AI Performs Well in Virtual Urgent Care Visits

Take Home Point: This study indicates that an artificial intelligence (AI) algorithm was better at adhering to clinical guidelines and identifying critical red flags during virtual urgent care (UC) consultations, while physicians were better at adapting recommendations to changing information obtained during a patient consultation.

Citation: Zeltzer D, Kugler Z, Hayat L, et al. Comparison of Initial Artificial Intelligence (AI) and Final Physician Recommendations in AI-Assisted Virtual Urgent Care Visits. *Ann Intern Med.* 2025;178(4):498-506. doi:10.7326/ANNALS-24-03283

Relevance: This study focused on AI's recommendations for diagnosis and management in a virtual urgent care setting, whereas most previous data and existing studies focus on AI's performance on narrow tasks and not its ability to support diagnosis and management.

Study Summary: This was a retrospective cohort study using data from Cedars-Sinai Connect (CS Connect), a virtual primary and urgent care clinic. Patients initiated visits by entering clinical concerns into virtual structure online chat and an algorithm using this information and data from the patient's electronic health record (EHR) provided initial feedback about conditions with related symptoms (diagnosis). The patient could then initiate a virtual consultation with a physician. An AI algorithm also suggested management recommendations for treating physicians, including medication, diagnostic tests, and referral options. The physician providing care had the ability to review AI recommendations, however, it is unknown if they did so. Study analysis focused on common conditions such as respiratory, urinary tract, vaginal, eye, and dental illnesses. Following the visit, cases were reviewed by 4 experts specializing in internal, family, and emergency medicine.

During the study period, 1,023 visits were made, and 461 cases were analyzed. The mean age of patients in the study was 45.3 years and 70.2% of the patient were female. The authors found physician decisions were classified as concordant with AI recommendations in 262 cases (56.8%). Of the non-concordant cases, across all symptom types, AI recommendations were rated higher than physician decisions in 14.4% to 40.8% of cases. The highest proportion was observed in urinary symptoms with 40.8% rating AI better (confidence interval [CI], 33.9% to 48.2%) compared with 9.2% rating physicians better (CI, 4.8% to 16.8%). Examples of optimal AI recommendations include ordering urinalysis and urine culture instead of treating empirically in a patient with recurrent urinary tract infections. However, physicians were rated better in 36% of all cases. The primary reasons for physician superiority included avoiding inappropriate emergency department (ED) referrals (8.0%), better handling of evolving or inconsistent patient-reported histories (6.2%), and making necessary in-person referrals.

Editor's Comments: The physicians in the study had the ability to view the AI recommendations prior to and during the virtual consultation, however, it was uncertain if they followed any of the recommendations. Of the initial study cohort, AI withheld recommendations in 133 cases (13%), thus requiring human intervention for the consultation. The single-center design, mostly female participation, and limited category of symptoms limits the generalizability of these findings. Additionally, the small sample size limits the ability to evaluate for potential algorithmic bias. However, AI's better adherence to guidelines around recurrent urinary infections and antibiotic stewardship in upper respiratory tract infections does hold promise for potentially incorporating AI into virtual urgent care consultations to promote better clinical decision making by UC clinicians. ■

Ivan Koay, MBChB, MRCS, FRNZCUC, MD, is an urgent care physician and the Medical Lead for Kings College Hospital Urgent Treatment Centre, London, England, and Watford General Hospital Urgent Treatment Centre, Watford, United Kingdom. He is also the Convener for Ireland and UK Faculty for the Royal New Zealand College of Urgent Care, as well as the London Representative of Faculty of Pre-Hospital Care for the Royal College of Surgeons, Edinburgh, Scotland.

Oral Cephalosporins for Treatment of Acute Pyelonephritis in the Emergency Department

Take Home Point: This study noted that there was no difference in rates of pyelonephritis treatment failure in emergency department patients treated with cephalosporins versus guideline-endorsed antibiotics (fluoroquinolones, trimethoprim-sulfamethoxazole) who were discharged home.

