1917 2024 107

RHODE ISLAND MEDICAL JOURNAL

HERITAGE: Lovell General Hospital: A Civil War-era Hospital in Portsmouth

See page 49

JUNE 2024 VOLUME 107 • NUMBER 6 ISSN 2327-2228

Medical practices are a top target for cyber criminals.

Are you prepared?

As more doctor-patient interactions become virtual, your cyber risk has increased exponentially. Cybercriminals understand the value of patient records and will continue to attack you and your practice. You need an experienced insurance broker who will help you protect your reputation and your livelihood.

HUB's cyber insurance and risk management consulting specialist will recommend solutions that are essential to protecting your practice — so you can continue to focus on patient care.

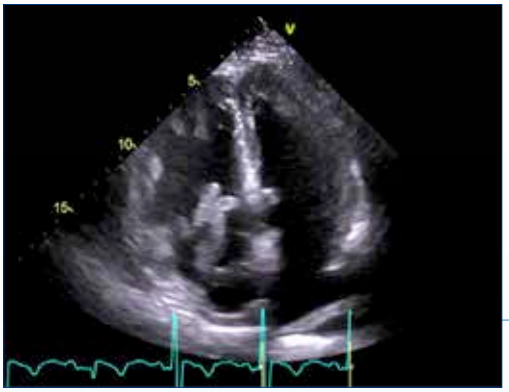
hubinternational.com/rimed

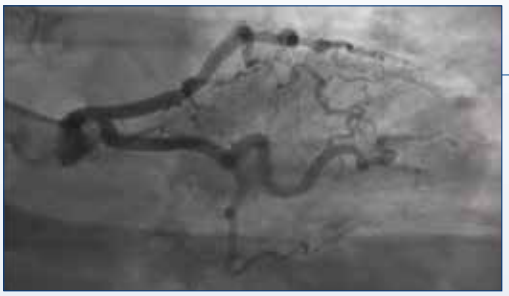
Put our resources to work for you.
Patrick Marra ○ 978-661-6203 ○ patrick.marra@hubinternational.com

HUB

Risk & Insurance | Employee Benefits | Retirement & Private Wealth

RHODE ISLAND
MEDICAL JOURNAL





JUNE 2024
VOLUME 107 • NUMBER 6

RHODE ISLAND MEDICAL JOURNAL (USPS 464-820), a monthly publication, is owned and published by the Rhode Island Medical Society, 405 Promenade Street, Suite A, Providence RI 02908, 401-331-3207. ISSN 2327-2228.

RHODE ISLAND MEDICAL JOURNAL

CONTRIBUTIONS

PUBLIC HEALTH

RHODE ISLAND
MEDICAL JOURNAL


J. Larkin, MD


A.S. Barber de Brito, MSN


R.R. Wing, PhD

Favorite
Healthcare Staffing

Rhode Island's Medical Staffing Experts

Favorite Healthcare Staffing provides a comprehensive range of staffing services at preferred pricing to RIMS members. Call today to see why we are the favorite choice of healthcare professionals and physician practices across the US!

401.354.7115

MedicalStaffing@FavoriteStaffing.com

Favorite Healthcare Staffing is a Valued Sponsor of the Rhode Island Medical Society

AA / EOE / M / F / V / D

Acute Encephalopathy in a Patient with Raoultella Ornithinolytica Infection: A Challenging Presentation

DANIEL A. MADER; DANIELLE KERRIGAN, MD; JAYRAM PAI, MD

ABSTRACT

Raoultella ornithinolytica is a rare, gram-negative environmental enterobacterium. Although infections in humans caused by R. ornithinolytica are uncommon, there are increasing reports implicating it in urinary tract infections, hepatobiliary infections, and bacteremia, designating it as an emerging pathogen. Its habitat is primarily in aquatic environments and soil, with seafood frequently identified as a potential source of infection. While these infections have predominantly been described in immunocompromised patients previously, our case suggests that advanced age may be a significant risk factor. We describe a case of a 73-year-old man presenting with encephalopathy who then was found to have R. ornithinolytica bacteremia from a genitourinary source. Following antibiotic treatment, the infection resolved and the neurologic symptoms improved. To the best of our knowledge, this is the first documented case in the medical literature of R. ornithinolytica featuring a primary neurologic presentation.

KEYWORDS: Raoultella ornithinolytica, encephalopathy, altered mental status, bacteremia, UTI

INTRODUCTION

Raoultella ornithinolytica is a gram-negative, encapsulated, facultative anaerobic bacterium. It belongs to the family Enterobacteriaceae, sharing this classification with E. coli and Klebsiella pneumoniae. R. ornithinolytica was previously categorized in the genus Klebsiella until the year 2001. It is unique in its ability to convert histidine to histamine,[1] a characteristic linked to its association with histamine fish poisoning.[2] Its pathogenicity is attributed to several factors, including its ability to form biofilms, polysaccharide capsules, siderophores, and fimbriae.[3] Typically, it is found in plants, water, and soil, but can also be found in insects such as bees, termites, and ticks, as well as in chickens and fish. In humans, it is known to colonize the pharynx and gastrointestinal tract.[2] In the few reported clinical cases it has been identified as a causative agent in opportunistic infections, particularly affecting immunocompromised patients. These infections affected multiple systems, including the hepatobiliary, respiratory, gastrointestinal, and genitourinary systems, but have not been associated with neurological symptoms or encephalopathy to date.[4] Infectious disease-associated encephalopathy is defined as diffuse brain dysfunction caused by an infection. The clinical picture comprises neurological or psychiatric abnormalities, ranging from subclinical alterations to coma.[5] In this context, we describe a case of a 73-year-old man with encephalopathy due to R. ornithinolytica bacteremia from a genitourinary source who presented with stroke-like symptoms.

