal dosing strategies.

HIV/AIDS

1382. Identification of HIV Prevention Counseling Errors Following a Brief Stigma-Sensitive Intervention in Pharmacy Students

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Introduction: Accurate counseling on HIV prevention strategies, including pre-exposure prophylaxis (PrEP), post-exposure prophylaxis (PEP), and Undetectable = Untransmittable (U=U), is essential to effective patient care. As pharmacists assume expanding roles in HIV prevention services, stigma, discomfort, and fear of occupational exposure may disrupt applied clinical reasoning during patient counseling, even when foundational knowledge exists.

Research Question or Hypothesis: Does a brief stigma-sensitive intervention improve pharmacy students' preparedness for HIV prevention counseling while revealing critical counseling errors with implications for patient care?

Study Design: Paired pre/post study.

Methods: U.S. pharmacy students ($n = 40$) completed baseline measures assessing preparedness, confidence, professional worry related to occupational HIV exposure, comfort discussing HIV, and public health concern. A 10-item HIV knowledge assessment was administered at baseline only to evaluate applied clinical decision-making for PrEP candidacy, PEP initiation timing, and U=U interpretation. Multi-select items were scored using strict all-or-nothing criteria to reflect real-world counseling accuracy. Following an 8–10 minute stigma-sensitive intervention addressing HIV prevention and nonjudgmental communication, affective measures were repeated. Paired *t*-tests and Cohen's *d* were used for analysis.

Results: Forty students completed the assessment; most had not yet completed infectious diseases coursework. Preparedness ($\Delta = 0.400$, $p = 0.002$, $d = 0.514$) and confidence ($\Delta = 0.375$, $p = 0.017$, $d = 0.400$) increased, while professional worry decreased ($\Delta = -0.325$, $p = 0.014$, $d = -0.408$). No significant changes were observed in comfort discussing HIV or public health concern. Despite moderate baseline knowledge (mean 63.3%), clinically relevant applied reasoning errors were identified at baseline: 0% achieved full accuracy on PrEP candidacy, 52.5% correctly identified the 72-h PEP initiation window, and 37.5% correctly interpreted a U=U counseling statement.

Conclusion: A brief stigma-sensitive intervention improved perceived preparedness and reduced fear of occupational exposure; baseline-only knowledge assessment identified critical HIV prevention counseling errors, likely reflecting limited prior curricular exposure. These clinically significant gaps in PrEP, PEP, and U=U reasoning highlight the need for practice-based educational strategies to support accurate pharmacist counseling and reduce patient-care risk.

1413. Substance Use Patterns and Correlates of Polysubstance Use Among People Living With HIV in the National Survey on Drug Use and Health, 2021–2024

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Introduction: People living with HIV (PLWH) often experience co-occurring substance use, which may complicate antiretroviral adherence, and overall care. National estimates describing substance use patterns and correlates of polysubstance use in PLWH remain limited.

Research Question or Hypothesis: Among respondents with confirmed HIV, what are the prevalence and patterns of substance use and polysubstance use?

Study Design: Cross-sectional study

Methods: Respondents were classified as having confirmed HIV if they reported ever being told they had HIV/AIDS or had a valid age at first HIV/AIDS diagnosis. Past-year substance use variables included tobacco, alcohol, marijuana, psychotherapeutic misuse, nonmedical opioid use, and any illicit drug use. The primary outcome was polysubstance use, defined as past-year use of 2 or more of 5 substances. Baseline covariates included sex, age group, race/ethnicity, education, employment, insurance, poverty, self-rated health, county type, marital status, chronic disease burden, and past-year major depressive episode.

Analyses incorporated NSDUH complex survey weights. Descriptive statistics and survey-weighted chi-square tests were used. A complete-case survey-weighted multivariable logistic regression model estimated adjusted odds ratios (aORs) and 95% confidence intervals (CIs).

Results: A total of 468 respondents were included. Weighted prevalence of past-year substance use was 70.6% for alcohol, 59.0% for any illicit drug use, 46.1% for marijuana, 39.0% for tobacco, 16.9% for psychotherapeutic misuse, and 11.2% for non-medical opioid use. Weighted prevalence of polysubstance use was 61.9%. The most common weighted patterns were alcohol only (18.2%), alcohol plus marijuana (18.3%), and tobacco plus alcohol plus marijuana (17.3%). In adjusted analyses, male sex (aOR 4.58, 95% CI 1.70–12.32) and fair/poor self-rated health (aOR 3.22, 95% CI 1.33–7.78) were associated with higher odds of polysubstance use.

Conclusion: Substance use and polysubstance use were common among PLWH. Male sex and worse self-rated health were independently associated with polysubstance use. These findings support targeted screening and pharmacist-informed interventions to improve medication-related and HIV care outcomes in PLWH.

1476. Early Uptake and Acceptability of Vending Machine-Dispensed HIV Self-Testing Kits Among US Veterans

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Introduction: Stigma, confidentiality, and access barriers can limit HIV testing. HIV self-testing (HIVST) expands private, user-directed testing, but evidence on vending machine (VM)-based distribution in Veteran-serving settings remains limited.

Research Question or Hypothesis: To evaluate early uptake, acceptability, and user experiences of VM-dispensed HIVST kits among Veterans at Veteran-serving healthcare and housing sites.

Study Design: Mixed methods implementation evaluation using VM dispensing logs, anonymous user surveys, and semi-structured interviews.

Methods: Oral-fluid HIVST kits were stocked in 15 VMs at Veteran-serving healthcare and housing sites. We analyzed de-identified VM dispensing logs from 12/10/2025 to 2/28/26. Anonymous online surveys assessed demographics and user experience. Semi-structured interviews explored usability, privacy, motivations, and support needs using rapid thematic analysis. Study materials and implementation approaches were refined with input from Veterans living with HIV and the pharmacist-led study team.

Results: During the first 81 days, 89 HIVST kits were dispensed across 13/15 sites to 58 unique users (median 1 kit/user; range 1–8). Most users obtained one kit (65.5%), while 34.5% had repeat dispenses. Dispensing averaged 1.1 kits/day/VM and occurred across all days of the week, including weekends (19.1%); dispenses were most common in the afternoon (41.6%) and morning (29.2%). Fourteen surveys were completed

(median age 44 years, range 35-70; 92.3% identified as men and 7.7% as two-spirit/other). Most rated VM-dispensed HIVST as acceptable (85.7%) and convenient (85.7%) and agreed VM access improved ability to test (85.7%). Privacy perceptions were mixed. Interview participants ($n = 9$) described VM retrieval as simple and self-testing as easy to complete and interpret, with a preference for oral swab over blood-based testing. Motivations included reassurance, curiosity, and research participation. Participants perceived low stigma but noted privacy-sensitive placement may matter for some users.

Conclusion: Early uptake and high acceptability suggest VMs are a feasible, low-burden HIVST kit distribution strategy. Findings can inform pharmacist-supported HIV testing workflows in Veteran-serving settings.

1553. Medication Use Evaluation of Statin Prescribing in Patients with HIV Based on ASCVD Risk

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Introduction: Patients living with human immunodeficiency virus (PLWH) have an increased cardiovascular risk from HIV-associated chronic inflammation and immune activation, metabolic effects of antiretroviral therapy, and an overrepresentation of traditional cardiovascular risk factors. Compared to people without HIV, PLWH have approximately a two-fold higher risk of atherosclerotic cardiovascular disease (ASCVD) and develop disease about a decade earlier. Based on the REPRIEVE trial (July 2023), HIV Guidelines recommend moderate-intensity statin therapy for people aged 40–75 with a 10-year ASCVD risk of 5% to < 20%. For those with risk < 5%, guidelines favor statin therapy using HIV-related risk enhancers to guide decisions.

Research Question or Hypothesis: Does statin prescribing in PLWH at a single large Southern academic medical center align with updated guideline recommendations based on calculated ASCVD risk scores?

Study Design: Retrospective medication use evaluation (MUE) of adult HIV patients at the Medical University of South Carolina (MUSC) from October 2024 to October 2025.

Methods: PLWH with documented lipid panels and sufficient data for ASCVD risk score calculation were included. Data collected included demographics, height, weight, diabetes status, A1C, hypertension, smoking status, lipid values, calculated ASCVD risk score, and current statin therapy.

Results: Of 1202 patients included, 705 (58.6%) had a 10-year ASCVD risk score > 5%, meeting guideline-based indications for statin initiation. Among these high-risk patients, only 84 (11.9%) were receiving statin therapy at the time of assessment. Of statin users, 69 (82.1%) were aged 40–75 years. Overall, 7.0% (84/1202) of the cohort received statins despite over half qualifying.

Conclusion: Statin prescribing was suboptimal in PLWH with elevated ASCVD risk, with only 11.9% receiving guideline-recommended therapy despite 58.6% meeting indications. A prior MUSC MUE found 286 of 771 (37.1%) eligible patients received statins, highlighting a persistent quality gap and need for targeted interventions to improve cardiovascular risk reduction in this high-risk population.

Infectious Diseases

1407. Effectiveness of Oral Fosfomycin in the Treatment of Uncomplicated Urinary Tract Infections among Adult Cancer Patients in Outpatient Settings

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Introduction: Cancer patients are immunocompromised and more prone to infections, including urinary tract infections (UTIs). UTIs are common cause of sepsis with rising antibiotic resistance reducing treatment options. This study evaluates the effectiveness of oral Fosfomycin for managing uncomplicated UTIs in adult cancer patients treated in the outpatient settings.

Research Question or Hypothesis: Is oral Fosfomycin effective for the treatment of uncomplicated UTI in cancer patients?

Study Design: This is a retrospective study included adult patients who were prescribed oral Fosfomycin for uncomplicated urinary tract infections, either empirically or as targeted therapy, between January 1 and December 30, 2024, in the outpatient settings. Patients receiving Fosfomycin as suppressive therapy were excluded.

Methods: Electronic medical records were used to collect the following data: patient demographics, urine analysis and culture results, Fosfomycin regimen, recent procedural history, and treatment outcomes. Descriptive analysis was performed to report the results.

Results: During the study period, 300 patients were enrolled. Mean±SD age was 62±13 years and 58% were female. Most had solid tumors (92%), primarily breast (26%) and bladder (17%) cancers. Active chemotherapy was ongoing in 39% of patients. Cardiovascular (58%) and endocrine (48%) diseases were the most common comorbidities. Typical UTI symptoms were present in 60% of the patients. Among culture-positive cases, Extended-spectrum beta-lactamase-producing *Escherichia coli* (59%) was the most frequent pathogen, followed by *Enterococcus faecalis* (6%). Fosfomycin was prescribed as targeted treatment in 62% of the cases, achieving an 89% clinical cure rate. Recurrence of UTIs was reported in 45% within 90 days after receiving fosfomycin treatment.

Conclusion: Among a cohort of adult cancer patients treated for uncomplicated UTIs in outpatient settings, oral fosfomycin demonstrated high effectiveness. While almost half experienced recurrence within three months, the majority achieved initial clinical cure. Future studies should assess recurrence risk factors and assess long-term outcomes in this population.

1421. Association Between Linezolid and Rhabdomyolysis in Patients with Gram-Positive Infections

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Introduction: Linezolid is an oxazolidinone antibiotic used for resistant gram-positive infections, however its mechanism of inhibiting bacterial protein synthesis may impact human mitochondria, raising concerns about potential for myotoxicity and rhabdomyolysis. Evidence is scarce, consisting of few case reports and conflicting post-market analyses. This study evaluates the comparative risk of rhabdomyolysis in patients with gram-positive infections treated with linezolid versus vancomycin, the standard of care.

Research Question or Hypothesis: Is treatment of gram-positive infections with linezolid associated with a higher risk of creatine kinase (CK) elevations and rhabdomyolysis compared to vancomycin?

Study Design: We conducted a retrospective cohort study using de-identified patient data from the TriNetX research database.

Methods: We analyzed patients with gram-positive infections who received either linezolid or intravenous vancomycin up to February 4, 2026. Patients with prior rhabdomyolysis or risk factors for CK elevation (e.g., statin use, myopathy) were excluded. The index event was defined as initiation of vancomycin or linezolid within seven days before or after infection diagnosis. Cohorts were 1:1 propensity score matched (PSM) for age, diabetes mellitus, chronic kidney disease, and severe sepsis. The primary outcome was a composite of rhabdomyolysis diagnosis or CK ≥ 1000 U/L within 14 days of the index event. Measures of association such as odds ratios, risk ratios (RR), and hazard ratios were calculated.

Results: After PSM and excluding patients with prior outcome events, 170,332 patients were included, with 85,279 in the vancomycin cohort and 85,053 in the linezolid cohort. Baseline characteristics and relevant comorbidities were well-balanced. The primary endpoint of either rhabdomyolysis diagnosis or CK level of ≥ 1000 U/L was significantly higher in the vancomycin cohort compared to the linezolid cohort (0.60% vs. 0.36%; RR 1.65; 95% CI 1.43-1.90; $p < 0.001$).

Conclusion: This real-world data suggests that, while uncommon, linezolid is associated with a lower risk of rhabdomyolysis and CK elevations compared to vancomycin for treating gram-positive infections.

1469. Dalbavancin Versus Standard of Care for the Treatment of Osteomyelitis at a Large Rural Academic Health System

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Introduction: Dalbavancin interferes with cell wall synthesis by inhibiting peptidoglycan cross linking and provides at least 6 weeks of coverage after 2 doses. PICC line sparing effects, increased adherence, and accessibility, have made dalbavancin increasingly popular to treat osteomyelitis in rural populations.

However, there is little data to evaluate patient outcomes when used for this indication.

Research Question or Hypothesis: Does dalbavancin impact the rate of treatment failure versus standard of care for patients with osteomyelitis from gram positive organisms?

Study Design: Retrospective cohort study within a large, rural health system from January 1st, 2021, through April 30th, 2025.

Methods: Patients with osteomyelitis treated by the outpatient parenteral antimicrobial therapy service were obtained from the electronic medical record. Those with an infection from a gram-positive organism who received 2 dalbavancin doses, or 6 weeks of intravenous antibiotics were included. Pregnancy, curative amputation, suppressive therapy, gram-negative, anaerobic, fungal, or unidentified organisms were reasons for exclusion. For patients with multiple encounters meeting criteria, only the first during the study period was included. The primary objective was to evaluate the rate of treatment failure at 6 months. Secondary outcomes compared hospital length of stay and rate of patients discharging home. Statistical tests include Chi-Square for categorical outcomes and Mann-Whitney for continuous outcomes.