Citation: Koehl J, Spolsdoff D, Negaard B, et. al. Cephalosporins for Outpatient Pyelonephritis in the Emergency Department: COPY-ED Study. *Ann Emerg Med*. 2025 Mar;85(3):240-248. doi: 10.1016/j.annemergmed.2024.10.013

Relevance: Since the Infectious Diseases Society of America (IDSA) publication in 2010 of guidelines for the treatment of acute pyelonephritis and urinary tract infection (UTI), E. coli resistance levels to both fluoroquinolones and trimethoprim-sulfamethoxazole (TMP-SMX) have doubled. Identifying alternative treatment strategies will help with reducing antimicrobial resistance (AMR) in the general population.

Study Summary: This was a multicenter, retrospective observational cohort study at 11 geographically diverse, U.S. hospital EDs. The authors identified patients from ICD-10 coding who were treated and discharged home with uncomplicated pyelonephritis after an ED visit. The study's primary outcome was the rate of treatment failure of cephalosporins compared with IDSA guideline-endorsed first-line treatments (fluoroquinolones, TMP-SMX) at 14 days. Treatment failure was defined as recurrence of urinary symptoms, repeat ED visit or hospitalization for a urinary tract infection, or receipt of a new antibiotic prescription for urinary tract infection.

The authors identified 851 patients for analysis, 647 in the cephalosporin group, and 204 in the fluoroquinolones/TMP-SMX group. They found no significant difference in treatment failure in the cephalosporin group compared with the fluoroquinolones/TMP-SMX group (17.2% of cephalosporin vs 22.5% of fluoroquinolones/TMP-SMX group; difference=5.3%, 95% CI, −0.118 to 0.01). There was no significant difference in treatment failure in patients who received shorter courses than recommended by the IDSA guidelines in the cephalosporin group (‹10 days - 18.0% vs ≥10 days - 16.6%, 95% CI, -0.046 to 0.074), fluoroquinolone group (‹7 days - 33.3% vs ≥7 days - 25.0%, 95% CI, -0.171 to 0.338), or TMP-SMX group (‹10 days - 22.7% vs ≥10 days - 15.4%, 95% CI, -0.085 to 0.231).

Editor's Comments: There are several confounding factors that were not taken into consideration by the authors, which include distinguishing patients who received only oral antibiotics compared to those who received a dose of intravenous medication prior to discharge and whether patients were seen in other facilities prior to presentation at the study facility. Issues surrounding the bioavailability of certain cephalosporins based on which cephalosporin was prescribed (ie, cefpodoxime or cefdinir) were not investigated. An additional factor that was also not considered was the lack of adherence to the IDSA guidelines by the disproportionate number of patients in the cephalosporin group compared to that of the fluoroquinolones/TMP-SMX group at a rate of 3:1, which suggests a shift of practice that already acknowledges the rise of AMR in the population. ■

Can We Treat Toddler's Fractures in a Walking Boot?

Take Home Point: Results of this study suggest that a removable boot (RB) without physician follow-up was noninferior to casting in patients with toddler's fracture (TF) regarding pain at 4 weeks postinjury.

Citation: Boutin A, Colaco K, Stimec J, et. al. Removable Boot vs Casting of Toddler's Fractures: A Randomized Clinical Trial. *JAMA Pediatr*. 2025 Apr 21:e250560. doi: 10.1001/jamapediatrics.2025.0560

Relevance: Toddler's fractures are one of the most common lower limb injuries sustained by young children and presently treated with traditional casting and fracture clinic follow-up, which has potential for complications. With the emerging shift towards splinting for upper limb injuries, could this be a similar therapeutic strategy for managing TF?

Study Summary: This was a pragmatic, multicenter, assessor-blinded, 2-arm, noninferiority randomized clinical trial to determine if RB without scheduled physician follow-up was noninferior to casting with respect to pain scores measured at 4 weeks postinjury in children with radiograph-visible TF based in 4 Canadian tertiary children's hospitals. Patients were randomly assigned in a 1:1 ratio to receive RB or casting. At 4 weeks, following removal of the immobilization device at least 1-week prior to the appointment, enrolled participants received a virtual visit, where blinded assessors observed the child and determined the Evaluation Enfant Douleur (EVENDOL) pain score during ambulation.