CASE REPORT

A 73-year-old male, with a past medical history including myasthenia gravis, retinitis pigmentosa, and hyperlipidemia, presented to the emergency department with acute onset of peripheral vision loss, confusion, and speech disturbance in the setting of dizziness, nausea, and diarrhea. His regular medication regimen included pyridostigmine and simvastatin. According to the patient's family, the patient had no pre-existing cognitive deficits, and the onset of confusion and gait instability occurred suddenly one-and-a-half days prior to the emergency department visit. Residing in a coastal town, the patient had consumed seafood the day before the onset of symptoms. He was initially seen at a community hospital, where computed tomography angiography (CTA) of the brain and neck revealed stenosis of the distal left vertebral artery. Given this finding and his presentation of dizziness and ataxia, he was transferred to a comprehensive stroke center with concern for a posterior circulation ischemic stroke.

On initial examination at the stroke center, the patient exhibited difficulty naming objects, and was oriented only to person. Additionally, he reported feeling nauseous. Bilateral upper extremity ataxia was evident, but no dysarthria was observed. He showed no nystagmus, motor weakness or sensation loss. His vital signs were remarkable for a fever to 38.1°C. Despite the previously identified stenosis in CTA, subsequent brain magnetic resonance imaging (MRI) revealed no evidence of ischemia or perfusion delays, and it was concluded that the stenosis was unrelated to the patient's current presentation. He therefore underwent further infectious workup including CT-abdomen, which showed no evidence of acute infection. A lumbar puncture was performed, and

cerebrospinal fluid (CSF) analysis showed normal glucose levels, no elevated leukocytes, and no bacterial growth. A transthoracic echocardiogram was negative for endocarditis. Laboratory evaluation was notable for a leukocytosis with leukocytes of 14.1 x10^9/L, elevated C-reactive Protein of 183 mg/L, and thrombocytopenia with platelets of 149 x10^9/L. Urinalysis revealed leukocytes at 14 cells/microL and hematuria, with a negative result for nitrite. Blood cultures were obtained and eventually grew out R. ornithinolytica. A urine culture was also positive for the same pathogen. Electroencephalography (EEG) performed later in the clinical course displayed diffuse continuous theta slowing with generalized cerebral dysfunction. A follow-up MRI scan two weeks later still showed no signs of infarction. Empiric antibiotic therapy with cefepime, vancomycin, and doxycycline was started after obtaining blood and urine cultures. The choice of antibiotics was limited by the patient's penicillin allergy and myasthenia gravis, in which macrolides and fluoroquinolones are contraindicated. After two days, antimicrobial therapy was narrowed to ceftriaxone, and after eight days the patient was transitioned to oral cefpodoxime for a total course of 14 days. Fever and leukocytosis resolved on hospital day two. A blood culture after three days showed no growth. The patient's symptoms progressively improved, eventually returning to his neurologic baseline.

Table 1. Antibiogram showing the antibiotic susceptibility of the R. ornithinolytica strain isolated.

Antibiotic drug	Susceptibility
Amoxicillin/CA (≤ 2 mcg/ml)	S
Aztreonam (≤ 1 mcg/ml)	S
Cefepime (≤ 1 mcg/ml)	S
Ceftriaxone (≤ 1 mcg/ml)	S
Ciprofloxacin (≤ 0.25 mcg/ml)	S
Ertapenem (≤ 0.5 mcg/ml)	S
Gentamicin (≤ 1 mcg/ml)	S
Levofloxacin (≤ 0.12 mcg/ml)	S
Meropenem (≤ 0.25 mcg/ml)	S
Piperacillin/tazobactam (≤ 4 mcg/ml)	S
Tetracyclines (≤ 1 mcg/ml)	S
Trimethropim/Sulfa (≤ 20 mcg/ml)	S
Ampicillin (≤ 4 mcg/ml)	R

S: Susceptible; R: Resistant.

