CASE WESTERN RESERVE UNIVERSITY
School of Medicine

Master of Public Health Program

**Fall 2026 Public Health Innovations Conference**

**Student capstone presentation abstracts**

Tuesday, November 10th
Midtown Collaboration Center

8:45am

Presenter: Pedro Canas, DDS

***Observed Vehicle Idling and Local Air-Quality Patterns in Cleveland***


**Abstract:**

**Background**: Cleveland Codified Ordinance § 431.44 limits vehicle idling to five minutes in any 60-minute period, and the Cleveland Division of Air Quality (CDAQ) has begun an anti-idling campaign at City properties. Most anti-idling evidence comes from school drop-off zones; little is known about idling at employee parking lots and recreation centers.

**Objectives**: To describe the frequency, duration, timing, and setting of prolonged idling at City sites; to examine on-site particulate matter alongside observed idling; and to identify implications for sign placement, messaging, and future campaign evaluation.

**Methods**: This descriptive, mixed-methods field assessment included 48 structured observation sessions (45.4 observer-hours) at four City lots and seven recreation centers between July and September 2026. Prolonged idling was defined as an episode of five minutes or longer and reported per observer-hour. Portable PurpleAir sensors measured on-site PM2.5. Field notes were coded using the COM-B model and an ecological perspective.

**Results**: Observers recorded 148 prolonged idling episodes (3.3 per observer-hour; median 9 minutes; 1,725 total minutes). Rates were similar at City lots (3.2/h) and recreation centers (3.4/h) but were higher in the morning than in the afternoon (4.8 vs. 2.2/h; IRR 0.37, 95% CI 0.22–0.62), driven by employee arrivals. On-site PM2.5 tracked regional air quality ($\rho = 0.84$) but not idling ($\rho = -0.05$). Field notes documented signs that were absent or out of view from waiting areas. Observed idling burned an estimated 10.6 gallons of fuel (≈94 kg $CO_2$).

**Conclusions**: Prolonged idling was common and clustered at predictable waiting times. Placing signs where drivers wait, targeting morning employee arrivals, and adding health and efficacy messages may strengthen the campaign. Same-site follow-up using the revised observation protocol is needed to evaluate whether signs reduce idling.

9:15am

Presenter: Naser Alkandari, DDS

***Caffeine Consumption and Oral Health Perceptions Among Kuwait University's Health Sciences Center Students***


**Abstract:**

**Background**: Health sciences students often use caffeinated beverages to cope with academic stress. Many of these are high in sugar or acidity. Local data on caffeine use and dental health are limited among this population. This study measured the prevalence and patterns of caffeine consumption among Kuwait University Health Sciences Center (HSC) students and tested its association with oral health behaviors and perceptions.

**Methods**: An electronic survey was administered to 644 randomly selected students using stratified sampling across the five HSC colleges and by gender in September–October 2026. Analyses used 95% CI, Fisher's exact test, Mann–Whitney U and Kruskal–Wallis tests, and logistic regression adjusted for age, gender, and college.

**Results**: Of the submitted surveys, 364 provided usable data (56.5% response rate). Current (past 30-day) caffeine consumers were 87.6% (95% CI 83.9–90.6), and 49% were daily consumers. 69% selected caffeinated sugary beverages as their regulars, and 76% consumed caffeinated beverages to stay awake. No associations were found between caffeine consumers and non-consumers and dental habits. Most students recognized the risks of caries and erosion (~89%). 30% reported tooth sensitivity and 63% would modify their intake if given caffeine/sugar content charts. Male students were less aware of these risks than female students ($p \leq 0.048$); perceptions did not differ by college.

**Conclusion**: Caffeinated sugary beverages are popular among HSC students. However, awareness of the risks of caffeinated beverages did not translate into significant differences in dental behaviors. Future studies should include campus beverage labeling and clinical detection studies of caries and erosion.


10:00am

Presenter: Morteza Tavallaee, DDS, PhD

***Geospatial Assessment of Pedestrian Lighting and Reported Crime Around a University Campus***


**Abstract:**

**Background**: Pedestrian lighting is an important component of the built environment that may influence visibility, perceived safety, and use of public spaces. Geographic Information Systems (GIS) can help identify spatial patterns in environmental conditions and reported crime and highlight locations that may warrant further safety assessment.

**Methods**: This descriptive geospatial study examined the spatial distribution of visually identified low-light locations and reported crime incidents in and around the Case Western Reserve University campus. Nighttime walking surveys were conducted to identify areas with inadequate pedestrian lighting. Locations were georeferenced using GPS coordinates and mapped in ArcGIS Pro. A total of 196 low-light locations were identified. Reported crime data covering July 2025 through July 2026 were geocoded, resulting in 180 crime locations. Point maps, spatial overlays, and Kernel Density Estimation (KDE) were used to examine geographic patterns and areas of spatial correspondence.

**Results**: Both low-light observations and reported crime incidents demonstrated non-random spatial concentrations across the study area. Overlay and KDE analyses showed partial spatial correspondence between concentrations of low-light locations and areas of elevated crime density, particularly within portions of the central study area. However, the spatial patterns were not identical.

**Conclusion**: GIS-based integration of environmental observations and crime data can help identify locations that may benefit from additional safety assessment. The observed spatial correspondence does not establish a causal relationship between inadequate lighting and crime. Future work should incorporate quantitative illuminance measurements, pedestrian activity, land use, and additional environmental factors.

10:30am

Presenter: Arohi Banerjee

***Evaluating Participant-Reported Experiences and Engagement in DICE, a Family-Centered Culinary Education Program for Youth with Type 1 Diabetes***

**Abstract:**

**Background**: Managing pediatric type 1 diabetes (T1D) requires sustained self-management education and family involvement. Understanding what families report learning, enjoying, and using between sessions can guide intervention refinement. This study characterized participant-reported experiences and engagement with Diabetes Inspired Culinary Education (DICE), a ten-session family-centered intervention integrating cooking, nutrition education, and shared meals.

**Methods**: A descriptive secondary analysis examined individual exit-ticket responses from youth with T1D, caregivers, and siblings across four DICE implementation periods (Spring and Summer 2024 and 2025). Five questions assessed reported learning, favorite components, suggested changes, use of previous lesson information, and peer or instructor recognition. Open-ended responses were coded using a predefined thematic dictionary.

**Results**: Among 537 valid learning responses, cooking (32.2%), nutrition education (23.3%), and diabetes management (22.5%) were most common. Eating food (37.8%) and cooking (26.8%) led the favorite components (n=534). Learning themes varied across lessons and periods; diabetes management appeared in 50.8% of exercise-focused session 4 responses, and cooking in 41.8% of recipe-modification session 6 responses. Most suggested-change responses indicated no changes (68.2%, n=506). 57.7% responses indicated willingness to

recognize a peer or instructor. Beyond sessions, 46.8% (n=355) reported that respondents or family members used previous-lesson information.

**Conclusions**: These descriptive findings distinguish reported learning from favorite activities, document reported use beyond sessions, and identify lesson-specific patterns consistent with curricular content. This reveals complementary dimensions of participant experiences and identifies opportunities for targeted refinement of pediatric T1D interventions.