In all, 129 children were recruited into the study: 65 in the RB group; and 64 in the cast group. Of these, 118 children (92%) completed the 4-week follow-up. The mean (SD) EVENDOL pain score was 1.21 (1.54) in the RB group and 1.76 (2.13) in the cast group (difference, −0.55; 95% CI, −1.23 to 0.13). At 4-weeks post injury, a higher proportion of patients had returned to baseline activities "almost all of the time" in the RB (77%) vs cast group (41%) (differ-

ence 36%; 95% CI, 9%-63%). Both groups had skin complications, which were slightly higher in the RB group but not statistically significant (72% versus 50%, difference 22%; 95% CI, –6% to 50%).

Editor's Comments: There was no blinding of the caregivers, which had the potential to lead to some reporting bias. There may be some limited generalizability of the study population due to its recruiting methodology of patients presenting to a tertiary children's hospital. This study does show the possibility for some changes in UC practice and moving toward a "less is more" approach. UC clinicians are advised to follow their local orthopedic protocols for follow-up. This topic of research could be replicated in an urgent care setting to determine if similar results are seen. ■

Non-Surgical and Non-Interventional Treatments For Lower Back Pain

Take Home Point: This is a systemic review and meta-analysis of randomized controlled trials that compared active pharmacologic and non-pharmacologic treatments against placebo in the treatment of acute nonspecific low back pain. Non-steroidal anti-inflammatory drugs (NSAIDs) were found to be the only treatment that was efficacious when compared to placebo.

Citation: Cashin A, Furlong B, Kamper S, et. al. Analgesic effects of non-surgical and non-interventional treatments for low back pain: a systematic review and meta-analysis of placebo-controlled randomised trials. *BMJ Evid Based Med*. 2025 Mar 18:bmjebm-2024-112974. doi: 10.1136/bmjebm-2024-112974.

Relevance: Lower back pain is a common presentation with a majority classified as non-specific causation. Cases are projected to increase in the coming years. Identifying appropriate and efficacious therapies will help UC clinicians in these types of consultations, including management of patient expectations.

Study Summary: This was a systematic review and meta-analysis of presently available published evidence of randomized placebo-controlled trials of non-surgical and non-interventional treatments for patients with nonspecific acute and chronic low back pain. The authors performed searches using the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) guidelines. Studies included non-surgical and non-interventional treatments that aimed to improve pain. All analyses were grouped by intervention class (pharmacological or non-pharmacological intervention) due to different study designs.

The authors analyzed 301 trials (377 treatment arms of interest). The most common interventions for acute nonspecific low back pain were NSAIDs (n=27); opioids (n=26); laser and light (n=25); acupuncture (n=24); and mobilization (n=19). The authors found 1 pharmacological treatment (NSAIDs; moderate certainty evidence) was found to be efficacious. For nonspecific chronic back pain, three non-pharmacological treatments (exercise, spinal manipulative therapy, taping; moderate certainty evidence) and 2 pharmacological treatments (antidepressants, transient receptor potential vanilloid 1 agonist (TRPV1); moderate certainty evidence) were found to be efficacious.

Editor's Comments: This study provides further indication that for acute nonspecific lower back pain, there is very little evidence of efficacy for many of the currently utilized treatments and therapies. The study did rely on the quality of data gathering from the original investigations, and the authors admit limitations in the deciphering of what constituted placebo in the studies analyzed. While more studies on this topic are needed, it is critical that UC clinicians utilize the data available to prescribe effective and evidence-based treatments for acute and chronic nonspecific low back pain. ■

Patient Satisfaction and the Type of Appointment

Take Home Point: Readily available and in-person (face-to-face) appointments were associated with increased patient satisfaction.

Citation: Burch P, Whittaker W, Lau Y. Relationship between the volume and type of appointments in general practice and patient experience: an observational study in England. *Br J Gen Pract*. 2025 May 2;75(754):e375-e381. doi: 10.3399/BJGP.2024.0276.