Results: Of 689 patients, 155 were included with majority being male (67%) with lower extremity infections (57%). Cefazolin was most frequently used for standard of care. There was no difference in treatment failure (38.6% vs 40.0%, $p = 0.856$) and significantly shorter length of stay (7.4 days vs 12.0 days, $p < 0.001$) in the dalbavancin group. The rate of discharging to home (98.6% vs 60.0%, $p < 0.001$) was significantly higher in the dalbavancin group.

Conclusion: Compared to standard of care, dalbavancin did not reduce treatment failure, but decreased length of stay and increased the rate of discharging home

1499. Identification of Risk Factors for Predicting Multidrug-Resistant Organism Infections Amongst Critically Ill Patients in the United Arab Emirates

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Introduction: Hospital-acquired infections caused by multi-drug-resistant organisms (MDRO) increase healthcare burden, patient morbidity, and mortality. Internationally available risk assessment tools for MDROs lack generalizability across populations. This study aimed to investigate risk factors for MDRO infection in the UAE population and assess the feasibility of developing a risk prediction tool.

Research Question or Hypothesis: What are the independent risk factors/predictors for developing a hospital-acquired infection by MDRO in ICU patients that are UAE population-specific?

Study Design: Multicenter retrospective case-control study

Methods: Patient data from the ICU were collected from three tertiary care hospitals in the Northern Emirates from January 2022 to December 2023. A total of 294 patients were enrolled in the study through random sampling, and those admitted to the ICU for more than 24 h for a hospital-acquired infection were included. Student's *t*-test was used for parametric variables, Mann-Whitney U test for nonparametric variables, and Chi-square test for nominal variables; odds ratios were calculated

using logistic regression analysis, all used wherever applicable at $\alpha=0.05$.

Results: Cases were divided into MDRO ($n = 148$), Non-MDRO ($n = 146$) groups. History of bacterial growth was identified to put 86% (95%CI 1.171-2.967) approximate risk of getting MDRO infection, which was earlier identified in the pilot study to put patients at 2.83 folds of risk of the risk (95%CI 1.489–5.39). Other potential risk factors identified were a history of tracheostomy with OR 1.796 (95%CI 1.089-2.962), and previous ICU admission with approximate odds of the risk 1.664 (95%CI 1.030-2.686).

Conclusion: History of bacterial growth, tracheostomy, and ICU hospitalization in the past 3 months are potential risk factors for developing MDRO infection in the UAE population. However, the latter two factors were rarely reported in the literature of other populations. Hence, the study result emphasizes the importance of population-specific risk factor identification to aid in the development of an accurate and individualized risk prediction tool.

1507. Evaluation of Firstline, A Mobile-Accessible Health Technology Platform, as an Antimicrobial Stewardship Tool

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Introduction: Firstline is a health technology platform that makes infectious disease clinical guidance readily accessible by compiling treatment guidelines into a streamlined, user-friendly platform. The platform is customizable for each health system, allowing access to institution specific clinical guidelines and content such as empiric and targeted treatments, oral stepdown therapy, dose adjustments and more. The accessibility and comprehensiveness of Firstline lends itself to being a useful tool in AMS. An NYC hospital recently piloted Firstline as a resource.

Research Question or Hypothesis: Firstline will serve as a resource for healthcare providers to make drug therapy recommendations that align with local hospital guideline recommendations and antibiogram data to assist with antibiotic prescribing.

Study Design: Retrospective study of antibiotic orders, quantitative research

Methods: De-identified orders for antibiotics on internal medicine units and the medical intensive care unit were generated from 2024 to 2025. All orders were evaluated for appropriateness by assessing compliance with our institution's specific guidelines posted in Firstline. In cases where the antibiotic order did not match Firstline, relevant clinical practice guidelines were used to assess appropriateness. Data collection assessed antibiotic prescribing practices and alignment with Firstline recommendations.

Results: 1233 antibiotic orders were evaluated. 89% ($n = 1103$) of the orders were for an indication included in Firstline. The remaining 11% ($n = 130$) of orders were related to conditions not currently included in Firstline. In cases where Firstline was used, treatment selection aligned with recommendations 81% ($n = 888$) of the time. The 19% ($n = 215$) of orders that did not align were assessed for appropriateness using resources such as

clinical practice guidelines. Of these, 84% ($n = 180$) were considered appropriate.

Conclusion: A high compliance rate to Firstline was observed. Of the orders that did not align with Firstline, most prescribing was appropriate based on other clinical resources. Firstline is a useful tool to assist with AMS and guide antibiotic selection.

Medication Safety

1391. Examining Pharmacy Staff Knowledge on Medication Reconciliation Process: Assessment of Baseline Knowledge and Implementation of Targeted Training Interventions

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Introduction: Most medication changes are intentional, however unintended changes occur frequently. At Veteran Health Indiana (VHI) pharmacists complete a medication reconciliation prior to a patient discharging. At VHI there is no standardized medication reconciliation training process or documents that outline the appropriate process.

Research Question or Hypothesis: The review, development, education, and training of pharmacy medication reconciliation process will increase pharmacy personnel knowledge and comfortability when completing medication reconciliations.

Study Design: A retrospective analysis of effectiveness of Lean Process Improvement Initiative evaluating medication reconciliation process education and training conducted by participating staff in the pharmacy department.

Methods: The primary outcome was the change in pharmacy personnel knowledge before and after implementation of education and trainings. Secondary outcomes included differences in baseline employee knowledge between different areas of the pharmacy department, differences in baseline employee knowledge between years of employment, identify which areas in the pharmacy department employees are the least knowledgeable regarding medication reconciliation process, number of JPSRs related to medication errors during medication reconciliation before and after education and training.

Results: 26 employees responded to the pre-VOC and 23 employees responded to the post-VOC. There was no statistically significant difference in the length of employment or role in the pharmacy service when comparing cohorts. The overall knowledge improvement was not statistically significant ($p = 0.07$). Statistically significant improvements were seen in pharmacy residents ($p = 0.002$) separately, however not statistically significant in outpatient clinical pharmacists ($p = 0.14$), inpatient clinical pharmacists ($p = 0.81$), or clinical pharmacy practitioners (0.54). There was no statistically significant difference between years of employment and medication reconciliation knowledge.

Conclusion: Accurate medication reconciliations are necessary to prevent medication related errors and ensure accuracy amongst transitions of care. Standard training materials should

be available to ensure consistency between services and as a reference. In the future, yearly updates should be completed related to the medication reconciliation process to ensure accuracy.

1445. Ability of Adults to Correctly Utilize Peptide Semaglutide GLP-1 Agonists Acquired Without a Prescription

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Introduction: A legal loophole allows consumers to purchase “peptide” semaglutide without a prescription, but the sites do not sell supplies or provide guidance on vial reconstitution or injection technique.

Research Question or Hypothesis: Primary: How well could adults identify the correct supplies, reconstitute a vial, and draw and administer a dose of semaglutide? Secondary: How confident were the adults before and after demonstrating the procedure?

Study Design: Prospective, single arm trial.

Methods: This descriptive study was IRB approved with verbal consent. Participants were adults without healthcare training or experience injecting medications. Participants had 45 min to use the internet and take notes. We then provided various semaglutide and diluent vials, needles, syringes, gloves, alcohol pads, sharps container, a model abdomen and model arm. We assessed 34 steps in the reconstitution and injection process with one point for successful completion and zero points otherwise. Confidence was assessed before and after using the same question and rated from 1 (no) to 5 (complete) confidence. Our outcomes were the percentage of steps correctly completed, identification of most concerning steps missed, and participant confidence.

Results: Twenty adults (age 40 ± 21 years, 12 male/8 female) were evaluated with no reported adverse events. Participants completed $44 \pm 50\%$ of the 34 steps correctly. The most concerning missed steps included the inability to identify the beyond use date ($n = 20$), using fingers to recap needles after administration ($n = 19$), administering the incorrect dose ($n = 18$), not washing hands ($n = 11$), using products with visible particulates ($n = 5$), and intramuscular injection ($n = 3$). Confidence was modest before beginning (2.3 ± 0.7) but decreased after the demonstration (1.9 ± 1.0).

Conclusion: Adults without experience injecting medications are at high risk of adverse events (infection, needle sticks, lack of efficacy or overdosing) upon acquiring a peptide semaglutide product.

Nephrology

1453. Assessing the Impact of Two Sodium-Glucose Cotransporter-2 (SGLT2) Inhibitors on Renal Function

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Introduction: The sodium-glucose cotransporter-2 (SGLT2) inhibitors dapagliflozin and empagliflozin have been shown in several studies to stabilize renal function by reducing the rate of increase in serum creatinine, slowing the rate of decline in estimated glomerular filtration rate (eGFR), and reducing the progression to end-stage renal disease. More head-to-head evidence examining these agents is needed to assess outcomes in patients with increased cardiovascular (CV) risk and in patients taking a concomitant agent which inhibits the renin-angiotensin-aldosterone system (RAAS).

Research Question or Hypothesis: Do two SGLT2 inhibitors have comparable impact on renal function in a high CV risk population in a private cardiology clinic?

Study Design: Retrospective chart review

Methods: Data were analyzed January 2016–September 2024 in patients taking empagliflozin ($n = 98$) or dapagliflozin ($n = 74$) in a private cardiology clinic. The mean age was 61.9 years, with the majority having a history of CV disease (68.0%) and diabetes (88.4%). There was a mean of 16.7 months between the first and second serum creatinine. A Wilcoxon signed-rank test was used to compare the change in values between the first and second serum creatinine for each agent, and a Mann-Whitney U test was used for comparison between the two groups.

Results: Both SGLT2 inhibitor agents showed a non-significant change in serum creatinine (dapagliflozin $p = 0.469$, empagliflozin $p = 0.139$) and eGFR (dapagliflozin $p = 0.570$, empagliflozin $p = 0.343$). Baseline serum creatinine (1.04 mg/dL, 1.02 mg/dL) and eGFR (73.9 mL/min, 77.9 mL/min) were similar in both groups. Between-group comparisons did not reach significance ($p > 0.05$) for patients taking a concomitant agent that inhibited the RAAS ($n = 135$, 76.7 percent of patients).

Conclusion: Both agents showed a stabilizing effect on serum creatinine and eGFR in patients with high CV risk and in patients taking at least one other concomitant RAAS-inhibiting agent. This is consistent with existing limited literature comparing these agents head-to-head.

1522. Characterizing Empagliflozin Initiation in Hospitalized Patients with eGFR < 20 mL/min/1.73 m²

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Introduction: The 2024 Kidney Disease Improving Global Outcomes (KDIGO) guidelines recommend sodium-glucose cotransporter 2 inhibitors (SGLT2i) for patients with type 2 diabetes (T2D) and chronic kidney disease (CKD) with an estimated glomerular filtration rate (eGFR) ≥ 20 mL/min/1.73 m². Landmark trials for both empagliflozin and dapagliflozin excluded patients with eGFR < 20 and 25 mL/min/1.73 m², respectively. Safety data in this population remain limited.

Research Question or Hypothesis: Is empagliflozin initiation safe in hospitalized patients with baseline eGFR < 20 ml/min/1.73 m²?

Study Design: This was a retrospective descriptive case series.

Methods: This study included patients with an eGFR < 20 mL/min/1.73 m² prior to empagliflozin initiation. The primary outcome was a composite of adverse events associated with SGLT2is, including sustained $\geq 40\%$ decline in eGFR, progression to end-stage renal disease (ESRD), acute kidney injury (AKI), and death within 90 days. Secondary outcomes included individual components of the primary outcome as well as incidence of urinary tract infections (UTI), diabetic ketoacidosis (DKA), and hypoglycemia.

Results: A total of 11 patients were included. One patient experienced both AKI and death within 90 days, meeting the primary outcome. No cases of UTI or DKA were identified. Two episodes of hypoglycemia occurred.

Conclusion: In this small retrospective case series, empagliflozin initiation in patients with eGFR < 20 ml/min/1.73 m² was not associated with unexpected adverse events. These findings are exploratory and hypothesis-generating. Further prospective studies are needed to further evaluate both safety and efficacy in this population.

Oncology

1442. Risk Factors of Immune Related Adverse Events in Patients with Solid Tumors Treated with Pembrolizumab

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Introduction: Pembrolizumab has improved survival outcomes in solid tumors, but it is associated with immune-related adverse events (irAEs). Few real-world studies evaluated risk factors for irAEs associated with pembrolizumab.

Research Question or Hypothesis: What are the characteristics and risk factors of irAEs to pembrolizumab in patients with solid tumors?

Study Design: Retrospective cohort study at King Hussein Cancer Center.

Methods: This study included adult patients treated with pembrolizumab between January 2020 and June 2024. Patients' demographic, clinical, and laboratory data at baseline and after 1 month, were collected. Multivariate logistic regression analysis was used to identify risk factors for irAEs at baseline and after 1 month of pembrolizumab.

Results: During the study period, 978 patients were included, with a mean age of 58.6 (± 12.5 years), of whom 31.9% developed irAEs. The most frequent reactions were dermatologic (32.7%), followed by gastrointestinal (26.9%), respiratory (16.3%), and endocrine reactions (15.4%). According to Naranjo scale, 89.1% of irAEs were classified as possible, while 10.9% were probable. Grading of irAEs showed that 51.0% of the events were grade I, followed by grade II (26.6%). In the

multivariate logistic regression analysis, baseline Neutrophil-to-Lymphocyte Ratio (NLR) < 3 (odds ratio (OR) 1.58, 95% CI 1.008–2.490, $p = 0.046$) and higher Programmed Death-Ligand 1 (PD-L1) expression (OR 1.009, 95% CI 1.003–1.016, $p = 0.006$) were identified as independent risk factors of irAEs at baseline. Elevated PD-L1 expression (OR 1.007, 95% CI 1.001–1.014, $p = 0.028$), and hemoglobin ≥ 10 g/dL (OR 1.90, 95% CI 1.102–3.276, $p = 0.021$) were identified as independent risk factors of irAEs after 1 month of pembrolizumab.

Conclusion: These findings suggest that inflammatory markers and PD-L1 expression may serve as useful risk factors to predict irAEs, which help in early risk stratification of patients taking pembrolizumab.

1460. Evaluation of Intravenous Immunoglobulin Use in Adult and Pediatric Hematopoietic Stem Cell transplant Recipients: A Single-Center Experience

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Introduction: Hematopoietic stem cell transplantation (HSCT) is used for various hematologic conditions, but it is associated with infections due to immune dysfunction and hypogammaglobulinemia. Intravenous Immunoglobulin (IVIG) can be utilized to protect against infections, though its use remains debatable.

Research Question or Hypothesis: What is the appropriateness of IVIG use in HSCT patients at comprehensive cancer center?

Study Design: Retrospective cohort study at King Hussein Cancer Center.

Methods: This study included adult and pediatric patients who underwent HSCT and received IVIG between January 2024 and December 2024. Medical records were reviewed to assess the appropriateness of IVIG use based on predefined clinical criteria. Descriptive statistics were used to summarize results.