DISCUSSION

We report a case of a 73-year-old man who presented with encephalopathy exhibiting stroke-like symptoms and was found to have a urinary tract infection and bacteremia caused by R. ornithinolytica. The incidence of infections with R. ornithinolytica is low with only few reported cases and therefore it is considered a rare pathogen.[6] For example, in a hospital in South Korea, it was found in 0.15 % of all bacteremia cases.[7] Since the first description there have been reported a total of 68 case reports of R. ornithinolytica infections on PubMed. While the low number of reports of R. ornithinolytica infections is on the rise, it remains unclear whether this is due to environmental factors leading to increased prevalence, or whether it is simply being diagnosed more now that the tools are available to differentiate it from other Raoultella and Klebsiella genera.[8] Initially, case reports only identified infections in immunocompromised patients. More recent reports also describe healthy patients being affected.[3] In this case, the patient's only risk factor was his advanced age. With a mortality rate ranging from 34-44%, rapid identification and treatment of R. ornithinolytica bacteremia are imperative.[6]

The patient resided along the coast and frequently prepared raw seafood. The patient and his family do not recall a specific exposure; however, accidental ingestion or environmental exposure are possible sources of infection.[9] The susceptibility pattern in our case, as shown in **Table 1**, demonstrated resistance only to ampicillin, which is consistent with previous reports. The bacterium carries the Bla-ORN-1 gene to produce a group A beta-lactamase, rendering it intrinsically resistant to penicillins.[10]

To our knowledge, we describe the first case of R. ornithinolytica bacteremia with a primary neurologic manifestation. While infections may trigger acute ischemic stroke through inflammatory pathways,[11,12] other conditions can mimic stroke and account for 30–43% of all patients evaluated for stroke in the emergency department.[13] Symptoms that mimic posterior circulation cerebrovascular events pose a higher risk of misdiagnosis due to their vague presentations, with symptoms including visual disruptions, dizziness, vertigo, and ataxia.[14] The most common underlying conditions of stroke mimics are seizures, conversion disorder, migraine, and hypoglycemia, with infection being less common.[15] MRI is recommended and often necessary to distinguish between stroke and its mimics.[16]

Given his concurrent gastrointestinal and neurologic symptoms, unremarkable CSF examination and imaging, and deceleration on EEG, our patient's presentation is most consistent with encephalopathy secondary to infection. This condition stems from microcirculatory abnormalities and altered brain metabolism.[17] While encephalopathy in the setting of infection is common, there is no previous report of R. ornithinolytica-induced encephalopathy. Given its close relation to the Klebsiella genus, it is possible that some previously reported cases were misdiagnosed as Klebsiella, when in fact the diagnostic tools did not yet exist to distinguish Klebsiella from R. ornithinolytica.

CONCLUSION

We report a patient with R. ornithinolytica infection who presented with initial symptoms consistent with encephalopathy. In an acute presentation like in this case, brain MRI is useful for differentiating it from ischemic stroke, and the neurologic symptoms can effectively be treated with antibiotic therapy. Further studies are needed to elucidate the epidemiology and clinical picture of this bacterial infection.

References

1. Appel TM, Quijano-Martinez N, De La Cadena E, Mojica MF, Villegas MV. Microbiological and Clinical Aspects of Raoultella spp. *Front Public Health*. 2021;9:686789. doi:10.3389/fpubh.2021.686789
2. Tayo A, Nyame K. Sepsis From Multisystem Infection With Multidrug-Resistant Raoultella ornithinolytica. *Cureus*. Jan 2022;14(1):e20975. doi:10.7759/cureus.20975
3. Sêkowska A, Bogiel T, Woźniak M, Gospodarek-Komkowska E. Raoultella spp. – reliable identification, susceptibility to antimicrobials and antibiotic resistance mechanisms. *Journal of Medical Microbiology*. 2020;69(2):233-238. doi:10.1099/jmm.0.001150
4. Seng P, Boushab BM, Romain F, et al. Emerging role of Raoultella ornithinolytica in human infections: a series of cases and review of the literature. *Int J Infect Dis*. Apr 2016;45:65-71. doi:10.1016/j.ijid.2016.02.014
5. Barbosa-Silva MC, Lima MN, Battaglini D, et al. Infectious disease-associated encephalopathies. *Crit Care*. Jul 6 2021;25(1):236. doi:10.1186/s13054-021-03659-6
6. Hajjar R, Ambaraghassi G, Sebajang H, Schwenter F, Su SH. Raoultella ornithinolytica: Emergence and Resistance. *Infect Drug Resist*. 2020;13:1091-1104. doi:10.2147/IDR.S191387
7. Chun S, Yun JW, Huh HJ, Lee NY. Clinical characteristics of Raoultella ornithinolytica bacteremia. *Infection*. Feb 2015;43(1):59-64. doi:10.1007/s15010-014-0696-z
8. Etani T, Kondo S, Yanase T, et al. Clinical characteristics of Raoultella ornithinolytica bacteremia and antimicrobial susceptibility of Raoultellaornithinolytica. *J Infect Chemother*. Feb 3 2023;doi:10.1016/j.jiac.2023.01.023
9. Suito T, Watanabe Y, Saito H, Watanabe T, Ikeda H. Urinary tract infections due to Raoultella ornithinolytica detected in a kitchen. *Pediatr Int*. Jan 2022;64(1):e15210. doi:10.1111/ped.15210
10. Wang M, Fan Y, Liu P, et al. Genomic insights into evolution of pathogenicity and resistance of multidrug-resistant Raoultella ornithinolytica WM1. *Ann N Y Acad Sci*. Aug 2021;1497(1):74-90. doi:10.1111/nyas.14595
11. Sebastian S, Stein LK, Dhamoon MS. Infection as a Stroke Trigger. *Stroke*. 2019;50(8):2216-2218. doi:10.1161/strokeaha.119.025872
12. Pagliano P, Spera AM, Ascione T, Esposito S. Infections causing stroke or stroke-like syndromes. *Infection*. Jun 2020;48(3):323-332. doi:10.1007/s15010-020-01415-6
13. Helboe KS, Eddelien HS, Kruuse C. Visual symptoms in acute stroke-A systematic review of observational studies. *Clin Neurol Neurosurg*. Jun 2023;229:107749. doi:10.1016/j.clineuro.2023.107749
14. Venkat A, Cappelen-Smith C, Askar S, et al. Factors Associated with Stroke Misdiagnosis in the Emergency Department: A Retrospective Case-Control Study. *Neuroepidemiology*. 2018;51(3-4):123-127. doi:10.1159/000491635
15. Pohl M, Hesszenberger D, Kapus K, et al. Ischemic stroke mimics: A comprehensive review. *J Clin Neurosci*. Nov 2021;93:174-182. doi:10.1016/j.jocn.2021.09.025
16. Zerna C, Thomalla G, Campbell BCV, Rha JH, Hill MD. Current practice and future directions in the diagnosis and acute treatment of ischaemic stroke. *Lancet*. Oct 6 2018;392(10154):1247-1256. doi:10.1016/S0140-6736(18)31874-9
17. Heming N, Mazeraud A, Verdonk F, Bozza FA, Chretien F, Sharshar T. Neuroanatomy of sepsis-associated encephalopathy. *Crit Care*. Mar 21 2017;21(1):65. doi:10.1186/s13054-017-1643-z

