Teletoxicology in the time of COVID

Evan S. Schwarz\textsuperscript{a}, Meghan B. Spyres\textsuperscript{b}, Kim Aldy\textsuperscript{c}, Sharan Campleman\textsuperscript{d}, Shao Li\textsuperscript{d}, Alison Meyn\textsuperscript{d}, Stephanie Abston\textsuperscript{d}, Paul Wax\textsuperscript{d} and Jeffrey Brent\textsuperscript{e}, On Behalf of the Toxicology Investigators Consortium (ToxIC)

\textsuperscript{a} Washington University School of Medicine; \textsuperscript{b} Banner-University Medical Center; \textsuperscript{c} University of Texas Southwestern Medical Center; \textsuperscript{d} American College of Medical Toxicology; \textsuperscript{e} University of Colorado School of Medicine

\begin{abstract}

Background/Objectives: The role of telemedicine expanded over the past year due to the present pandemic. Importantly, telemedicine offers a venue for toxicologists to sustain or expand their practice. We used the Toxicology Investigators Consortium (ToxIC) Core Registry to determine how toxicologists used telemedicine during the pandemic.

Methods: The ToxIC Core Registry is a database of patients evaluated at the bedside by medical toxicologists. ToxIC includes cases from 38 sites across the United States and 4 sites internationally. A new set of telemedicine questions was added to the registry on April 1, 2020. We searched the ToxIC registry from April to December 2020 to determine how medical toxicologists were using telemedicine. Only cases receiving a telemedicine evaluation were included. Data collected included: description of telemedicine encounter (video/internet, phone, chart review); the reason telemedicine was used; and if the consultation was billed. Data from the registry was downloaded from the REDCap ToxIC Core Registry database and analyzed using simple, descriptive statistics.

Results: In 2020, 6668 patients were enrolled into ToxIC, of which 144 (3\%) included a telehealth encounter. The majority of encounters were toxicologists acting as consultants in either the emergency department (ED) or on the medical wards (n = 126; 88\%) with 13 (9\%) occurring in clinic and 5 (3\%) performed by an inpatient toxicology service. The ED was the primary source of referral (n = 74; 51\%) with the admitting team being the source for 50 patients (34\%). Most evaluations occurred in the ED (n = 70) with the rest occurring either on the medical ward (n = 39) or intensive care unit (n = 22) or other (n = 13). Fifty-one percent (n = 73) of telemedicine encounters were only chart reviews while 54 (38\%) were by video/internet, 16 (11\%) were conducted over the phone and 1 was unknown. Only fifty-two percent (n = 75) of encounters were billed. Sixty-five (45\%) encounters occurred via telemedicine as opposed to in person due to the risk of infection while 14 (10\%) were due to a change in hospital policy. Very few encounters (n = 7; 5\%) were primarily for addiction medicine with 83\% of those being for the initiation of opioid agonist therapy and only 1 for assistance with pain management. No telemedicine encounters were for adverse drug reactions or medication errors. Toxicologists provided a therapeutic intervention via telemedicine to 94 separate patients (65\%).

\end{abstract}
Conclusions: Use of telemedicine by medical toxicologists was infrequent. Most telemedicine encounters were consultations performed in the emergency department. Nearly half of the telemedicine encounters were due to concerns of spreading an infection from an in-person evaluation. Very few encounters were primarily for addiction medicine and medical toxicologists only billed for approximately half of the encounters reported. Given the infrequent use, this represents a potential growth area in medical toxicology practice.