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1 Retrospective analysis of the use of a viscoelastic hemostatic assay (ClotPro) in an academic emergency department

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Objectives: We aimed to comprehensively analyse retrospective data of the viscoelastic haemostatic assay (VHA) used at the emergency department (ED). Specific goal was to analyse associations between the patient population, VHA test indications, ordered test types, clinical data and the viscoelastic results..

Background: In the ED, healthcare providers frequently encounter hemostatic disorders of a variety of etiologies like hemorrhages or hematological diseases. Precise diagnostic tools with quick turnaround times are necessary to help decision-making regarding emergency management and therapy of bleeding patients. The use of VHA in the diagnosis of hemostatic disorders and during hemostatic resuscitation has been increasing worldwide. However, their use in the ED is not well-documented yet.

Methods: In our retrospective analysis, we processed data of patients who were subjected to a viscoelastic hemostatic assay (ClotPro) test between July 15, 2019 and December 31, 2021 at the ED of Semmelweis University. A missing patient identifier was the only exclusion criteria. We collected demographic, laboratory, and clinical data, as well as ClotPro results. We analysed the correlation between laboratory and ClotPro test results, compared different patient subgroups based on the ClotPro findings, and assessed the relationship between clinical data and ClotPro results.

Results: After exclusion, we processed the data of 381 patients (43.7% female). There were 7 major patient groups identified based on the discharge reports. Of the 213 gastrointestinal bleeding (GIB) patients, 78 (36.6%) had liver disease, and 120 (56.3%) were on antithrombotic medication. Almost 40% of liver disease patients had an abnormally high INR and abnormally low EX MCF compared to the non-liver disease GIB patients. Importantly, the EX CT was not different between the two groups despite the differences observed in INR values. EX test clotting time was not correlated with INR in GIB patients with liver disease (r=0.039, p=0.77). Patients who died were significantly older and more likely to have abnormally high EX CT and INR values. In a multivariate analysis we found that prolonged EX CT was an independent predictor of 30-day mortality.

Conclusion: We analysed the effect of Clotpro use at our emergency department. The largest tested subgroup was the GI bleeding patient population. In liver disease GIB patients' INR values were higher but that did not reflect coagulopathy based on our ClotPro measurements. A prolonged EX CT was an independent predictor of 30-day mortality. These results can lead the way to a paradigm change in the evaluation of the hemostatic status of liver disease patients with GIB.

2 Medical Mistrust Amongst Donald Trump Supporters During the COVID-19 Pandemic

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Objectives: In this study, we use the lens of medical mistrust - distrust of medical personnel and organizations - to understand how far-right conservatives discuss and make sense of medical information in the context of the COVID-19 pandemic. Few studies have focused on the relationship between politics and medical mistrust.

Background: Medical mistrust is negatively associated with health behavior engagement including participating in routine checkups, cancer screening, donating organs, and treatment adherence. Indeed, medical mistrust profoundly impacts overall health and well-being as well as satisfaction with the medical system. Most literature examining medical mistrust focuses on communities of color and those belonging to sexual minority groups; a paucity of research examines the intersections of politics, conspiracy thinking, and medical mistrust. However, in the US, Republican and Republican-leaning individuals have lower baseline confidence that scientists will act in the public's best interest, which may have contributed to partisan COVID-19 mortality disparities.

Methods: We analyze content from a far-right conservative website called TheDonald.Win. TheDonald.Win was launched in 2019 in response to sanctions against the Reddit community (r/

theDonald). For seven days preceding the start of data collection, we gathered usage data on the top 100 posts per 24 hours to establish cut-off criteria for high-visibility posts. We then combed the forum for posts whose title included one of 60 search terms related to COVID-19 and were posted within the date parameters. We included posts from the time of the site's rebranding and Biden's inauguration (January 20/21, 2021) to June 29, 2020 – the day TheDonald.Win's Reddit forum was permanently banned, sparking the migration to TheDonald.Win. We analyze a subset of the 101,060 original posts based on 21 search terms related to the health care system (e.g., ambulance, ventilator, intubation, doctor, nurse, quack, scientist). We take a semantic and inductive approach to thematic analysis, and we analyzed forum posts in reverse chronological order. Thematic analysis involved developing a broad coding scheme and coding the data, searching for and reviewing themes, and reevaluating and defining those themes.