Results: A total of 78 patients received a total of 200 IVIG doses, of whom, 74.0% were pediatric, and male sex accounts for 64.0% of patients (mean age: 15.9 years ($\pm$ SD16.8)). Of the included patients, 92.0% underwent allogeneic transplants, with myeloablative regimens accounting for 62.0%. Graft versus host disease (GVHD) prophylaxis included calcineurin inhibitors (CNI) with low dose methotrexate, accounting for 40.0%. The most common diagnoses were acute leukemias (44.0%), and immunodeficiencies (17.0%). The average IVIG dose administered was 0.6 gm/kg ($\pm$ SD 0.2). Immunoglobulin G (IgG) levels averaged 680.1 mg/dL, with 32.0% of doses administered when IgG levels were below 400 mg/dL. IVIG use was considered appropriate in 96.5% of cases. The median time to administer IVIG from transplant was 100.5 days (range 3-3845). Hypogammaglobulinemia was the primary indication for IVIG use (35.5%), followed by viral infections (26.0%), and replacement therapy in immunodeficiencies (12.5%). The average administered doses per patient was 2.5

Conclusion: IVIG was predominantly used for pediatric patients, with the majority being used for

hypogammaglobulinemia. The use of IVIG was appropriate in most cases. Further studies are needed to evaluate the clinical outcomes of IVIG.

1483. Evaluation of Abiraterone Acetate in Metastatic Prostate Cancer

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Introduction: Abiraterone acetate is a CYP17 inhibitor indicated for metastatic castration-resistant prostate cancer (mCRPC) and high-risk metastatic hormone-sensitive prostate cancer (mHSPC). It suppresses androgen production, reducing prostate-specific antigen (PSA) levels and delaying disease progression.

Research Question or Hypothesis: How is abiraterone prescribed across disease stages in real-world practice, and does it effectively reduce early PSA levels?

Study Design: A retrospective electronic medical record analysis at a regional hospital outpatient clinic from July 2021 to February 2026.

Methods: Data were collected from metastatic prostate cancer patients treated with abiraterone for ≥ 3 months. To prevent confounding, patients with prior novel hormonal therapy (e.g., apalutamide, enzalutamide) were excluded. Variables included disease stage (mCRPC vs. mHSPC), baseline PSA, and potassium levels. Efficacy was assessed by the proportion of patients achieving a $\geq 50\%$ PSA decline (PSA50) at 3 months.

Results: Seventeen patients were evaluated (mean age 76 years). The median baseline PSA was 21.68 ng/mL (IQR 6.2-77.8). Real-world prescribing showed a major shift toward early intervention: 12 patients (70.6%) received abiraterone for mHSPC as upfront therapy, and 5 patients (29.4%) received it for mCRPC. At 3 months, 16 patients (94.1%) achieved PSA50, with a median PSA reduction of 97% (IQR 89-100%). One mCRPC patient did not achieve PSA50, showing a PSA increase from 0.909 to 1.809 ng/mL at 3 months. When stratified by disease stage, the median PSA reduction was 98% in patients with mHSPC and 96% in those with mCRPC. Mild hypokalemia ($K^+ < 3.5$ mEq/L) was observed in 4 patients (23.5%), all effectively managed in the outpatient setting without treatment discontinuation.

Conclusion: Abiraterone was associated with high early PSA response rates and achieved high PSA50 rates at 3 months. This analysis reflects a significant real-world clinical trend toward its upfront use for mHSPC within our institution. Continuous monitoring of efficacy and serum potassium remains essential.

Pediatrics

1377. *E. coli* Susceptibilities Among NICU Patients Treated for Early Onset Sepsis

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Introduction: *Escherichia coli* is a common cause of early-onset sepsis (EOS), with rising ampicillin resistance among isolates. The American Academy of Pediatrics continues to recommend ampicillin plus gentamicin as empiric therapy in most cases, but advises that broader-spectrum coverage may be appropriate for critically ill infants at highest risk. Although multicenter surveillance of antimicrobial susceptibilities exists, local data is essential to guide optimal empiric therapy and antimicrobial stewardship in the NICU.

Research Question or Hypothesis: To examine NICU patients with EOS due to *E. coli* at UNCMC to determine local trends in ampicillin, gentamicin, and 3rd generation cephalosporin (3GC) susceptibilities.

Study Design: Retrospective chart review

Methods: The data was pulled for all positive blood cultures in the NICU from January 2023-August 2025. Then the authors identified individuals who had an *E. coli* positive blood culture within the first 7 days of life. Then patient charts were used to record empiric antibiotic administration and culture susceptibilities.

Results: Our NICU cohort was predominantly preterm (81.18%) and extremely/very low birth weight (VLBW) (72.73%). In the 2024 UNC pediatric non-urine *E. coli* antibiogram, susceptibilities were 30% (ampicillin), 66% (gentamicin), and 84% (3GC). Flannery et al. (2022) reported in *The Pediatric Infectious Disease Journal*, national EOS susceptibilities of 22.2% (ampicillin), 90% (gentamicin), and 94.6% (3GC).

In our NICU cohort ($n = 11$), susceptibilities were 27.27% (ampicillin), 72.73% (gentamicin), and 90.91% (3GC). Dual susceptibility rates were 18.18% for ampicillin + gentamicin, 18.18% for ampicillin + 3GC, and 63.64% for gentamicin + 3GC; 18.18% were susceptible to all three agents.

Conclusion: Overall our NICU susceptibilities were similar to the UNC pediatric isolates, but less susceptible for gentamicin and 3GC compared to national EOS trends. For high-risk infants (premature/VLBW) with gram-negative rods on culture or clinical deterioration despite empiric therapy, broadening coverage may be warranted. Based on these findings gentamicin plus a 3GC would provide the most reliable coverage.

1427. DOPamine Exposure and Its Association with Abnormal Thyroid Function in Neonates: A Retrospective Chart Review at a Level III Neonatal Intensive Care Unit

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Introduction: Congenital hypothyroidism (CH) is detected through state newborn screening (NBS) and confirmed with serum TSH and free T4 testing. DOPamine, used for neonatal hemodynamic support, suppresses TSH secretion and may transiently alter thyroid measures around screening. Assessing

whether DOPamine exposure affects NBS or follow-up thyroid tests may improve interpretation and clinical decision making in the neonatal intensive care unit (NICU).

Research Question or Hypothesis: Is DOPamine administration associated with early abnormal thyroid hormone regulation among neonates?

Study Design: Single center, retrospective cohort study

Methods: Neonates born or transferred in within 14 days of life between January 1, 2020, and December 31, 2024 with an abnormal thyroid related NBS were included. Patients were categorized as DOPamine-exposed or unexposed prior to the second NBS. Of 237 infants screened, 81 were excluded due to transfer, maternal thyroid disease, genetic syndromes, missing data, death before second NBS, missing or inconclusive NBS, or DOPamine initiation after the second NBS. Collected variables included demographics, maternal characteristics, delivery mode, anesthesia type, birthing room interventions, APGAR scores, NBS results, serum TSH/free T4, and levothyroxine initiation. The primary outcome was NBS result patterns between exposure groups. The secondary outcomes were levothyroxine initiation and number of TSH and Free T4 levels. Chi-square tests assessed categorical variables, and Mood's median test compared the number of thyroid function tests. Statistical significance was defined as $p < 0.05$.

Results: Significantly different NBS abnormality patterns regarding thyroid function were seen between the two groups ($p < 0.00933$). The most common pattern was abnormal-normal in the exposure group and abnormal-normal in the unexposed group. Levothyroxine initiation did not differ between groups ($p < 1$). More thyroid labs were drawn in the DOPamine exposed group.

Conclusion: These findings support heightened caution when interpreting thyroid screening and early confirmatory tests in DOPamine-treated neonates.

1471. Evaluating Fluid Creep in Hospitalized Pediatric Patients with Cancer

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Introduction: Fluid creep refers to the unintended fluid intake from intravenous (IV) medications that may lead to fluid overload. Hospitalized cancer patients receive multiple IV therapies due to their disease and complications. This effect is more pronounced in pediatrics due to smaller body weights and lower fluid needs. Despite studies in pediatric populations, fluid creep has not been evaluated in patients with cancer.

Research Question or Hypothesis: What is the extent of fluid creep in total fluid exposure among hospitalized pediatric cancer patients.

Study Design: Retrospective cohort study.

Methods: This study was conducted at a comprehensive cancer center in Jordan. Children ≤ 12 years admitted between August and November, 2024 and had received at least one IV medication were included. Elective admissions, bone marrow transplant patients, and those transferred to the intensive care unit were excluded. Daily fluid creep was calculated as the total volume of IV medications administered over 5 days or until transfer. Primary outcome was daily fluid creep volume and its

proportion relative to the maintenance fluid requirements. Contributions from individual IV medications were analyzed. Descriptive statistics summarized patient characteristics and endpoints.

Results: Over the study period, 291 pediatric patients were admitted. Mean age was 5 ± 3.4 (SD) years, 54.6% were males and 71% had hematologic malignancies. The most common admission diagnoses were neutropenic fever and infections (70.1%). Mean (SD) fluid creep was 453 ± 326.2 mL on day 1, followed by 338 ± 263 mL, 353 ± 284 mL, 349 ± 313 mL, and 353 ± 293 mL on days 2 through 5, representing 23.7%, 24.2%, 23.8%, and 23.9% of maintenance fluids, respectively. Antibiotics were the major contributor to fluid creep (64%-80%)

Conclusion: Fluid creep accounted for up to one-third of total maintenance fluids in hospitalized pediatric cancer patients, with antibiotics as the main contributor. Awareness and monitoring of fluid creep are essential to optimize fluid management and prevent fluid overload.

1513. High Prevalence of Potassium Disturbances in Children Receiving Liposomal Amphotericin B

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Introduction: Liposomal amphotericin B (L-AmB) remains a key therapy for invasive fungal infections but is associated with renal tubular toxicity and clinically significant potassium wasting. While electrolyte disturbances during amphotericin therapy are well described in adults, pediatric data remains limited.

Research Question or Hypothesis: To characterize the frequency, severity, and supplementation burden of potassium abnormalities among pediatric patients receiving L-AmB and compare outcomes between patients with oncologic and non-oncologic diagnoses.

Study Design: Retrospective cohort study.

Methods: We analyzed pediatric patients receiving L-AmB between 2016-2025, stratified by oncologic versus non-oncologic diagnoses. Extracted variables included L-AmB exposure, potassium levels, supplementation orders. Prevalence was estimated using Wald 95% confidence intervals. P values between non-oncologic and oncologic patients were derived from Fisher exact test and Wilcoxon rank sum test.

Results: Among 285 admissions with oncologic diagnoses, potassium disturbances occurred in 248 (87%). Severe hypokalemia (< 2.5 mEq/L) occurred in 45 admissions (15.8%; 95% CI 11.6-20.0), moderate hypokalemia (2.5-2.9) in 93 (32.6%; 27.2-38.1), and mild hypokalemia (3.0-3.5) in 65 (22.8%; 18.0-27.7). Hyperkalemia (> 5.0 mEq/L) occurred in 45 (15.8%). Potassium supplementation was required in 161 (56%); median of 5 repletion orders (IQR 2-12); cumulative supplementation of 88 mEq (IQR 36-240). Among 154 admissions without oncologic diagnoses, potassium disturbances occurred in 142 (92%). Severe hypokalemia occurred in 34 admissions (22.1%; 95% CI 15.5-28.6), moderate in 62 (40.3%; 32.5-48.0), and mild in 37 (24.0%; 17.3-30.8). Hyperkalemia occurred in 32 (20.8%). Potassium

supplementation was required in 113 (73%; $p < 0.001$); median of 11 repletion orders (IQR 4–22; $p < 0.001$); cumulative supplementation of 210 mEq (IQR 60–478; $p < 0.001$).

Conclusion: L-AmB therapy in pediatric patients is associated with a high burden of potassium abnormalities. Patients without oncologic diagnoses experienced significantly higher potassium instability and replacement needs than those with oncologic diagnoses, highlighting the importance protocol-driven electrolyte management during therapy.

Pharmacogenomics/Pharmacogenetics

1386. Frequency of Clinically Actionable Drug-Gene Interactions among Patients with Anxiety and/or Depression in a Community Pharmacogenomics Program

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Introduction: Pharmacogenomics enables individualized therapy by accounting for genetic variability. In particular, genetic variation in CYP2B6, CYP2C19, and CYP2D6 may influence the efficacy, safety, and tolerability of commonly prescribed antidepressants and antipsychotics. Although evidence-based consensus guidelines provide actionable recommendations for several drug-gene pairs, pharmacogenomic testing is not routinely implemented in clinical practice. This study evaluated the frequency of clinically actionable drug-gene interactions in eligible participants with a self-reported diagnosis of anxiety and/or depression who elected to participate in an employee pharmacogenomic screening service.

Research Question or Hypothesis: Among participants with anxiety and/or depression undergoing pharmacogenomic testing at a single center, what is the frequency of clinically actionable drug-gene interactions?

Study Design: Retrospective chart review

Methods: This sub-analysis included participants enrolled in the TigerMeds Personalized Prescriptions (TMPP) program within the Auburn University Pharmaceutical Care Center with a self-reported referral diagnosis of depression and/or anxiety. A retrospective chart review was conducted for participants enrolled between October 2020 and June 2023 who had completed pharmacogenomics panel testing with results available. Genotype and phenotype data for CYP2B6, CYP2C19, and CYP2D6 were collected. The primary outcome was the frequency of clinically actionable drug-gene interactions, as defined by evidence-based consensus guidelines.

Results: Among 119 eligible participants, actionable CYP2B6 phenotypes included 43 (36.1%) intermediate and 9 (7.6%) poor metabolizers; actionable CYP2C19 phenotypes included 5 (4.2%) ultrarapid, 35 (29.4%) rapid, and 38 (31.9%) intermediate metabolizers; and actionable CYP2D6 phenotypes included 2 (1.7%) ultrarapid, 39 (32.8%) intermediate, and 6 (5.0%) poor metabolizers. Overall, 60 clinically actionable drug-gene interactions involving current medications were identified, and 52 participants (43.7%) had at least one such interaction.

Conclusion: This analysis of eligible participants with anxiety and/or depression showed that nearly half had at least one clinically actionable drug-gene interaction involving a current medication. These findings suggest that pharmacogenomic testing may help identify opportunities to inform mental health medication management.