Authors

Daniel A. Mader is a medical student at the Warren Alpert Medical School of Brown University visiting from the University of Tuebingen, Germany.

Danielle Kerrigan, MD, Department of Emergency Medicine, Warren Alpert Medical School of Brown University Providence, RI.

Jayram Pai, MD, Morristown Medical Center, Morristown, NJ; Assistant Professor of Emergency Medicine, Warren Alpert Medical School of Brown University, Providence, RI.

Acknowledgments

The authors thank the family of the patient for consenting to this publication.

Disclosures

No author has any financial or proprietary conflict of interest.

No financial support was received for this publication.

Correspondence

Daniel Mader
daniel.mader@student.uni-tuebingen.de

Caught in Traffic: Clot in Transit

JESSICA M. GONZALEZ, MD; GABRIEL LOWENHAAR, MD; PRASAD CHALASANI, MD

CASE PRESENTATION

An 80-year-old man with a past medical history of type 2 diabetes mellitus presented with progressive weakness and significant weight loss. His hospital course was complicated by persistent hypoglycemia. He also had two brief episodes of presyncope in the setting of sinus bradycardia to nadir heart rate of 30bpm and hypotension. Labs were remarkable for a mild troponin elevation to 0.26 ng/ml which increased to 1.6 ng/ml. Notably, the patient never experienced any chest pain, his troponins trended to peak, and his hypotension resolved after fluid resuscitation. Given the bradycardia episodes and the initially rising troponins, a transthoracic echocardiogram was performed which showed a pedunculated, mobile mass. A transesophageal echocardiogram was subsequently performed to further detail the mass and to rule out an atrial myxoma. The mass was found to be greater than 5 cm in diameter, lobulated and freely mobile without attachment to the septum within the right atrium most consistent with a clot-in-transit (**Image 1 and 2, and Video**). Intravenous heparin was initiated. He remained hemodynamically stable as he underwent workup for a potential underlying malignancy.