Results: We found that (1) users experienced institutional mistrust in part founded in misperceptions of how a pandemic should look. Users repeatedly commented on the desolate outside appearance of hospitals and lack of ambulances with sirens running as evidence that the pandemic was being falsified. We also found that (2) perceived financial and political incentives were powerful mechanisms to undermine both institutional and physician-level trust. In particular, users propagated information about how doctors and hospitals were being incentivized to falsify COVID-19 statistics in order to receive money from the government. Finally, we found that (3) trust in medical professionals was also heavily politicized with users highlighting the bravery of "whistleblowers" who were willing to speak out about the "inaccuracies" and "falsehoods" regarding COVID-19 while expressing mistrust in medical professionals and the scientific research and medical equipment they used to direct care. In particular, users identified intubation and ventilation as causes of death rather than treatments for advanced COVID-19. Users also expressed concerns regarding the complex financial relationship between the pharmaceutical industry, hospitals, and individual physicians, particularly with regard to preventative measures such as vaccinations.

Conclusions: In this first-of-its kind study of Trump supporters and COVID-19, we examine the dialog around medical mistrust and deaths during the COVID-19 pandemic on a far-right conservative webspace. Aligned with prior research examining medical mistrust, we demonstrate that mistrust is explored both at the interpersonal physician-patient level and at higher institutional levels, which conflicts with findings from other countries. We also show that COVID-19 uniquely drew attention to lesser explored topics of medical mistrust including proper utilization of medical equipment, grounds for authority and medical decision-making, and financial incentives for medical care.

3 A Needs Assessment of Point-of-care Ultrasound in the Resource-limited Setting of Iquitos, Perusment of Point-of-care Ultrasound in the Resource-limited Setting of Iquitos, Peru

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Objective: There has been literature describing the use of point-of-care ultrasound (POCUS) in international settings. However little studies exist on the need for POCUS in Peru, specifically the resource-limited Amazon River city of Iquitos. This is an observational study and needs assessment for POCUS in Iquitos.

Background: The city is reachable only by air or river limiting medical access. Patients who require care that cannot be provided within Iquitos are transported to Lima, Peru. A direct flight to Lima is approximately 1.5 hours. In resource-limited communities, diagnostic imaging modalities are often confined to x-ray. But nearly 70% of x-ray machines in resource-limited settings are defective or lack the personnel to operate them. With the evolution of ultra-portable ultrasound technology, devices can be easily carried across the globe to boost diagnostic capacity. The health care and diagnostic imaging needs of a community are unique and cannot be assumed.

Methods: The study took place between August 4th through August 7th, 2022, at two clinics in Iquitos, Peru. The clinics were held at the San Martin Church and San Juan Clinic. At the San Martin Church, there was an ultrasound device on site, but it was not being used as there was no one trained to operate and interpret the images. Point-of-care ultrasounds

were performed by a radiologist, emergency medicine ultrasound fellow and medical students. Students were supervised by either the radiologist or ultrasound fellow. Curvilinear and linear probes were attached to tablets and images were obtained using the ultrasound application on the device. A variety of physician specialties including family medicine, emergency medicine, OB-GYN, urology, pediatrics, etc. were on this medical service trip and were independently seeing patients at the clinic. The radiologist and ultrasound fellow created a consensus list of studies they felt were within the scope of their practice and provided this list to the physicians at the clinics. In addition, clinic physicians were provided an ultrasound order form. These were given to patients who would deliver them to the ultrasound team. Physicians would indicate which study they wanted the ultrasound team to perform and the clinical indication.

Results: 72 POCUS studies were performed on 62 patients. The mean age was 41 with a range of 1 to 82 years. 54% of the patients were female and 46% male. 33 renal/bladder studies were performed (45.8% of the total studies performed). 26 renal/bladder studies were normal, and 7 had a sonographic finding. 11 right upper quadrant (RUQ) studies were performed (15.3%). 8 RUQ studies were normal, and 3 had a sonographic finding. 9 prostate studies were performed (12.5%). 5 prostate studies were normal, and 4 had a sonographic finding. 8 OB-GYN studies were performed (11.1%). 2 OB-GYN studies were normal, and 6 had a sonographic finding. 4 scrotal studies were performed (5.6%). 1 study was normal, and 3 had a sonographic finding. 3 focused assessment for free fluid (FAFF) studies were performed (4.2%). 2 FAFF studies were normal, and 1 had a sonographic finding. 2 soft tissue studies were performed (2.8%). 1 soft tissue study was normal, and 1 had a sonographic finding. 2 thyroid studies were performed (2.8%). 1 thyroid study was normal, and 1 had a sonographic finding. Follow up due to POCUS included 3 emergent ED transfers, 1 flight to Lima, 2 patients with expedited follow up.