Pharmacokinetics/Pharmacodynamics/Drug Metabolism/Drug Delivery

1408. Identifying Rational Dosing Approaches for Next-Generation Antibody-Drug Conjugates Through Clinically Anchored Model-Informed Simulation: Insights from Mirvetuximab Soravtansine in Ovarian Cancer

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Introduction: Antibody-drug conjugates (ADCs) require precise dosing to achieve optimal benefit-risk balance. Mirvetuximab soravtansine (MIRV) is the first ADC approved with adjusted ideal body weight (AIBW)-based dosing. Using abundant MIRV clinical trial data, different dosing approaches were explored to inform the dosing of future ADCs for ovarian cancer.

Research Question or Hypothesis: Among flat, total body weight (TBW)-, AIBW-, and body surface area (BSA)-based dosing, which dosing approaches best harmonize exposure, efficacy, and safety across body sizes?

Study Design: This model-informed analysis used existing pooled Phase 1-3 data from 690 MIRV-treated patients to compare pharmacokinetic profiles, efficacy, and safety with different dosing approaches.

Methods: An established MIRV population pharmacokinetic model was used to simulate exposures under 6 mg/kg AIBW, 6 mg/kg TBW, 210 mg/m² BSA, and 360 mg flat dosing regimens (exposure-aligned at median body size). Established exposure-response models were used to predict overall response rate (ORR) and incidences of adverse events of interest (AEIs), including Grade ≥ 2 ocular AEs (OAEs) at simulated exposures. Results were stratified by underweight, normal weight, overweight, and obese.

Results: Model predictions indicated that the 6 mg/kg AIBW and 210 mg/m² BSA regimens achieved consistent exposure, efficacy (44 and 46% ORR), and safety (33 and 34% OAEs) in all patients. In contrast, TBW- and flat dosing demonstrated greater variability in predicted exposure, ORR, and AEI incidences across weight groups. TBW-based dosing was projected to yield higher ORR (53%), but increased OAE incidence (68%) in obese patients. Flat dosing was projected to result in lower ORR (37%) in obese patients and higher OAE incidence (51%) in underweight patients.

Conclusion: While TBW-based dosing is common for ADCs, AIBW- or BSA-based dosing may better minimize variabilities in exposures, efficacy, and safety, especially for ADCs with narrow therapeutic indexes. For MIRV, the switch from TBW to

AIBW early in development ensured appropriate dosing and consistent benefit-risk across body sizes.

1428. Age-Dependent Divergence Between Cockcroft–Gault and CKD-EPI Estimates and Its Impact on Renal Drug Dosing: A Simulated Population Study

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Introduction: Despite guideline recommendations favoring the CKD-EPI equation, the Cockcroft–Gault (CG) equation remains widely used in clinical practice. Differences between these equations can produce clinically meaningful discrepancies that impact medical decision-making. Furthermore, the choice of body weight applied in the CG equation may affect kidney function estimates and dosing recommendations. A systematic evaluation using simulated patient populations may clarify the magnitude and clinical relevance.

Research Question or Hypothesis: CG and CKD-EPI equations lead to age-dependent population-level discrepancies in renal drug dosing, influenced by the body weight assumptions.

Study Design: A quantitative simulation study using a simulated patient population was conducted to compare the CG and CKD-EPI equations and dosing discrepancies.

Methods: Simulated populations ($n = 100,000$) were generated with clinically plausible baselines. Creatinine clearance was calculated with actual/ideal/adjusted body weights and compared with non-indexed eGFR. The mean population age varied from 40 to 80 years. Primary outcomes included the percentages of absolute differences exceeding ± 10 mL/min and discrepancies in renal dosing classification at a threshold of < 30 mL/min. Statistical analysis for the strength of association is performed using logistic models.

Results: The CG and CKD-EPI equations with different weight assumptions demonstrated a significant age-dependent interaction. The percentage of absolute differences decreased from 51.2% to 12.0% across ages 40 to 80 with actual body weight, whereas adjusted body weight showed an increasing pattern from 2.6% to 18.1%. For dosing discrepancies, both actual and adjusted body weights increased from 10.2% to 14.0% and from 6.8% to 19.7%, respectively, with OR 1.51 (95% CI 1.47–1.54) at age 80.

Conclusion: No single CG weight method consistently outperforms compared to the CKD-EPI equation, and performance varies systematically with age. Compared to actual body weight, adjusted body weight reduced discrepancies in absolute differences and renal dosing decisions in the simulated younger population, while these trends were reversed in the simulated elderly population.

Psychiatry

1411. Major Depressive Episode and Depression Treatment Among Adolescents and Young Adults With vs Without a Cancer History in the United States, 2021–2024

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Introduction: Adolescents and young adults (AYA) with a history of cancer may be at increased risk for depression, but nationally estimates of major depressive episode (MDE) and its treatment in this population are limited.

Research Question or Hypothesis: Do AYA with a cancer history have a higher prevalence of past-year MDE and depression treatment than peers without a cancer history?

Study Design: Repeated cross-sectional study.

Methods: We analyzed 2021–2024 National Survey on Drug Use and Health data for respondents aged 12 to 34 years. Cancer history was defined by self-report. Main outcomes were past-year MDE and, among respondents with MDE, any depression treatment. Weighted prevalences were estimated overall and by age group and survey year. Multivariable logistic regression adjusted for survey year, age, sex, race and ethnicity, household income, insurance, self-rated health, noncancer medical conditions, substance use disorder, and suicidal thoughts or plans.

Results: 225,947 respondents were included, of whom 7,862 reported a cancer history. Past-year MDE prevalence was 22.4% (95% CI, 16.0%–28.8%) among respondents with cancer history and 15.9% (95% CI, 15.5%–16.3%) among those without cancer history ($P = 0.050$). The largest difference was observed among respondents aged 26 to 34 years (21.4% vs 12.4%; $P = 0.014$). Among respondents with MDE, any depression treatment was reported by 64.0% (95% CI, 50.8%–77.2%) of those with cancer history and 55.3% (95% CI, 54.2–56.5%) of those without cancer history ($P = 0.21$). In adjusted models, cancer history was not independently associated with MDE (adjusted odds ratio [aOR], 1.12; 95% CI, 0.72–1.74) or any treatment (aOR, 1.12; 95% CI, 0.59–2.12). Female sex, poorer self-rated health, greater noncancer comorbidity burden, substance use disorder, and suicidal thoughts or plans were independently associated with MDE.

Conclusion: AYA with a cancer history had a higher prevalence of past-year MDE than peers without a cancer history. However, cancer history was not independently associated with MDE or treatment.

1534. Drug Use Evaluation of Inpatient Suvorexant Prescribing: Adherence to Formulary Criteria and Sedative Co-Administration

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Introduction: Dual Orexin Receptor Antagonists (DORAs) are increasingly used for the management of insomnia and sleep-wake cycle restoration, though inpatient prescribing patterns remain poorly characterized. At Mayo Clinic, suvorexant is formulary restricted to patients who have a contraindication to or failure of zolpidem, zaleplon, or eszopiclone.

Research Question or Hypothesis: We hypothesize $< 50\%$ of patients receiving suvorexant inpatient will meet

formulary criteria for use and > 70% will receive concomitant sedatives.

Study Design: Retrospective, multicenter, cohort study.

Methods: Adult patients admitted to any Mayo Clinic facility from July 2025 to September 2025 and received at least one dose of suvorexant. For patients with multiple admissions, only the first admission was utilized. Variables collected included demographics, care setting, prescribing service, concomitant sedative use, and whether suvorexant was newly initiated during hospitalization.

Results: Among 276 unique patients (2290 doses), 100 were randomly sampled suvorexant was newly prescribed in 79% of patients during their hospital stay. The mean patient age was 62 years old. Although 48.1% ($n = 38$) of patients received suvorexant in an ICU setting, only 34.2% ($n = 27$) of all prescriptions were from critical care providers. Additionally, 34.2% of patients received a trial of melatonin prior to suvorexant initiation, while 93.7% received concomitant sedating medications.

Conclusion: Suvorexant is frequently initiated during hospitalization, often without prior trial of formulary-preferred agents and with high rates of concomitant sedative use. Variability in prescribing practices across care settings and providers highlights opportunities to standardize inpatient use and refine institutional prescribing criteria.

Pulmonary

1543. Comparative Drug and Labor Costs of Common Canister Metered Dose Inhaler (CCMDI) and Nebulizer Interchange Protocols: A Retrospective Simulation Study

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Introduction: Inpatient inhaled medications are frequently interchanged to formulary agents. Delivery method affects drug deposition, cost, and time. Nebulizers (nebs) work for every patient, but take more time to perform, whereas CCMDI protocols are more labor efficient and allow for delivery technique education. The relative impact of these strategies requires further characterization.

Research Question or Hypothesis: How do medication and labor costs compare between a CCMDI and a nebulizer interchange protocol?

Study Design: Retrospective simulation study at a 150-bed community hospital. Simulation was selected to avoid confounding by patient volume and seasonal variation.

Methods: A list of nebulizer and dry powder inhaler (DPI) administrations, ordered with the pre-CCMDI interchange between 2/1/24 and 1/31/25 across multiple adult inpatient units, was extracted. A simulated record in Excel[®] was created according to a new CCMDI/revefenacin interchange using the following

substitutions, listed in order of replacement: albuterol neb to MDI, tiotropium DPI + formoterol neb to glycopyrrolate/formoterol MDI, budesonide + formoterol neb to mometasone/formoterol MDI, budesonide neb to fluticasone MDI, and tiotropium DPI to revefenacin neb. Isolation or mechanical ventilation prevented CCMDI interchange. Primary outcomes were the differences between drug and labor costs for the two protocols. Drug costs were calculated using both average wholesale price (AWP) and institutional acquisition cost. Respiratory therapy time was estimated using the Safe and Effective Staffing Guide.

Results: Medications qualified for simulated interchange in 390 admissions (323 patients). Twenty-four percent of dosing encounters were ineligible for CCMDI. CCMDI interchange reduced drug costs by 50% using AWP (\$88,414 to \$43,909) and 36% using acquisition cost. Labor decreased by 642.5 h, corresponding to \$11,357 in savings.

Conclusion: Our simulation predicts that a CCMDI protocol reduces drug and labor costs compared with nebulizer/DPI delivery and allows for enhanced patient education. Real-world savings may be lower due to considerations such as lost medication, puff primer, patient technique, and expiration disposal.

Rheumatology

1438. Can L-Carnitine Be a Key to Better Clinical Outcomes in Rheumatoid Arthritis? Evidence from a Randomized Controlled Trial

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Introduction: Rheumatoid arthritis (RA) management with disease-modifying anti-rheumatic drugs (DMARDs) is constrained by substantial costs and severe adverse effects. Hence, clinical pharmacists are tasked with identifying adjunctive therapies. L-carnitine is a nutritional supplement with anti-inflammatory and antioxidant properties.

Research Question or Hypothesis: Will using L-carnitine as add-on therapy improve the clinical outcomes of RA patients?

Study Design: A phase 2, three-month parallel, randomized, double-blinded, placebo-controlled trial.

Methods: Eligible patients were randomly assigned to receive either "DMARDs+ 2000 mg/day L-carnitine" or "DMARDs +placebo". The primary endpoint was disease activity score 28 (DAS28). Secondary endpoints included health assessment questionnaire (HAQ), American college of rheumatology 50% (ACR50%) criteria, malondialdehyde (MDA), total antioxidant capacity (TAC), tumor necrosis factor- α (TNF- α) and side effects incidence. All outcomes were assessed at baseline and week 12. G-power v.3.1 was used for power calculation. Using

GraphPad Prism, categorical data, presented as number and percentage, were compared using Chi-square or Fisher's exact test. Continuous data, expressed as median (IQR) or mean (SD) as per normality test, were analyzed using Mann-Whitney or unpaired *t*-test. *p* < 0.05 was considered statistically significant.

Results: L-carnitine group (*n* = 27) achieved a greater reduction in DAS28 compared to placebo group (*n* = 27) with a median (IQR) change of 1.0(0.90) vs. 0.40(0.30), respectively (*p* < 0.01). Regarding ACR50%, the number of patients who achieved it was 6(22.22%) and 0(0%) in L-carnitine and placebo group, respectively (*p* = 0.02). L-carnitine group showed higher changes than placebo group in MDA [median (IQR): 3.23(3.14) vs. 2.70(2.52), *p* = 0.02] and TNF- α [mean (SD): 39.42(17.15) vs. 30.08(13.44), *p* = 0.03]. There were no significant changes between the two groups in HAQ and TAC (*p* > 0.05). Side effects incidence was 8(29.62%) and 5(18.51%) in L-carnitine and placebo group, respectively (*p* > 0.05).

Conclusion: Adjunctive L-carnitine improved clinical outcomes indicated by improvement in markers of disease activity, inflammation and oxidative stress without significant increase in adverse effects incidence.

Substance Abuse/Toxicology

1387. Glucagon-Like Peptide Receptor Agonists (GLP1s) are Associated with Improved Alcohol and Liver Outcomes in Patients with Alcohol Use Disorder (AUD).

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Introduction: Alcohol use disorder (AUD) contributes to liver-related morbidity and mortality. Glucagon-like peptide-1 analogues (GLP1s) promote weight loss through interruption of reward pathways in the central nervous system that may also be involved in AUD.

Research Question or Hypothesis: Is GLP1 therapy associated with improved outcomes in patients with AUD and concomitant type 2 diabetes (T2DM) and overweight/obesity?

Study Design: Retrospective observational cohort design.

Methods: We used a real-world data platform (TriNetX) that provides de-identified data from 69 healthcare organizations. Patients were selected by diagnoses of AUD with T2DM or overweight/obesity and grouped by the use of GLP1 therapy versus other traditional T2DM medications. Cohorts were balanced using propensity score matching on demographic (age, sex) and clinical variables (psychiatric disease, liver disease, body-mass index, hemoglobin A1c) to produce cohorts of 29,339 patients/group. Cox proportional hazard ratios were constructed over 1 year of observation.

Results: GLP1 therapy was associated with significant reductions versus the control cohort in gamma glutamyl transferase (GGT) > 50 U/L (1.9% vs 3.5% [HR 0.51; *p* < 0.00]), alcoholic liver disease (6.2% vs 9.3% [HR 0.64; *p* < 0.00]), alcoholic cirrhosis (5.1% vs 7.7% [HR 0.63; *p* < 0.001]), acute alcohol intoxication (1.8% vs 4.4% [HR 0.40; *p* < 0.001]), Child-Pugh C criteria (7.6% vs 27.1% [HR 0.24; *p* < 0.001]), a composite of death or

liver transplant (3.8% vs 10.6% [HR 0.35; *p* < 0.001]), and all-cause mortality (1.6% vs 8.7% [HR 0.18; *p* < 0.001]).

Conclusion: In a large real-world cohort, GLP-1 therapy was associated with significant reductions in liver disease progression, alcohol-related events, and mortality among patients with AUD and concomitant T2DM and overweight/obesity.