Image 1. Transthoracic Echocardiogram Apical View Demonstrating Clot-in-Transit

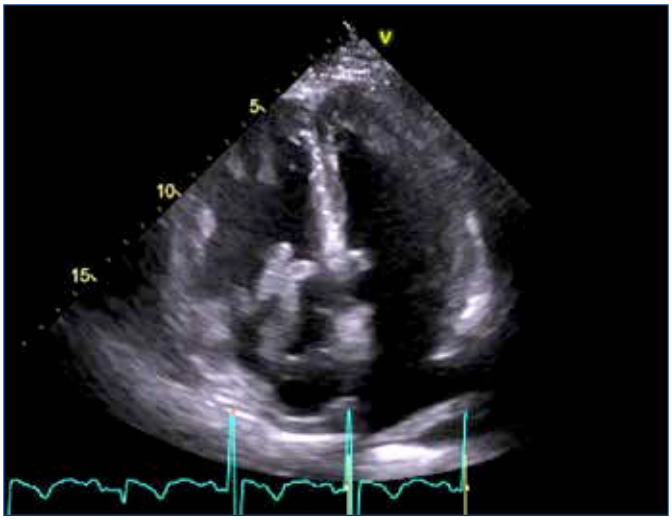
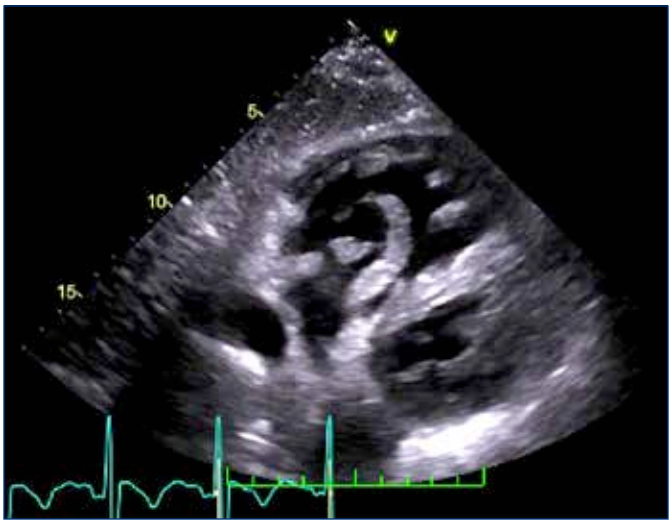
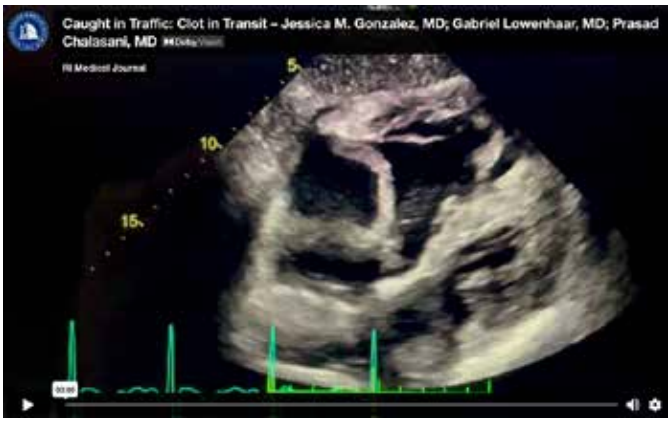


Image 2. Transthoracic Echocardiogram Subxiphoid View Demonstrating Clot-in-Transit



Video. Serpentine Thrombus Oscillating Across the Tricuspid Valve Between the Right Atrium and Right Ventricle
https://vimeo.com/926903083



BACKGROUND

A clot-in-transit (CIT) or a thrombus-in-transit (TIT) is a serpiginous, mobile mass that embolized from a deep vein and is found in the right-side chambers of the heart.[1] This thrombus can then embolize to the pulmonary vasculature or cross the heart through a patent foramen ovale.[2] Their prevalence in patients with pulmonary embolisms (PE) is estimated to be approximately 5% and in patients with

massive PE as high as 18%.[1] Mortality rates are 21% in 14 days and almost 30% within 3 months.[3,4] If left untreated CIT can have a mortality rate as high at 91%.[5] This high mortality rate signifies making a timely diagnosis is critical.

DISCUSSION

CITs are diagnosed through a variety of imaging techniques: transthoracic echocardiography (TTE), transesophageal echocardiography (TEE), CTA, and CT.[1] Detection of CITs has high sensitivity through these modalities (TTE 95%, CT 81%, and CTA 100%). TTE is commonly used to assess CITs; however, when a better image cannot be obtained a TEE may be used. When performing a thrombectomy a TEE may also be used to monitor the clot during atrial entry.[3]

Treatment options for CITs include anticoagulation alone, systemic thrombolysis, surgical embolectomy, and endovascular catheter-based therapies.[1] Therapy with only anticoagulation may not be sufficient for hemodynamically unstable patients.[4,5,6] In patients with concomitant PE or in those with anatomical abnormalities the preferred therapy is surgical thrombectomy.[3] Meanwhile catheter-based thrombectomy is superior for patients with isolated CIT.[3]

More research needs to be conducted to determine the optimal therapeutic approach as currently there are no randomized control trials on this condition and the general approach for management has been chosen on a case-by-case basis.[3] Patients should be stratified based on their comorbid conditions, hemodynamic stability, and bleeding risks.[3,4]

References

1. Igwilo R, Pinsino A, Aksan F, Kapoor S. Clot-in-transit: A ticking time bomb in the heart with serious consequences. SAGE Open Medical Case Reports. 2023;11. doi: 10.1177/2050313X231151504
2. Abazid RM, Tzemos N. Thrombus in Transit Entrapped Within a Patent Foramen Ovale: Role of Multimodality Imaging. CASE (Phila). 2023 Feb 8;7(4):147-151. doi: 10.1016/j.case.2022.12.007. PMID: 37123630; PMCID: PMC10147547.
3. Patel AN, Amrutiya RJ, Manvar BN. A Proposed Approach for the Management of Clot-in-Transit. Cureus. 2022 Aug 27;14(8):e28481. doi: 10.7759/cureus.28481. PMID: 36176887; PMCID: PMC9512516.
4. Torbicki A, Galié N, Covezzoli A, Rossi E, De Rosa M, Goldhaber SZ; ICOPER Study Group. Right heart thrombi in pulmonary embolism: results from the International Cooperative Pulmonary Embolism Registry. J Am Coll Cardiol. 2003 Jun 18;41(12):2245-51. doi: 10.1016/s0735-1097(03)00479-0. PMID: 12821255.
5. Athappan G, Sengodan P, Chacko P, Gandhi S. Comparative efficacy of different modalities for treatment of right heart thrombi in transit: a pooled analysis. Vasc Med. 2015 Apr;20(2):131-8. doi: 10.1177/1358863X15569009. PMID: 25832601.
6. Dhulipala VR, Fayoda BO, Kyaw H, Ayala-Rodriguez C. Thrombus in Transit: Extract or Dissolve? Cureus. 2020 Aug 4;12(8):e9550. doi: 10.7759/cureus.9550. PMID: 32905490; PMCID: PMC7470666.