Relevance: Patient satisfaction is a surrogate for quality of care in medical practice. For UC, it is a potential ongoing revenue stream as it leads to return visits. Understanding some of the drivers of patient satisfaction in general practice and urgent care is important, particularly with the rise of virtual care.

Study Summary: This was a review of available data from the General Practice Patient Survey (GPPS), the largest patient experience database in England. Patient-reported indicators from the GPPS examined patient satisfaction with appointment times, overall satisfaction with the general practice itself, ability to consult with a preferred doctor, and unmet health needs.

The authors reviewed appointment data from 5,278 GP practices, correlating the GPPS to those practices. They found higher levels of satisfaction for face-to-face appointments with their preferred doctor. Patients were also more satisfied when they were able to see their doctor within 24 hours of requesting an appointment. There were low levels of satisfaction with telephone appointments.

Editor's Comments: There may be limited generalizability for this study to urgent care given its predominance for general practice (family medicine) visits to a known doctor. Additionally, given that this was focused on physicians, whereas in urgent care in the United States, the visits are generally conducted by non-physician clinicians. There are, however, some conclusions, particularly around the higher satisfaction for face-to-face consultations that may be taken into consideration by UC centers that are looking to leverage virtual consultations. Further research is needed in the area of patient satisfaction for UC clinics. ■

Does the Soft Shell Cap Reduce Sports-Related Concussions?

Take Home Point: In this study, the use of soft-shell helmet covers marketed as the Guardian Cap (GC) during high-school football practice was not associated with lower risk of sport related concussion (SRC) during practice or games.

Citation: Hammer E, Mosiman S, Joachim M, et al. The association between Guardian Cap use during practices and sport-related concussion risk in high school American football players. *Br J Sports Med*. 2025;59:257–262.

Relevance: SRCs are a major concern due to short-term and long-term consequences, and preventing them remains a priority for athletes, parents, medical providers, and sport-governing organizations.

Study Summary: This was a prospective cohort study from 41 high schools in Wisconsin during a football season. Athletes self-selected to wear soft-shell helmet covers on their regular practice helmets (GC group) or not wear the covers (non-GC) during practice. None of the athletes wore the covers during games. Prior to the start of the season, players reported their demographic data (sex, age, grade in school, height, weight), history of SRC, and previous football playing experience, and completed the head injury Symptom and Severity score from the Sports Concussion Assessment Tool V.5 (SCAT5). Within 72 hours of injury sustained during a practice or game, players were determined to have sustained a SRC as defined by the Amsterdam International Consensus Statement on Concussion in Sport.

Included in the study were 2,610 high school football players (99.1% male), of which 1,422 (54.5%) wore the covers. The authors found 180 athletes (6.9%) sustained SRCs during the study period: 64 (35.6%) SRCs occurred during practices; and 116 (64.4%) SRCs occurred during games. Of the 64 SRCs sustained during practice, 33 (51.6%) occurred in GC athletes and 31 (48.4%) in non-GC athletes—equating to SRC rates of 0.49 and 0.54 SRCs per 1,000 practice exposures in the GC and non-GC cohorts, respectively. GC use was not associated with decreased risk of SRC during practice in the univariable analysis (relative risk [RR] 1.04; 95% CI, 0.58 to 1.86; p=0.90). Of the 116 SRCs sustained during games, 68 (58.6%) occurred in GC athletes and 48 (41.4%) in non-GC athletes with rates of 4.80 (GC) and 4.22 (non-GC) SRCs/1000 game exposures. There was no difference in time to return to sport between the GC and non-GC cohort.

Editor's Comments: The lack of randomization and the self-selection of wearing soft-shell helmet covers has the potential to affect the final analysis of this study. None of the athletes wore GC during games, which may have the potential to affect interpretation of the results as well. Additionally, this study focused purely on football and did not consider other high impact sports like hockey or lacrosse where the use of GC may have some benefit. Overall, these results need to be viewed critically, and continued caution is needed when advising parents and student athletes on the effectiveness of soft-shell helmet covers to ensure it does not create a false sense of safety. ■