Transplant/Immunology

1399. Correlation of Tacrolimus and Sirolimus Dose Requirements in Heart Transplant Recipients

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Introduction: Sirolimus (SIR) is often initiated in heart transplant recipients (HTRs) on tacrolimus (TAC).

Research Question or Hypothesis: Identifying a relationship between TAC and SIR dose requirements in HTRs could improve initial dosing, shorten time to therapeutic levels, and improve clinical outcomes.

Study Design: A chart review of all adult HTRs started on SIR in conjunction with TAC (either immediate release (IR) or extended release (LCP)) within 5 years of transplant from 3/2013 to 6/1/2025 were assessed.

Methods: Patient demographics, stable, steady state TAC doses and levels prior to and following SIR, and SIR doses and levels at steady state were recorded. Linear regression was used to compare correlation of TAC and SIR dose requirements, expressed as concentration/total daily dose (ng/mL/mg). The impact of SIR initiation on TAC requirements was also assessed using a paired *t*-test.

Results: 59 HTRs were included (Table 1); SIR was started at a median of 264 days posttransplant. SIR dose requirements were moderately predicted by immediate release (IR) and extended release (LCP) TAC dose requirements, with an R² of 0.42 and

Table 1. Baseline demographics.

Demographics	OHT (<i>n</i> = 59)
Age at OHT in years, mean (SD)	51 (12)
Male sex, <i>n</i> (%)	40 (67.8)
Tacrolimus formulation, <i>n</i> (%)	
IR tacrolimus	41 (69.5)
LCP Tacrolimus	18 (30.5)
Race, <i>n</i> (%)	
White	24 (40.7)
Black	31 (52.5)
BMI, kg/m ² , mean (SD)	29 (6)
OHT indication, <i>n</i> (%)	
Idiopathic DCM	26 (44.1)
Ischemic DCM	13 (22.0)
Other	20 (33.9)

0.34, respectively. The median time to therapeutic SIR levels was 21 days. TAC dose requirements did not change significantly with the addition of SIR (1.5 ng/mL/mg vs. 1.3 ng/mL/mg, $p = 0.09$).

Conclusion: SIR dose requirements showed moderate correlation with both IR and LCP TAC dosing, suggesting that using TAC dose requirements could help individualize SIR dosing strategies in HTRs. Addition of SIR does not appear to significantly impact TAC dose requirements.

1426. The Prevalence and Impact of Vitamin C Deficiency in Adult Liver Transplant Recipients

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Introduction: Vitamin C plays a critical role in immune function, collagen synthesis, and antioxidant defense, all of which may influence post-transplant outcomes. The impact of vitamin C levels on liver transplant outcomes remains understudied.

Research Question or Hypothesis: What is the prevalence and impact of vitamin C deficiency in adult liver transplant recipients?

Study Design: A single-center, retrospective cohort study was conducted among adult patients who received an isolated liver transplant between 4/15/24 and 9/15/24.

Methods: Patients were grouped by pre-transplant serum vitamin C levels: adequate (≥ 23 $\mu\text{mol/L}$) or inadequate (< 23 $\mu\text{mol/L}$). Baseline demographics and clinical outcome data were collected via manual chart review. The primary outcome was index hospital length of stay (LOS). Secondary outcomes included intensive care unit LOS, 30-day mortality, acute cellular rejection, infections, and wound complications. Fisher's exact tests, student's t -tests, Rank-Sum statistical tests, and descriptive statistics were used as indicated.

Results: Following exclusion of five patients due to lack of pre-transplant vitamin C levels, fifty-two patients were included in the analysis. Fourteen (27%) patients had inadequate vitamin C levels. The average vitamin C level in the inadequate stores group was 12.2 $\mu\text{mol/L}$ compared to 64.9 $\mu\text{mol/L}$ in the adequate stores group. No statistically significant differences were noted in baseline demographics. Patients in the inadequate stores group were more likely to receive post-transplant vitamin C supplementation (100% vs 5.3%, $p < 0.001$), which was typically initiated 6.43 days post-transplant. There was no difference in median hospital LOS (days) between groups (15 (IQR 9) vs 14.5 (IQR 11), $p = 0.633$). No significant difference was identified in other secondary outcomes.

Conclusion: One of every four liver transplant recipients had an inadequate vitamin C level pre-transplant. No short-term outcome differences were identified, although patients who were deficient received supplementation. Given the prevalence, larger prospective studies are warranted to confirm these findings.

1446. Phosphorus Supplementation in Living Liver Transplant Donors

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Introduction: Hypophosphatemia is a risk for living liver transplant donors (LLTD), but there is limited information on phosphorus requirements in these patients. The purpose of this study is to describe phosphorus supplementation in this population.

Research Question or Hypothesis: What are the phosphorus requirements post-living liver transplant donation?

Study Design: A single-center, retrospective medication use evaluation of phosphorus supplementation in LLTD from 8/1/2012 to 8/1/2019 was conducted.

Methods: Via manual chart review, data was collected regarding patient demographics, surgical characteristics, phosphorus levels and supplementation, and length of stay. The primary outcome was amount of phosphorus supplementation received during hospitalization. Secondary outcomes included incidence and timing of hypophosphatemia and supplementation. Descriptive were used for analysis.

Results: This review included 18 adult LLTD. The majority were Caucasian (94%) and female (61%) with an average age of 38.2 years. Most procedures involved the left lobe (56%) with segment donation occurring 22% of the time. All patients received phosphorus supplementation, with an average total of 2.71 ± 1.65 mmol/kg during the hospitalization. The average daily dose was 0.47 mmol/kg/day, with the highest amounts on post-operative day (POD) 2 (0.75 mmol/kg) and 3 (0.67 mmol/kg). Fourteen patients (78%) received both intravenous (IV) and oral phosphorus, three received only IV, and one received only oral. The IV supplementation accounted for 25% of the total mmol received. Eleven (61%) patients received phosphorus prior to hypophosphatemia; eight (73%) of these patients still developed hypophosphatemia. All seven patients without proactive supplementation developed hypophosphatemia. Overall, hypophosphatemia occurred in 15 (83%) patients, with development most frequently on POD2 (53%). The nadir phosphorus level was 1.95 ± 0.56 mg/dL. Day of hypophosphatemia resolution varied, with a median of POD7 (range POD 5-10). Five patients (28%) were discharged on phosphorus supplements.

Conclusion: Following living liver transplant donation, hypophosphatemia is common even with phosphorus supplementation. Phosphorus supplementation prior to POD2 may be helpful to minimize risk.

Women's Health

1390. Pharmacists Perceptions of Hormonal Contraceptives

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Introduction: In the United States, nearly 50% of pregnancies are unintended. Pharmacists possess necessary knowledge to educate patients and prescribe contraceptives to decrease these statistics. However, cultural, systemic and structural barriers exist that often limit their engagement.

Research Question or Hypothesis: The primary objective of this study is to determine predictors of pharmacists' perceptions regarding hormonal contraceptives. Secondary objectives include describing attributes associated with positive or negative overall perceptions.

Study Design: An anonymous cross-sectional survey was administered to licensed pharmacists in Nebraska, Ohio, and Rhode Island through Qualtrics XM.

Methods: Registered pharmacists were surveyed, assessing perceptions of their knowledge of hormonal contraceptives and their ability to appropriately recommend options. Responses were analyzed using SPSS Version 29.0.2.0 to determine mean and median scores. A Pearson correlation test was used to determine correlation between overall contraceptive perception score and personal characteristics. The primary outcome is correlation (R) between personal characteristics and overall contraceptive perception.

Results: Respondents ($n = 37$) were primarily women (70.3%), ages of 26-40 (56.8%), and white (89.2%). Political affiliation was 40.5% left leaning and 24.3% conservative. Greater clinical knowledge was positively associated with positive perceptions of pharmacists dispensing prescription contraceptives (0.475 [95% CI 0.183 to 0.690]), OTC oral contraceptives (0.471 [95% CI 0.178 to 0.687]), and OTC emergency contraceptives (0.664 [95% CI 0.438 to 0.812]). Religious beliefs were negatively associated with prescription contraceptives (-0.0387 [95% CI -0.629 to -0.077]); ethical and religious beliefs were associated with negative perceptions of pharmacists dispensing OTC emergency contraceptives (-0.394 [95% CI -0.634 to -0.085] and -0.369 [95% CI -0.616 to -0.056], respectively).

Conclusion: Ensuring healthcare providers can provide safe, effective contraception is critical. Understanding pharmacists' perceptions presents an opportunity for state practice acts and protocols to evolve in the best interest of public health.

1398. Impact of GLP-1 and GLP-1/GIP Receptor Agonists on Oral Hormonal Contraceptive Effectiveness in Women: A Real-World Analysis Using the TriNetX Database

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Introduction: Glucagon-like peptide-1 (GLP-1) receptor agonists and dual GLP-1/glucose-dependent insulinotropic polypeptide (GIP) receptor agonists are increasingly prescribed in the United States for type 2 diabetes mellitus and chronic weight

management. As use expands among women of reproductive age, concerns have emerged regarding potential interactions with oral hormonal contraceptives (OCPs). GLP-1-based therapies delay gastric emptying, which may affect oral drug absorption. While pharmacokinetic studies suggest no clinically meaningful impact on OCP bioavailability for most agents, limited data raise concern for reduced contraceptive exposure. Real-world evidence evaluating unintended pregnancy risk remains limited.

Research Question or Hypothesis: Among women using OCPs, is initiation of GLP-1-based therapy associated with an increased risk of contraceptive failure compared with no GLP-1-based therapy?

Study Design: We conducted a retrospective cohort study using the TriNetX Research Network.

Methods: Female patients aged 18-49 years with a diagnosis of obesity who were prescribed OCPs and either initiated GLP-1-based therapy or received no GLP-1 therapy were included. Cohorts were 1:1 propensity score matched on age, body mass index, and comorbidities. The primary outcome was pregnancy occurring within 30-365 days of the index event. Risk ratios (RRs) with 95% confidence intervals (CIs) were calculated.

Results: After applying exclusion criteria and 1:1 Propensity Score Matching, 39,108 patients were included ($n = 19,554$ per cohort), with balanced baseline characteristics. Patients with pregnancy prior to the outcome window were excluded, resulting in 11,749 control patients and 12,851 GLP-1-exposed patients for analysis. The GLP-1 group had a higher risk of pregnancy (1.13 95% CI 1.02-1.25; $p = 0.02$) compared to the OCP group.

Conclusion: In this large real-world cohort analysis, initiation of GLP-1-based therapy among women using OCPs was associated with an increased risk of pregnancy, suggesting potential reduced contraceptive effectiveness. Prospective studies are needed to further evaluate this association.

1481. Impact of Clinical Pharmacist-Led Pharmaceutical Care Services In High-Risk Pregnancies: An Interventional Study

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Introduction: Management of chronic diseases during pregnancy is challenging due to physiological and psychological changes. Drug-related problems (DRPs), including inappropriate dosing and non-adherence, may adversely affect maternal and fetal outcomes. Clinical pharmacist involvement plays a key role in optimizing pharmacotherapy in this high-risk population.

Research Question or Hypothesis: To evaluate the impact of individualized pharmaceutical care services provided by a clinical pharmacist on the identification and management of drug-related problems (DRPs) in pregnant women with chronic diseases.

Study Design: This prospective, interventional study was conducted between February and December 2025 at a tertiary education and research hospital in Istanbul, including 105 pregnant women with chronic conditions requiring medication. Participants were followed from enrollment until delivery, with a mean follow-up duration of 15.31 ± 9.05 weeks.

Methods: Pregnant women (≥ 18 years) with at least one chronic condition and medication use were included. DRPs were identified and classified using Hepler–Strand criteria. Individualized pharmaceutical care, including patient education and pharmacotherapy monitoring, was provided. Intervention recommendations were delivered to patients and/or physicians within a multidisciplinary care framework, and acceptance rates were recorded.

Results: The mean age of patients was 31.30 ± 4.78 years, with a mean gestational age of 22.24 ± 9.02 weeks. The most prevalent conditions were hypothyroidism (62.8%), diabetes mellitus (31.4%), and hypertension (22.8%). A total of 76 DRPs were identified (0.72 ± 0.81 per patient), most commonly non-adherence (63.2%) and subtherapeutic dosing (22.4%). Pharmacist interventions were implemented at the patient (65.8%) and physician (34.2%) levels. Acceptance rates were 96% for patients and 88.5% for physicians.

Conclusion: Individualized clinical pharmacist-led interventions were effective in identifying and resolving DRPs in high-risk pregnancies. High acceptance rates among both patients and physicians support the integration of clinical pharmacists into multidisciplinary obstetric care and may contribute to improved maternal outcomes and enhanced medication safety.

ADVANCES IN INTERNATIONAL CLINICAL PHARMACY PRACTICE, EDUCATION OR TRAINING

Education/Training

1396. Embedding Moral Philosophy into Applied Communication Training in Undergraduate Pharmacy Education for Low-Reimbursement Practice Environments

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Service or Program: An elective course, Therapeutic Communication, was developed within the undergraduate pharmacy curriculum at Ankara Medipol University, Türkiye as a philosophy-informed framework integrating ethical reasoning with applied communication training to cultivate intrinsic professional accountability. The course addresses a central question: How can we foster the intention to communicate ethically with patients when external incentives are limited? Grounded in moral philosophy, professionalism frameworks, and health communication literature, the curriculum is sequenced to establish ethical foundations before skills training. Foundational sessions examine moral responsibility and intentional patient engagement; communication techniques are subsequently

layered onto this base. Learning activities include guided discussion, reflective writing (including an ethics essay), case-based learning, and simulation-based role-play, supported by feedback and explicit expectations for accountable repair after lapses.

Justification/Documentation: In health systems where caring behaviors central to clinical pharmacy are inconsistently supported, patient-centered practice often relies on individual conscience. Students therefore require not only communication skills but also a defensible ethical rationale for responsible action in the absence of visible oversight. Early implementation outcomes are documented through reflective artifacts, facilitated discussion outputs, instructor observation of scenario performance, and a Theory of Planned Behavior-informed intention measure.

Adaptability: Although developed for undergraduate pharmacy education, the model is transferable to other health professional programs preparing learners for patient-centered roles. Its reproducible structure allows delivery by equivalently qualified educators and adaptation to local scope of practice while preserving a universal ethical foundation.

Significance: The model has relevance beyond Türkiye. In many systems, communication-based care is not consistently valued or resourced; thus education must cultivate ethical intention independent of structural support. While communication training is widely described in pharmacy education, integrated philosophy-informed models linking moral reasoning to behavioral intention and applied communication represent a critical and unmet educational need. This framework offers a scalable approach to strengthening patient-centered engagement and professional accountability internationally.