Authors

Jessica M. Gonzalez, MD, Warren Alpert Medical School of Brown University, Rhode Island Hospital, Providence, RI.

Gabriel Lowenhaar, MD, Warren Alpert Medical School of Brown University, Rhode Island Hospital, Providence, RI.

Prasad Chalasani, MD, Florida State University College of Medicine, Tallahassee, FL.

Disclosures/conflicts of interest

The authors have no conflicts of interest to disclose.

Correspondence

Jessica M. Gonzalez, MD
Rhode Island Hospital, Department of Medicine
593 Eddy Street, Providence, RI 02903
Jlowenhaar@gmail.com

Abdominal STEMI: Ileus Presenting as Acute Coronary Syndrome

BABAK TEHRANI, MD, MS; CYDNEY ZEMAN, MD; KELLY SCHMIDT, MD; STEVEN EWER, MD

CASE PRESENTATION

A 53-year-old female was admitted to neurosurgery for planned L5-S1 and L5-S1 spine fusion with drain placement. The patient's past medical history was significant for VATER syndrome with multiple congenital vertebral abnormalities and a previous T1 to T7 bony fusion for congenital hemivertebra scoliosis. The patient tolerated surgery well with no operative complications. She was progressing well with an expected post-op course until post-op day 5 when the patient developed sudden-onset severe chest pain with associated nausea and diaphoresis. Chest pain was substernal, and was described as a pressure-like sensation, and radiating down the left arm. Pain was not reproducible with palpation or position changes and improved with sublingual nitroglycerin. The patient also endorsed several days of abdominal discomfort but was clear in delineating it from her chest pain.

On exam, the patient was ill-appearing and uncomfortable. Her heart rate ranged from 105–115 bpm, abdomen was moderately distended and mildly tender to palpation. An EKG obtained demonstrated significant ST elevations in the inferolateral leads (**Figure 1**). Troponin was drawn shortly after the onset of chest pain and only minimally elevated. A bedside echocardiogram exhibited normal left ventricular function with no clear wall-motion abnormalities. The patient was taken emergently for a coronary angiogram. No angiographically significant disease was observed. Additionally, there was no evidence of coronary vasospasm or spontaneous coronary artery dissection seen during catheterization (**Figures 2,3**).

Figure 1. Initial EKG with inferolateral ST elevations.

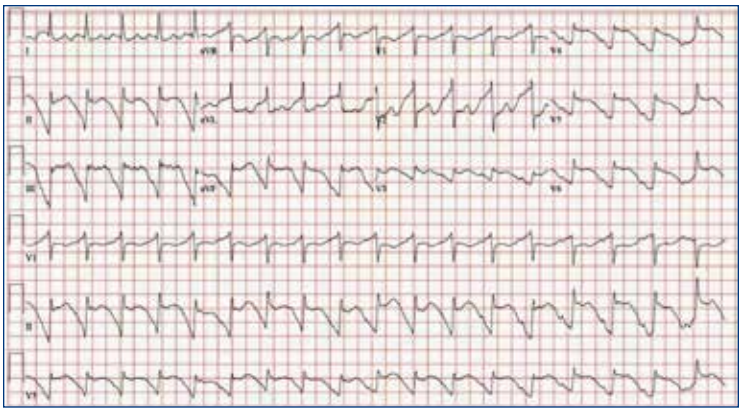


Figure 2. Coronary angiogram of the left anterior descending and left circumflex artery, no angiographically significant coronary artery disease visualized.

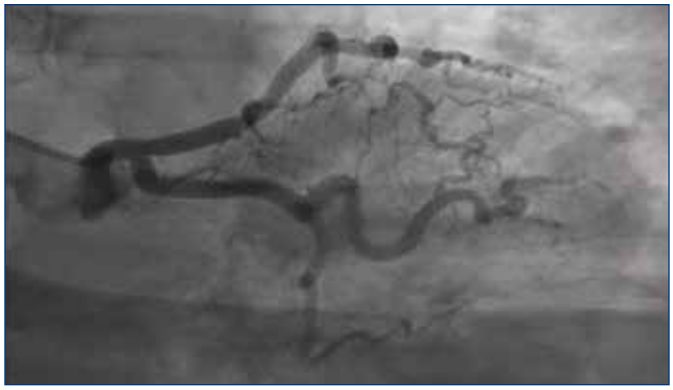
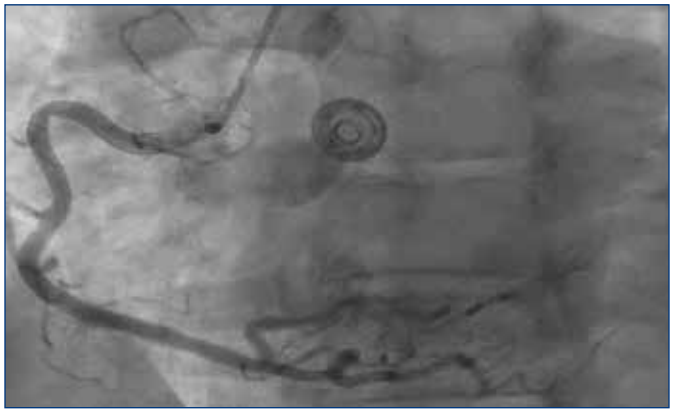


Figure 3. Coronary angiogram of the right coronary artery, no angiographically significant coronary artery disease visualized.