Conclusions: The use of point-of-care ultrasound in resource-limited settings across the globe has the potential to expand diagnostic imaging capacity and increase access to previously unobtainable medical care. In this observational study, the use of point-of-care was useful in triaging patients to higher level of care, and improved diagnostic accuracy. The relationship with this community is on-going and this needs assessment has provided valuable evidence onto the disease burden and how to best focus resources on future encounters. Future plans include teaching local physicians how to use ultrasound for longitudinal sustainability.

4 Mixed-method Study of Point-of-care Ultrasound Documentation Compliance

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Objective: Phase One of this mixed-method study aimed to illuminate emergency physicians' perceptions of the point-of-care ultrasound (POCUS) submission workflow and their receptivity to various proposed interventions. Phase Two then analyzed the efficacy of the implemented intervention that had garnered the most support in the initial qualitative portion.

Background: POCUS has been disruptive to many experienced emergency physicians as it requires competence in a new physical skill, real-time image interpretation, and navigation of novel software for submission to the electronic health record (EHR). Incomplete documentation of a performed POCUS study used for clinical decision-making represents a medicolegal liability and uncapturable reimbursement while potentially exposing the patient to avoidable ionizing radiation and unnecessary cost. This research group previously explored the effect of financial incentives and penalties on the use and subsequent documentation of emergency department (ED) POCUS. The most effective facilitator of POCUS submission requires additional investigation.

Methods: The study took place at a tertiary-care, academic, Level I trauma center which utilized Epic (Epic Systems, Verona, WI, USA) for its EHR and Qpath "Classic" (Telexy Healthcare, Maple Ridge, BC, Canada) for POCUS archiving. Participants included 68 emergency medicine attending physicians clinically active for the entire study period: July 2020 – July 2021. During the initial study phase, eligible physicians were stratified into "high," "low," and "never" utilizers based on recent POCUS documentation performance. Subsets of high and low utilizers participated in recorded,

semi-structured, audiovisual interviews. Thematic analysis was performed on interview transcriptions using the Technology Acceptance Model, a proven theoretical framework that explores "usefulness" and "ease of use" as perceived by end users considering adoption. Just prior to the start of the interviews, the ED administration introduced an ongoing incentive program: minimum POCUS documentation numbers were rewarded with additional shift scheduling flexibility. The second phase of the study involved implementation of the proposed intervention that received the most support from both high and low utilizers during Phase One interviews – daily documentation reminder emails. The efficacy of the schedule request incentive and our email intervention in augmenting POCUS documentation was assessed through retrospective data analysis.

Results: Of 68 eligible faculty, only 47 documented a POCUS study during control period July – December 2020. Individual POCUS documentation rate was calculated as studies submitted divided by studies performed (submitted plus unsubmitted) per month. Between 2/12/21 and 3/5/21, interviews were conducted with six physicians in the highest and six in the lowest documentation quartiles. In Phase One, high utilizers emphasized the clinical utility of POCUS, whereas low utilizers expressed concerns over "double billing" and exposure to medicolegal liability with uncertain scan interpretations. For low utilizers, documentation decisions could depend on the performing resident physician's displayed confidence. Both groups were frustrated by separation between Epic and Qpath. In Phase Two, this aggregate rate increased appreciably with introduction of schedule requests (Incentive). The rate remained stable, but did not improve further, with addition of reminder emails (Intervention). When reminder emails ceased, but the day-off request incentive continued (Washout), the departmental rate did not drop.

Conclusions: The implementation of a shift scheduling incentive – additional flexibility through day-off requests – was associated with the largest increase in the departmental POCUS documentation rate. Interviewed physicians incorrectly predicted that email reminders would be the most influential administrative intervention. Departments hoping to improve their POCUS submission rate should identify similar low-cost, motivating incentives to yield a positive return on investment. The study was performed at a single academic site, so its generalizability is somewhat limited to community or county emergency departments, especially those without training programs.