1424. Advancing Global Clinical and Professional Competencies: An International Clinical Skills Competition for Pharmacy Students

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Service or Program: The International Clinical Skills Competition was a collaboration between the American Pharmacists Association - Academy of Student Pharmacists and Korean National Association for Pharmaceutical Students, housed within the International Pharmaceutical Students' Federation. A patient case-based platform provided students the opportunity for networking and comparing healthcare systems and practices. Students formed international teams that independently completed the case. Videoconferenced presentations were evaluated by pharmacist judges on clinical accuracy, analysis depth, creativity, and presentation skills. A feedback survey using a Likert scale and open-ended questions assessed event satisfaction and student learning.

Justification/Documentation: Thirty-eight students participated and 21 students (55.3%) completed the feedback survey. Responses were overwhelmingly positive, with all participants satisfied or very satisfied with the competition. Five key learning themes emerged: clinical skills, communication, collaboration,

cultural knowledge, and networking. This competition filled an unmet need for students to actively engage with international partners and develop teamwork, critical thinking, and communication skills in a professional setting.

Adaptability: This pilot project could be replicated or expanded for international student competitions on clinical or non-clinical topics. The program could also be modified to meet the needs and learning outcomes of specific institutions. Student leaders, qualified judges, and teleconferencing platforms are all that is required to implement or expand similar initiatives to other regions worldwide.

Significance: There are insufficient opportunities for pharmacy students to interact with students at other international institutions to mutually advance clinical knowledge and soft skill development. This collaboration met important learning measures mandated by accrediting bodies in both countries, such as teamwork, advocacy, and cultural responsiveness. Additionally, this project directly supports Korean efforts to shift towards a more patient-centered, culturally sensitive approach in education and practice. This is the first study that examines how clinical reasoning is impacted by multinational perspectives and interpretations, and provides insight into clinical learning outcomes and global teamwork competencies.

CLINICAL PHARMACY FORUM

Adult Medicine

1514. Implementation of Pharmacist-led VTE Prophylaxis Optimization Program

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Service or Program: Pharmacist-led review of medical and surgical patients at high-risk for venous thromboembolism (VTE) event was implemented on inpatient units covered by a Clinical or Decentralized pharmacist at a 293-bed community hospital in Houston, Texas, in August 2025. Pharmacists identified high-risk patients based on validated risk assessment models (RAMs) and reviewed for contraindications to pharmacologic and non-pharmacologic VTE prophylaxis. Providers were contacted for patients at high-risk and without contraindication to prophylaxis measures to obtain appropriate VTE prophylaxis orders.

Justification/Documentation: Hospitalization increases VTE risk 8-fold and nearly 60% of VTE events occur following hospitalization or acute illness.¹⁻² Despite guideline recommendations to provide VTE prophylaxis, studies demonstrate that up to 22% of high-risk inpatients do not receive prophylaxis.³ Internal data around Patient Safety Indicator #12 VTE events in surgical patients demonstrated gaps in VTE prophylaxis practices. During a six-month period, pharmacists made 411 interventions related to VTE prophylaxis initiation and an additional 170 reviews of patients who were found to have contraindications to both pharmacologic and non-pharmacologic prophylaxis.

Adaptability: Incorporation of assessment of VTE prophylaxis is highly adaptable through a standardized assessment to evaluate risk factors for VTE and contraindications to prophylaxis therapy. Pharmacists and pharmacist-learners participating in multidisciplinary rounds or pharmacists reviewing patients in a decentralized role can be successful in evaluation and collaborating with providers to ensure appropriate therapy is implemented to prevent hospital-acquired VTE. The availability of reports available within the electronic medical record for patient identification enhances scalability of daily review.

Significance: Pharmacist-led anticoagulation services have demonstrated benefits in reducing VTE-related complications⁴, but a hospital-wide pharmacist-driven VTE risk assessment program has not been widely described. This program advances the clinical role of pharmacists in driving measurable patient safety outcomes, demonstrating that systematic VTE risk assessment can be performed by pharmacists across all practice models.

1550. Integration of Pharmacy Services for Hospital at Home: A New Paradigm of Care at the University of Rochester Medical Center

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Service or Program: The University of Rochester Medical Center (URMC, Rochester, NY) launched its Hospital at Home (HaH) program in September 2025, offering hospital-level care in the home outside of the traditional hospital setting. Patients admitted to hospital medicine are screened for eligibility, with a focus on early identification, ideally from the ED. Eligible patients must be adults (≥ 19 years), insured by Centers for Medicare & Medicaid Services or contracted payors, meet clinical appropriateness, reside within a geographical location, and provide consent.

Justification/Documentation: Interest in HaH accelerated during COVID-19 as health systems faced capacity constraints. Benefits of HaH include reduced mortality rates, shorter hospital length of stay, lower costs, improved patient satisfaction, and better clinical outcomes.^{1,2} Patient census frequently above-capacity at URMC found HaH models as an opportunity to shift medium-acuity patients to home while preserving in-hospital beds for higher-acuity care. To-date, the program has admitted over 90 patients, demonstrating feasibility while addressing health-system needs.

Adaptability: Program implementation presented various challenges, including New York State regulatory considerations for medication use, integration of digital health tools, limitations within the Epic electronic health record platform to support hybrid medication-dispensing and recent government shutdowns impacting program growth timeline. Currently, providers place medication orders under an admission "Phase of Care" as Signed and Held, enabling pharmacy teams to prepare medications for transfer to HaH without disrupting inpatient workflows.

Extensive coordination across inpatient, outpatient, and home infusion pharmacies ensures medications are ready at the time of transfer with ongoing medication needs supported through daily cart fills.

Significance: Inclusion of a dedicated HaH pharmacist, as part of the program design, highlights the invaluable insight pharmacists bring to interdisciplinary collaboration. Recognizing the complexity of medication dispensing particularly in this setting, HaH also expands opportunities for pharmacists to engage patients through digital health integration as the landscape for healthcare delivery continues to evolve.

Ambulatory Care

1370. Clearer Skin, Smoother Care: Expanding the Role of Pharmacists to Increase Patient Access in Dermatology

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Service or Program: Dermatology access within a large integrated health system was significantly constrained due to the volume of isotretinoin patients requiring monthly monitoring under iPLEDGE requirements. These routine visits were primarily managed by advanced practice providers (APPs), limiting availability for complex dermatologic care and contributing to prolonged wait times. To address this access challenge, ambulatory care pharmacists were embedded directly within dermatology clinics to provide longitudinal isotretinoin management.

Pharmacists managed follow up visits, including patient education, medication titrations, laboratory monitoring, adverse effect assessment, depression screening, contraception counseling when applicable, and prescription management. Care was delivered using standardized workflows with defined protocols and escalation pathways, while remaining fully integrated into dermatology clinic operations.

Justification/Documentation: At baseline, approximately 391 active isotretinoin patients generated an estimated 2,300 advanced practice provider visits. By shifting routine isotretinoin monitoring to pharmacists, advanced practice provider visits per patient were reduced from approximately six to nine APP visits per treatment course to two visits. This redistribution of care created additional provider capacity, improved access for new and higher acuity patients, and reduced clinic backlogs without adding provider full time equivalents. Early operational indicators also demonstrated improved coordination of iPLEDGE requirements and increased internal prescription capture.

Adaptability: This pharmacist-led co-management model is adaptable to other dermatology practices and ambulatory specialty clinics managing medications that require frequent monitoring or REMS oversight. The approach relies on standardized workflows, collaborative practice agreements, and focused pharmacist training.

Significance: This program demonstrates how pharmacist integration into specialty clinics can serve as an effective workforce and access solution. By optimizing team based care and

redistributing routine medication management, health systems may improve patient access, preserve specialist capacity, and maintain high quality care amid ongoing provider shortages.

1491. Development of an Ambulatory Care Pharmacist-Led Mobile Vaccine Clinic for Home-Bound Older Adults

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Service or Program: At Trinity Health Grand Rapids, an ambulatory care pharmacist (AMCP) in geriatric practice provides medication reviews and consultations with providers in the Advanced Care Coordination Program, a home-based primary care practice. Patients may enroll based on their age, physical ability to leave the home, frequency of hospital admissions or ED visits, uncontrolled chronic conditions, polypharmacy, and level of social support affecting the ability to manage health independently. A pilot program for a mobile vaccine clinic was developed by the AMCP with the goal to improve vaccination rates for this home-bound, geriatric patient population. The program evaluated need for 6 vaccines, including influenza, COVID-19, RSV, pneumococcal, zoster, and tetanus/diphtheria/pertussis.

Justification/Documentation: Home-bound older adults have many unmet medical needs, including access to CDC-recommended vaccinations. Initial baseline data found that out of a panel of 77 patients, only 2 patients (2.5%) were up to date on all 6 vaccines evaluated. Over 30% of patients were eligible for all 6 vaccines, with an average need of 4.52 vaccines per patient.

Adaptability: Patient vaccine eligibility was determined by reports within the Epic® electronic health record (EHR) and cross-referenced with the Michigan Care Improvement Registry. The AMCP partnered with an outpatient pharmacy within the health system to enter and sign prescription orders through an existing collaborative practice agreement and bill the vaccines to insurance, including Medicare parts B and D. Patient outreach and visits were documented using Epic® smartphrases developed by the AMCP.

Significance: This AMCP-delivered mobile vaccine clinic aims to remove several barriers to care, increase vaccination rates, and decrease vaccine-preventable hospitalizations. Preliminary results will be provided at the poster presentation, including rate of patient interest, patient-reported difficulty level in obtaining a vaccination outside of the home, and the completion rate of home visits and vaccinations given.

Clinical Administration

1474. Impact of Tele-Transitional Pharmacy Services Supported by Health IT in an Interdisciplinary Bariatric Surgery Program

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Service or Program: An innovative tele-transitional pharmacy service within an interdisciplinary bariatric surgery program optimizes medication management and workflow, bridging pre-operative care and surgery. Telehealth enables early engagement to address Medication Therapy Problems (MTPs) before surgery. Epic modules (Cadence, Healthy Planet, and Willow) supported scheduling, documentation, and medication management, while analytics tools enabled automated outcome tracking and dashboard visualization. During a 3-month pilot, transitions-of-care pharmacists conducted 30-minute telehealth visits within 7 days before surgery, during a weekly 4-h clinic, to obtain medication histories, review medications, provide education, and address MTPs. Inpatient pharmacists reviewed medications and resolved MTPs at discharge.

Justification/Documentation: Bariatric surgery patients face complex medication management challenges that increase the risk of errors and adverse drug events. Pharmacist involvement is often limited to inpatient discharge, leaving gaps in medication optimization and care transitions, with many interventions deferred to outpatient providers. Integrating pharmacists through a tele-transitional model addresses these gaps by linking preoperative telehealth and inpatient discharge services. Health IT-enabled workflows support standardized documentation, data capture, and performance monitoring, allowing for proactive medication optimization and improved patient safety.

Adaptability: This care model is scalable and adaptable to other programs and healthcare systems. Telehealth enables pre-operative pharmacist involvement within interdisciplinary teams to support medication optimization and care transitions. Leveraging electronic medical record workflows facilitates standardized documentation, data capture, outcome tracking while improving workflow efficiency and reducing administrative burden.

Significance: Of 27 scheduled telehealth visits, 81% were completed, with cancellation and no-show rates at 15% and 4%, respectively; 11% required rescheduling. Fifty MTPs were identified, 70% during telehealth visits; 92% resulted in therapy changes; 46% were addressed before surgery admission, while 8% were deferred to outpatient providers. Early pharmacist engagement improved medication safety and workflow efficiency by resolving most medication issues before surgery.

Education/Training

1538. Primed for Success: Sharpening Skills for Shot-Givers

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Service or Program: The University of Connecticut Immunization Committee's students and faculty hosted a peer-led Immunization Primer event to provide additional practice for pharmacy students, beyond classroom learning. Participants simulated real-world vaccine preparation and administration

techniques using needles, syringes, saline vials, and injection training arms.

Justification/Documentation: Pharmacy students often have limited opportunities to practice immunization skills outside of formal certification or experiential rotations. The Immunization Primer event provides additional opportunities to build knowledge, confidence, and competency in vaccine administration in a low-pressure peer-led setting. Pre- and post-surveys using Likert-scale questions were disseminated to assess student's attitudes, confidence, and knowledge in immunizing to evaluate the event's usefulness.

Adaptability: The Immunization Primer is easily adaptable to other training programs to enhance student preparedness. Resource requirements and safety risks are minimal as the event is guided by certified and experienced student leaders and faculty members. Participant feedback through surveys allows institutions to assess outcomes and guide program improvement. The Primer event can transition from an on-campus setting to a community pharmacy or a public health clinic.

Significance: Student participant surveys demonstrate that the Immunization Primer was associated with increases in knowledge, confidence, and positive attitudes related to vaccination compared to didactic learning alone. The additional hands-on practice led by supportive peers and faculty helped student pharmacists to increase comfort and inclination to provide vaccination services during future rotations and work experience, and increase value and support for advancement of pharmacist-led immunization efforts. Practicing pharmacists are at the forefront of providing vaccinations to promote community and public health; it is critical that student pharmacists are prepared to comfortably and confidently develop immunization skills that will be utilized frequently during their career. Adding a peer-led Immunization Primer event was greatly beneficial in achieving that aim in our school.

Pulmonary

1533. A Pharmacist-Integrated Remote Patient Monitoring Program for High-Risk COPD Patients

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Service or Program: A remote patient monitoring (RPM) program for high-risk chronic obstructive pulmonary disease (COPD) patients was implemented at an academic medical center in Mississippi. Patients were enrolled following identification of frequent COPD-related hospitalizations or emergency department (ED) visits. Participants used a smartphone application or tablet to record daily oxygen saturations and complete symptom-based questionnaires. Data were reviewed by registered nurses, who conducted outreach for abnormal values or worsening symptoms. Clinical pharmacists provided medication reconciliations at baseline and quarterly, aligned therapy with GOLD guidelines, addressed vaccination status and smoking

cessation, and initiated an exacerbation protocol when indicated under a collaborative practice agreement (CPA) with a pulmonologist.

Justification/Documentation: COPD is a leading cause of hospitalizations and readmissions, with a disproportionate burden in underserved populations. This program addressed a health system gap in reducing acute care utilization for exacerbations. Among 30 enrolled patients, hospitalizations and ED visits for COPD exacerbations declined from 2.2 per year prior to enrollment to 0.7 per year during RPM participation (68% reduction, $p < 0.001$). A total of 63 nurse outreach calls resulted in 22 pharmacist escalations and protocol-driven interventions. These findings demonstrate timely intervention and reduced acute care utilization.