The patient continued to have active chest pain, prompting a further work-up. A bedside X-ray (**Figure 4**) and CT of the chest and abdomen identified an ileus pressing on the myocardium (**Figure 5**). A nasogastric tube was placed with immediate output of five liters of brown bilious fluid. Her chest pain completely resolved within one hour of NG tube placement. A repeat EKG the following morning demonstrated resolution of ST elevations (**Figure 6**). The rest of the patient's hospital course was uneventful, and bowel function eventually returned, and she was discharged home.

Figure 4. Bedside abdominal X-ray demonstrating dilated bowel measuring up to 42.9 mm.

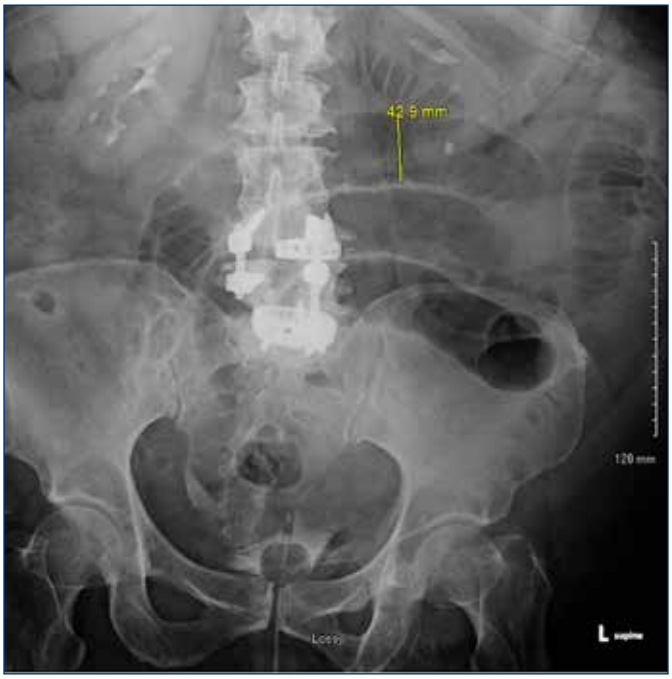


Figure 5. CT Chest demonstrating gastric distention pressing on the inferior aspect of the myocardium.

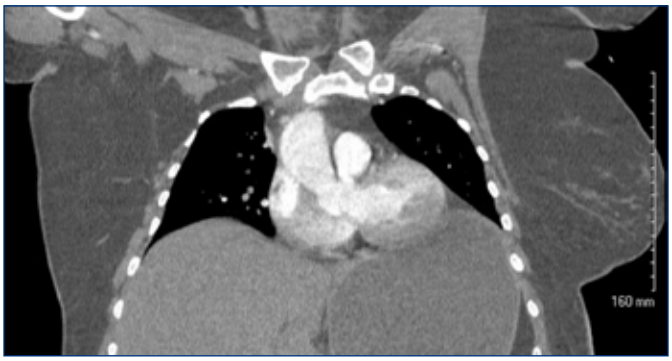
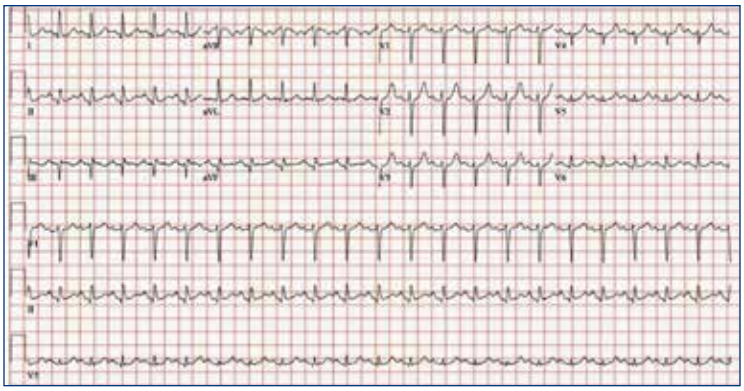


Figure 6. EKG following NG tube placement and resolution of chest pain, no significant ST elevation present.