Adaptability: This RPM model is adaptable to other health systems serving high-risk COPD populations, particularly in rural or underserved settings. The program leverages available technology, protocol-driven care, and a scalable, team-based workflow. Core components, including daily remote monitoring, nurse triage, and pharmacist-led medication optimization, can be implemented by similarly trained clinicians in ambulatory or population health settings.

Significance: This program advances the role of clinical pharmacists in chronic disease management by integrating them into longitudinal, technology-enabled care models. Pharmacist-led interventions directly supported evidence-based therapy and early exacerbation management, contributing to meaningful reductions in healthcare utilization. This model demonstrates how clinical pharmacists can improve outcomes, enhance care efficiency, and support value-based care in high-burden populations.

Women's Health

1464. Implementation and Uptake of a Digital Community of Practice to Support Pharmacist Contraception Prescribing

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Service or Program: A community of practice (CoP) was implemented in May 2025 at BirthControlPharmacist.com for pharmacy stakeholders to learn about and share contraception care best practices, patient care strategies, regulatory changes, and operational considerations. Resources to support connection include discussion boards, directory, and live programming. Education includes CE programs (live, home study), podcasts, and clinical resources. Technical assistance for implementation includes templates (e.g.; self-screening questionnaire, visit documentation, visit summary), customizable marketing materials, and example pharmacy workflows. The CoP has 86 professional and student members as of March 2026.

Justification/Documentation: Over 30 states have authorized pharmacists to prescribe contraception. Adoption has been slower than desired. Pharmacists desire community building, training, and technical assistance to guide implementation of contraception prescribing. CoPs have successfully supported pharmacists providing reproductive health services in Canada and Australia. Our CoP addresses the unique needs and challenges faced by pharmacists in providing contraception care.

Adaptability: The CoP aims to be adaptable to feedback and research outcomes. After using the CoP for three months, members were invited to complete a survey to assess the acceptability, appropriateness, feasibility, and sustainability of the educational and technical assistance content. All respondents ($n = 11$) agreed that the educational content was acceptable, appropriate, and feasible; 2/3 felt it was sustainable. Over half felt that the technical materials were acceptable, appropriate, feasible, and sustainable. The recorded webinars, documentation templates, and workflows were described as most useful, while the podcasts and discussion board were the least useful.

Significance: The CoP provides a structured, yet adaptable, platform for education and community building to enhance pharmacists' ability to provide high-quality contraception prescribing. Team members continually evaluate and modify the CoP to support professional development that allows pharmacists to comfortably adapt to new aspects of pharmacy practice.

CASE REPORTS

ADR/Drug Interactions

1418. Lurbinectedin Treatment for Extensive-stage Small-cell Lung Cancer in a Patient Receiving Antiretroviral Therapy for HIV: A Case Report

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Introduction: Lurbinectedin is an approved second-line treatment for metastatic small-cell lung cancer (SCLC) after progression on platinum-based chemotherapy. It is primarily metabolized by cytochrome P450 (CYP) 3A4, and concomitant use with strong CYP3A inhibitors can increase drug exposure and toxicity. Patients with HIV receiving antiretroviral therapy (ART) are at heightened risk for drug-drug interactions due to CYP modulation. However, limited data exist regarding the safety of lurbinectedin in patients with HIV on ART. We describe a case of extensive-stage SCLC (ES-SCLC) in a patient with long-standing HIV infection receiving ART.

Case: A 50-year-old woman with a > 25-year history of HIV on darunavir/cobicistat and dolutegravir was diagnosed with ES-SCLC with pulmonary, nodal, adrenal, and osseous metastases. She received first-line carboplatin/etoposide plus atezolizumab, achieving initial response before disease progression during maintenance therapy. Second-line lurbinectedin was initiated at a reduced dose (2.0 mg/m² every 3 weeks) due to concern for CYP3A4 interaction with cobicistat. Despite dose reduction and

pegfilgrastim support, she developed grade 4 neutropenia and thrombocytopenia, grade 3 anemia, and febrile neutropenia. Lurbinectedin was adjusted to every 4 weeks, and ART was switched to bicitgravir/emtricitabine/tenofovir alafenamide. Hematologic parameters improved, and she completed four cycles before disease progression.

Discussion: Lurbinectedin commonly causes myelosuppression, and CYP3A4 inhibition increases systemic exposure. Cobicistat, a potent CYP3A4 inhibitor, likely contributed to severe pancytopenia despite anticipatory dose reduction. Adjustment of ART to a non-CYP3A4-inhibiting regimen improved tolerability, supporting the importance of multidisciplinary management and proactive drug interaction assessment in oncology patients with HIV.

Conclusion: This case demonstrates that lurbinectedin can be administered in patients with HIV receiving ART, but careful evaluation of drug–drug interactions and ART modification may be necessary to mitigate toxicity.

Adult Medicine

1365. Altered Mental Status Due to Amantadine Withdrawal

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Introduction: Withdrawal symptoms from abrupt discontinuation or rapid dose reduction of amantadine has been documented as early as 1987. Symptoms can align with several diagnoses including but not limited to infection, fever, worsening of Parkinson's Disease, seizures, and altered mental status. In the case described, the timely diagnosis of amantadine withdrawal was delayed due to its non-specific presentation.

Case: A man in his 60s presented with lethargy, confusion, and delayed responses. Past medical history included parkinsonism, seizure, type 2 diabetes, and schizoaffective disorder. Outpatient medications included amantadine, benztrapine, divalproex, levetiracetam, paliperidone, risperidone, and semaglutide. He was admitted for altered mental status and home medications were held when he became NPO. A nasogastric tube was eventually placed and amantadine was restarted. Following amantadine reinitiation the patient returned to baseline and after ruling out other causes, found to have had amantadine withdrawal.

Discussion: Documented cases show that abrupt discontinuation of 200–400 mg/day of amantadine can trigger withdrawal within several days, presenting with delirium, agitation, rigidity, fever, tachycardia, and reduced responsiveness. Symptoms typically resolve quickly once the medication is restarted. Differential diagnoses include delirium from medical or medication-related causes, anticholinergic toxicity, dopaminergic withdrawal syndromes, and life-threatening conditions such as neuroleptic malignant or serotonin syndromes. A 2023 study reported that most long-term users experienced worsened motor or non-motor symptoms after stopping amantadine, though

some had no decline. Withdrawal may resemble drug side effects, and renal function strongly influences dosing needs.

Conclusion: Timely diagnosis of amantadine withdrawal is delayed due to its non-specific presentation. For patients taking amantadine, clinicians should include amantadine withdrawal in their list of differential diagnoses and in cases of altered mentation, careful review of the medication list is essential.

Ambulatory Care

1406. Herbal Medicine Interference with Continuous Glucose Monitoring System in Diabetes Management: A Case Report

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Introduction: Continuous glucose monitoring (CGM) systems have transformed diabetes management through improved glycemic control, leading to decreased adverse outcomes such as cardiovascular disease, neuropathy, retinopathy and nephropathy. However, there are documented, known interactions with several commonly used substances that are available over the counter, such as acetaminophen, aspirin, and Vitamin C, that affect the accuracy of CGM glucose readings. This is the first case report to detail the interaction between a CGM system and herbal supplements, as there are no other case reports available through literature review.

Case: The patient presented to their primary care physician (PCP) for CGM readings chronically in 50-60 mg/dl range with no symptoms of hypoglycemia; point-of-care fingerstick glucose reading 181 mg/dl while reader showed 59 mg/dl. Hemoglobin A1c (HA1c) level was drawn during visit and resulted 10.8%. The PCP referred the patient to the pharmacist for comprehensive medication review, where it was discovered that the patient was taking an herbal supplement in addition to prescribed medications. Upon herbal discontinuation, the CGM readings more accurately reflected physiologic glycemia.

Discussion: The Food and Drug Administration (FDA) released an alert November 2025 regarding incorrect low glucose readings associated with the Freestyle Libre 3 CGM system after the manufacturer received 736 severe adverse events and seven deaths related to this issue. The FDA warns that incorrect low glucose readings may lead to inappropriate treatment decisions, including patient self-management where the patient may skip or delay insulin administration, leading to serious complications including death. This case report highlights that herbal supplements may exhibit pharmacologic activity and a complete, comprehensive medication review including vitamins and homeopathic supplements are necessary to protect the public from avoidable, unintended harm.

Conclusion: Further research regarding herbal supplements and public use are warranted with respect to adverse drug events and patient outcomes including emergency department utilization, hospitalization, and mortality.

Cardiovascular

1422. Tirzepatide Might Improve Heart Function and Outcomes in Left-Sided Heart Failure with Severely Reduced Ejection Fraction: an ICD Patient Case Report

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Introduction: Tirzepatide has limited data in heart failure with reduced ejection fraction (HFrEF) and no evidence-based recommendations for this population due to safety concerns. This case describes a patient with HFrEF, multiple comorbidities, and an implantable cardioverter-defibrillator (ICD) who is in month four of tirzepatide therapy for diabetes.

Case: A 75-year-old male presented for routine follow-up. History includes HFrEF, type II diabetes, hypertension, hypertriglyceridemia, hypertrophic cardiomyopathy, and a multisite ICD placed five years post-MI. No re-hospitalizations since MI ten years ago. He uses CPAP, quit smoking after MI, denies alcohol. Weight: 97 kg. BP: 98/57. HR: 81. Labs: Glucose 88, A1C 6.2%, total cholesterol 168, HDL 50, LDL 79.8, triglycerides 191, Cr 1.21, eGFR 70.9, BUN 21, LFTs normal, INR 2. Echo: Ischemic cardiomyopathy with EF 35% (previously 29%), severe cardiomegaly, asymptomatic. NYHA I. Cardiac index: 2.48 L/min (previously 2.08). Medications: carvedilol, sacubitril/valsartan, dapagliflozin, sitagliptin, spironolactone, atorvastatin, furosemide, warfarin, metformin, tirzepatide 10 mg weekly. Patient reports improved exercise tolerance (90 min thrice weekly), no dyspnea. Recommendations: switch atorvastatin to rosuvastatin, add omega-3, reduce salt, monitor for diarrhea and dizziness.

Discussion: Since starting tirzepatide, A1C improved from 6.7% to 6.2%, EF from 29% to 35%, and cardiac index from 2.08 to 2.48 L/min (cardiac output of 5.53) approaching near-normal perfusion. A 6% weight loss alone is unlikely to account for these improvements. Renal function stable. KCCQ score improved from 73 to 80.

Conclusion: Tirzepatide was prescribed by a cardiologist to an advanced HFrEF patient with counseling on risks including hypotension and kidney changes. No adverse events occurred. Modest weight loss may have contributed to improved EF and output. Close monitoring is needed to assess long-term safety. Additional therapies are not currently indicated given stability and ICD status.

Pain Management/Analgesia

1364. Therapy Failure with Generic Medication Substitution

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Introduction: The active ingredients in branded medications and generic medications from different manufacturers are the same. However, in clinical practice, therapy failure can occur when switching from branded to generic medications or between generic medications of different manufacturers. In this report, we describe a patient whose neuropathic pain worsened after switching among generic brands.

Case: We present a 58-year-old male patient who presented for evaluation of chronic right-sided ilioinguinal neuralgia. Pain was previously well-controlled using a generic brand of nortriptyline 75 mg nightly (Taro Pharmaceuticals USA), which became no longer available for purchase in the U.S. Seven other generic brands were tried until patient found a manufacturer that provided equivalent pain relief (Kent Pharma UK Ltd).

Discussion: Approximately 30% of patients experience therapy failure when switching from branded to generic medications or between generic medications of different manufacturers. The exact cause is unclear, but the underlying problem may be two-fold. First, any given drug can contain a wide variety of excipients including binders, disintegrants, colorants, diluents, lubricants and preservatives. Many so-called inactive ingredients are known to impact absorption, metabolism, and bioavailability contributing to unpredictable therapeutic responses.

Second, the quality of generic drugs can be inconsistent. Generic manufacturers often use foreign facilities to offset the cost of labor and material. According to the Government Accountability Office, 64% of foreign pharmaceutical plants were never inspected by the FDA in 2010 and as of 2015, 33% of foreign facilities remained uninspected. The result is poorly regulated, substandard drug products entering the U.S., that in certain reported cases, contain harmful contaminants – all plausible reasons for therapy failure during generic substitution.

Conclusion: When evaluating patients whose medication stops being effective after generic substitution, clinicians should be aware of the impact of inactive ingredients and the variability in generic drug quality.

Transplant/Immunology

1405. A Challenging Case of Donor-Derived Adenovirus in a Kidney Transplant Recipient

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Introduction: Adenovirus infection post-kidney transplant is an uncommon but potentially severe complication, particularly in the early phase with intense immunosuppression. Early adenovirus infection following transplantation may suggest either viral reactivation or donor-derived infection. Management is challenging due to limited antiviral data, nephrotoxicity concerns, and the need to balance rejection risk. We describe a case of biopsy-proven donor-derived adenovirus tubulointerstitial nephritis in a pediatric kidney transplant recipient requiring multimodal therapy.

Case: An 18-year-old male with end-stage renal disease secondary to nephronophthisis underwent deceased-donor kidney transplant with basiliximab induction and tacrolimus, mycophenolate mofetil,

and low-dose prednisone maintenance immunosuppression. On postoperative day (POD) 18, he presented with a creatinine of 3.7 mg/dL from post-transplant baseline 1.3–1.6 mg/dL, suprathreshold tacrolimus, fever, and hematuria. Workup revealed 871,927 copies/mL of adenovirus in the blood and $> 2.53 \times 10^7$ copies/mL in the urine, with a biopsy confirming adenovirus tubulointerstitial nephritis. Immunosuppression was reduced by lowering tacrolimus targets and transitioning from mycophenolate to azathioprine. Despite this, creatinine peaked at 7.0 mg/dL, requiring renal replacement therapy and initiation of low dose cidofovir. The patient then received an adoptive virus-specific T-cell infusion followed by initiation of oral brincidofovir coordinated via e-IND.

Discussion: Cidofovir dosing was individualized due to dialysis and graft preservation. Brincidofovir and adoptive T-cell therapy were selected to minimize nephrotoxicity and increase viral clearance. Multidisciplinary discussion balanced adenoviral control against rejection risk, with close monitoring of graft function, donor-specific antibodies, and donor-derived cell-free DNA.

Conclusion: Following combined immunosuppression reduction, cidofovir, virus-specific T-cell therapy, and oral brincidofovir, adenoviral load declined to < 500 copies/mL and dialysis was discontinued. At the POD103 mark, serum creatinine continues to improve at 1.63 mg/dL, with discontinuation of all interventions. This case explores graft-cognizant options for the treatment of adenovirus, and suggests further research for both brincidofovir and adoptive T cell therapy.

ENCORE

Dermatology

1496. Risk of Systemic Adverse Effects from Topical and Oral Corticosteroids: Time for a Paradigm Shift?

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Presented at the 23rd Winter Clinical Dermatology Conference; January 16–21, 2026; Maui, HI.

1497. Reduction in Pruritus Across Indications in Phase 3 Trials of Topical Roflumilast

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Presented at the 23rd Winter Clinical Dermatology Conference; January 16–21, 2026; Maui, HI.

Education/Training

1409. Shaping Gynecologic Cancer Education with Insights from Patient Focus Groups

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Presented Shaping Gynecologic Cancer Education with Insights from Patient Focus Groups [Conference session]. Alliance Annual Conference, Atlanta, GA, United States.

Endocrinology

1397. Improving Pharmacists' Competence in Obesity Care: Descriptive Outcomes from Patient-Informed Continuing Professional Development (CPD)

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Presented at 2026 APhA Annual Meeting & Exposition, March 27–20, 2026, Los Angeles, California.

Nephrology

1461. Updated Acute Kidney Intervention and Pharmacotherapy (AKIP) List: Manual Review of Articles Identified by Automation

Atreya Ghosh, Student Pharmacist¹, Caiden Lukan, Pharm.D.¹, Hunter Eldien, Bachelor of Science/Pharm.D.², Connor Lukan, BS³, Michael Gill, Student Pharmacist⁴, Alexa Barzi, Undergrad Student at University of Pittsburgh¹, Erin Frazee Barreto, Pharm.D., BCCCP⁵, Sandra L. Kane-Gill, Pharm.D., B.S.Pharm, MSc, FCCP, FCCM¹

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Presented at: American Public Health Association (APHA) Annual Meeting; JAPhA, 2026; Los Angeles, California

Oncology

1423. SCLC Outcomes and Real-World Insight with Tarlatamab, a Multi-Center Experience

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Presented at: 2026 Targeted Therapies of Lung Cancer Meeting, February 2026, Huntington Beach, California

Pulmonary

1551. Rescue Inhaler Prescribing Practices Following Guideline Updates at a University Health Discharge Pharmacy

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Presented at: American Pharmacists Association (APhA) Annual Meeting & Exposition; March 27–30, 2026; Los Angeles, CA.

SCOPING REVIEWS

Medication Safety

1498. Impact of Clinical Decision Support Systems Embedded in Electronic Prescribing on Medication Safety Outcomes in Hospitals: A Scoping Review

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Introduction: Clinical decision support systems (CDSS) embedded within electronic prescribing (EP) are widely implemented to improve medication safety in hospitals; however, evidence regarding their effectiveness remains heterogeneous. This scoping review aimed to map and characterize how EP-integrated CDSS have been evaluated in hospital settings for medication errors (MEs), adverse drug events (ADEs), and other patient-related outcomes, and to identify patterns in effectiveness according to CDSS mechanisms.

Methods: A scoping review was conducted following the Arksey and O'Malley framework and reported in accordance with PRISMA-ScR. Medline (PubMed), Cochrane Library, and CENTRAL were searched from inception to December 2025. Comparative studies in hospital settings evaluating EP systems with CDSS and reporting outcomes related to MEs, ADEs, or other patient-related outcomes were included. Data were charted descriptively and methodological quality was appraised using Joanna Briggs Institute tools.

Results: Among 2,828 identified records, 46 studies met inclusion criteria (43 primary studies, 3 systematic reviews; overall moderate to high methodological quality). Medication error-related outcomes were most frequently assessed and generally associated with improvements when CDSS provided structured, patient-specific support (e.g., antimicrobial stewardship, older adults, pediatrics). In contrast, alert-based systems showed more variable effects. ADEs were less frequently measured and, together with other patient-related outcomes such as length of stay, mortality, and readmissions, were inconsistently evaluated and demonstrated heterogeneous results.

Discussion: Effectiveness of EP-integrated CDSS appears to depend more on system design and workflow integration than on clinical domain alone. Structured CDSS aligned with clinical workflows were more consistently associated with improvements in medication safety processes than alert-only systems. However, heterogeneity in study designs and outcome definitions limited direct comparability across studies. Greater standardization of outcome definitions and incorporation of human factors principles into CDSS design is needed to optimize CDSS as a hospital quality improvement strategy and guide future implementation efforts.

Other: Funding: None.

Oncology

1539. Emerging Molecular Subtypes and Targeted Therapies in SCLC: A Scoping Review

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Introduction: Small cell lung cancer (SCLC) is an aggressive malignancy with poor prognosis and limited therapeutic options. Although historically considered homogeneous due to near-universal RB1 and TP53 inactivation, SCLC is now recognized as biologically heterogeneous. Classic subtypes defined by transcription factors (ASCL1, NEUROD1, POU2F3, and YAP1) do not fully capture this diversity, and effective subtype-directed therapies remain limited. This scoping review aims to identify emerging SCLC subtypes beyond transcription factor-based classifications and evaluate associated therapeutic strategies.

Methods: A systematic literature search was conducted in PubMed and EBSCO in July 2025 following PRISMA-ScR guidelines. Search terms included “Small Cell Lung Carcinoma” AND “subtype” (PubMed) and “small cell lung cancer” AND (“subtype” OR “classification”) (EBSCO). Inclusion criteria included studies published between 2000 and 2025 with full-text availability. Non-English articles, reviews, and in vitro studies were excluded. Two reviewers independently screened abstracts, with disagreements resolved by consensus. Subtyping approaches were categorized as transcriptional, genomic, epigenetic, or multi-omic. Data were charted descriptively, including molecular features and associated therapeutic strategies; no formal risk-of-bias assessment was performed.

Results: The search identified 72 articles for eligibility, of which 37 remained after applying exclusion criteria. Eleven gene targets (PARP, ATR, CHK1, WEE1, AURKA/B, CDK4/6, LSD1, HDAC, NOTCH) or therapeutic strategies (glucose metabolism, arginine-depletion) were reported. Transcriptomic ASCL1 and NEUROD1 subtypes corresponded with epigenetic clusters (E2 and E1), while multi-omic analyses identify additional tumor states. Subtypes including POU2F3, inflamed tumors, and NMF2 are biologically distinct, highlighting persistent heterogeneity and challenges in developing unified subtype-directed therapies.

Discussion: Variability in molecular profiling and subtype definitions limits cross-study comparisons. While emerging subtypes and therapeutic targets were identified, current frameworks lack sufficient specificity to guide individualized treatment. Further integrative studies are needed to link subtype biology with therapeutic response in SCLC.

Other: **Funding:** No funding supported this review.

Psychiatry

1557. Pharmacological and Non-Pharmacological Treatments for Major Depressive Disorder among Adolescent Individuals in the United States: A Scoping Review

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Introduction: Major depressive disorder (MDD) affects approximately one in five adolescents in the United States and is associated with significant functional impairment, suicide risk, and long-term morbidity. Despite its prevalence, evidence-based treatment options remain limited, and clinical decision-making frequently relies on extrapolation from adult populations. During November 2025, the FDA approved the use of Transcranial Magnetic Stimulation (TMS) for adolescents aged 15-21 as an adjunct in the treatment of MDD. Prior to this approval, TMS was only approved among adults with MDD (ages 22-86 years old). Given the heterogeneity of available interventions and evolving evidence base, a scoping review is warranted to systematically map and compare existing treatments rather than to assess comparative effectiveness alone. This review aims to (1) characterize pharmacological and non-pharmacological treatments for adolescents with MDD, (2) map and synthesize evidence for pharmacotherapy, psychotherapy, and neuromodulation modalities, and (3) identify gaps and future research priorities.

Methods: Following PRISMA-ScR guidelines, we searched PubMed, Embase, EconLit, PsycINFO, and Scopus for studies from 01/01/2000 to 12/31/2025; with emphasis on clinical guidelines, efficacy, safety (regulatory status), economic value, quality of life outcomes, and relevance to pharmacy practice.

Results: There were 45 studies identified and included which provided the following evidence: FDA approved antidepressants as pharmacologic treatments (fluoxetine and escitalopram); cognitive behavioral therapy (CBT) and interpersonal therapy (IPT) as psychotherapies; electroconvulsive therapy (ECT) and transcranial magnetic stimulation as neuromodulation/medical devices as adjunctive options for adolescent MDD. Review of various studies provided several exploratory research gaps.

Discussion: A stepped-care approach integrating pharmacological and non-pharmacological treatments is supported for adolescent MDD. Gaps in evidence regarding long-term outcomes, head-to-head comparisons, quality of life comparisons, and economic evaluations are needed. These findings highlight opportunities for pharmacists and interdisciplinary teams to advance evidence-based, patient-centered care in adolescents with MDD.

Other: 2

SYSTEMATIC REVIEWS/META-ANALYSES

Oncology

1492. Pharmacist-Led Interventions for Oral Tyrosine Kinase Inhibitor Adherence and Toxicity Management in Cancer Patients: A Systematic Review

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Background: Oral tyrosine kinase inhibitors (TKIs) require sustained adherence to achieve optimal clinical outcomes; however, adherence remains suboptimal in many patients. This systematic review evaluates the impact of pharmacist-led interventions on adherence, toxicity, and clinical outcomes in adult cancer patients receiving oral TKIs and related oral anticancer agents.

Methods: PubMed and Embase were searched through March 2026. Eligible studies were peer-reviewed full-text publications evaluating pharmacist-led interventions in adults ≥ 18 years receiving oral TKIs. Conference abstracts and studies without clinical outcomes were excluded. Risk of bias was assessed using the Newcastle-Ottawa Scale for observational studies and the Cochrane Risk of Bias 2 tool for randomized controlled trials. Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines were followed.

Results: Seven studies comprising 1,940 patients were included, including five observational studies and two randomized controlled trials. Results were narratively synthesized due to heterogeneity. Pharmacist-led interventions included patient education, medication reconciliation, adherence support, and toxicity monitoring. Medication-related problems were identified in up to 97% of patients, with an estimated resolution rate of 77.3% and intervention acceptance of 94.4%. Improved adherence was demonstrated in two studies, increasing from 67.1% to 90.9%, while usual care remained relatively unchanged (70.2% to 72.4%). In one randomized controlled trial, pharmacist involvement reduced the composite risk of severe adverse events, treatment discontinuation, hospitalization, or death (hazard ratio 0.48; 95% confidence interval 0.32–0.71). Treatment delays were reduced from 7.7 to 2.1 days, and patient satisfaction exceeded 80% across studies.

Discussion: Pharmacist-led interventions were associated with improvements in medication management, adherence, toxicity mitigation, and selected clinical outcomes in patients receiving oral TKIs. Limitations include predominance of observational designs, heterogeneity of interventions, and limited generalizability. These findings support integration of oncology pharmacists into multidisciplinary care teams to optimize oral anticancer therapy management.

Other: N/A

Pulmonary

1482. A Systematic Review of Self-Management Strategies to Improve Quality of Life in COPD

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Background: Chronic Obstructive Pulmonary Disease (COPD) is a major global health concern in terms of morbidity and mortality and is associated with progressive airflow limitation, recurrent exacerbations, and significant decline in health-related quality of life (HRQoL). Self-management interventions have been increasingly incorporated into COPD care to improve patient outcomes; however, their effectiveness in enhancing HRQoL remains variably reported. This review evaluates the effectiveness of self-management interventions on health-related quality of life among patients with COPD based on evidence from randomized controlled trials (RCTs).

Methods: We conducted a systematic review (protocol registration no. CRD42023391196) by searching Web of Science, Cochrane Library, PubMed, and Google Scholar to identify RCTs published since 2022. Risk of bias was assessed using the Cochrane RoB 2 tool. Studies assessing the impact of self-management interventions—including breathing exercises, physical activity, and structured self-management programs—on HRQoL outcomes in patients with COPD were included. Data were extracted and synthesized narratively due to heterogeneity in interventions and outcome measures.

Results: Twenty-four RCTs met the inclusion criteria. Self-management interventions demonstrated improvement in HRQoL domains compared with standard care. However, only four studies showed statistically significant improvements across all measured quality-of-life domains using the St. George's Respiratory Questionnaire (SGRQ) or SGRQ-C, a COPD-specific questionnaire. Variability in intervention components, duration, frequency, and delivery method contributed to heterogeneity and restricted the outcome to the SGRQ.

Discussion: Self-management interventions appear to improve HRQoL in patients with COPD; however, evidence regarding the most effective individual component remains inconclusive. Further well-designed RCTs using consistent outcome measures are needed to identify the most effective structure and key components of self-management programs to maximise the quality of life in this population.

Other: Funding: No funding was available to conduct this review Registration: PROSPERO CRD42023391196

Clinical Administration

1521. Discovering Decision Drivers: Developing a Patient-Service-Specific Complexity Scoring Tool for Clinical Pharmacy Human Resource Allocation

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Introduction: Limited human resources for optimal patient care remains a challenge for healthcare-systems pharmacy leaders. Sharing deciding factors related to prioritizing

patient-service areas may facilitate reliable and predictable delivery of clinical pharmacy care within and across hospitals.

Research Question or Hypothesis: Determine factors that pharmacy professionals consider when allocating human resources across patient care areas, to inform the development of a patient-service-specific clinical pharmacy intensity scoring tool.

Study Design: International, mixed-methods study utilizing an organization-level online survey and virtual focus groups.

Methods: The survey was distributed, via professional associations communication networks, to pharmacy departments throughout Canada and USA using purposive, population-based, multi-channel sampling. A key informant methodology was used to elicit coordinated institutional responses. Respondents were asked to select, rank, and compare pharmacy-specific decision-making factors adapted from general patient resource intensity weights (e.g., Comorbidity Level). Results were summarized descriptively. Respondents were invited to participate in a facilitated focus group, where asked to expand upon summarized responses elicited during the survey. Data

were analyzed using an inductive thematic analysis approach. Results would inform a scoring tool.

Results: Complete survey responses were received from 39 hospitals/healthcare-systems (10 Canada; 29 USA). Three focus groups were conducted with 14 participants. Most sites responded that certain areas are prioritized for pharmacist coverage during staffing shortages; 28/39 sites prioritize for short-term (e.g., sick calls), and 22/39 for long-term (e.g., resignations). Prioritized areas included Critical Care (almost all), followed by Emergency (approximately half). Top reasons for prioritization were 'Patient Acuity', 'High-risk Patient Population', 'Medication Complexity', and the 'Existence of Interdisciplinary Rounds'. Least-weighted considerations differed whether it was a short- or long-term vacancy; 'Dedicated Funding (from unit/service-line)' and 'Spatial Location' consistently ranked among the lowest.

Conclusion: Based on a majority of respondents consistently prioritizing certain patient care areas, and information gathered regarding the importance of multiple decision-making considerations, results were used by the research team develop a patient-service-