DISCUSSION

Ileus mimicking ST-segment elevation myocardial infarction is an uncommon presentation of a common disease process. Our knowledge is limited solely to case reports.[1-4] However, we believe abdominal distention can precipitate the characteristic signs and symptoms of myocardial infarction. Abdominal distension, commonly observed in conditions such as bowel obstruction and ileus, can exert pressure on neighboring organs within the thoracic cavity, including the heart. The heart, nestled within the confines of the pericardial sac, is susceptible to compression from gastrointestinal structures when intra-abdominal pressure increases. Mechanical compression can impair microvascular coronary blood flow and cause myocardial ischemia. Further complicating the diagnosis, myocardial compression can elicit electrocardiographic changes consistent with atherothrombotic myocardial infarction, including ST-segment elevation and T-wave abnormalities. Electrocardiogram changes typically manifest in the inferior leads, aligning with the portion of the heart that comes into contact with the abdomen.[1-2] Additionally, similar to pancreatitis, it is theoretically possible for bowel inflammation in contact with the myocardium to elicit angina-like chest pain and ST changes on an EKG.[5] However, in this case, high intra-abdominal pressure is likely playing a greater role. Other STEMI mimickers to consider are myocarditis, pericarditis, coronary vasospasm, traumatic brain injury, ventricular aneurysm, and stress-induced cardiomyopathy. Recognizing the potential for extra-cardiac pathophysiology to masquerade as acute coronary syndromes allows providers to better evaluate and care for their patients presenting with cardiac complaints.

References

1. Shapiro, H, Stein-Merlob, A, Currier, J. et al. STEMI in the Belly: Abdominal Compartment Syndrome Mimicking ST Elevation Myocardial Infarction. *J Am Coll Cardiol.* 2020 Mar, 75 (11_Supplement_1) 2323. https://doi.org/10.1016/S0735-1097(20)32950-8
2. Patel K, Chang NL, Shulik O, DePasquale J, Shamoon F. Small Bowel Obstruction Mimicking Acute ST-Elevation Myocardial Infarction. Case Rep Surg. 2015;2015:739147. doi: 10.1155/2015/739147. Epub 2015 Mar 8. PMID: 25838963; PMCID: PMC4370232.
3. Mixon TA, Houck PD. Intestinal obstruction mimicking acute myocardial infarction. Tex Heart Inst J. 2003;30(2):155-7. PMID: 12809263; PMCID: PMC161907.
4. Hokamaki J, Kawano H, Miyamoto S, Sugiyama S, Fukushima R, Sakamoto T, Yoshimura M, Ogawa H. Dynamic electrocardiographic changes due to cardiac compression by a giant hiatal hernia. Intern Med. 2005 Feb;44(2):136-40. doi: 10.2169/internalmedicine.44.136. PMID: 15750274.
5. Agrawal A, Sayyida N, Penalver JL, Ziccardi MR. Acute Pancreatitis Mimicking ST-Segment Elevation Myocardial Infarction. Case Rep Cardiol. 2018 Oct 24;2018:9382904. doi: 10.1155/2018/9382904. PMID: 30473889; PMCID: PMC6220407.

Authors

Babak Tehrani, MD, MS, University of Wisconsin Hospitals and Clinics, Madison, WI.

Cydney Zeman, MD, University of Wisconsin Hospitals and Clinics, Madison, WI.

Kelly Schmidt, MD, University of Wisconsin Hospitals and Clinics, Madison, WI.

Steven Ewer, MD, University of Wisconsin Hospitals and Clinics, Madison, WI.

Disclosures

The authors have nothing to disclose.

Funding

No grants, contracts, or other forms of financial support were obtained or used for this case report.

Correspondence

Babak Tehrani, MD, MS
University of Wisconsin
600 Highland Ave.
Madison, WI 53792-0001
269-268-1482
btehrani@uwhealth.org

Isolated Toe Tremor Associated with Antiphospholipid Syndrome

BIJU GOPALAKRISHNAN, MD; JOSEPH H. FRIEDMAN, MD

ABSTRACT

The antiphospholipid syndrome (APS) is defined by the presence of antiphospholipid antibodies and related disorders, generally thromboses, miscarriages, livedo reticularis or heart valve abnormalities. It is thought to have a prevalence of about 40–50 cases per 100,000 in the general population.[1] Several neurological disorders have been associated with APS, most commonly stroke, but non-stroke complications, thought due to autoimmune problems, have been noted, with chorea being the most common. Isolated toe tremor, that is, without any other neurological signs or symptoms, has not been reported. We describe a case of recurrent isolated unilateral toe tremor in an otherwise healthy woman with long-standing APS.

KEYWORDS: Toe tremor, antiphospholipid syndrome, APS, APLS

CASE REPORT

A 32-year-old woman was referred for evaluation of tremors of toes IV and V in one foot, present only when sitting. It was noticed 30 months prior, and had been present continuously when awake but not during sleep, according to her partner. It resolved with standing, applying pressure, and during sleep. They were annoying, but not painful. She had had similar movements at age 18, which resolved after six months. She had a history of epilepsy, limited scleroderma, Raynaud's syndrome and APS diagnosed in 2010, during an evaluation for an ulcer in her little finger. She developed a deep vein thrombosis and pulmonary embolus in 2021 and had been on warfarin since then, with no further thrombotic events. There was no neurological family history and no exposure to dopamine receptor blocking agents or other drugs associated with tremors. Her neurological exam was normal aside from the tremor (**See video**). Video electroencephalogram, brain magnetic resonance imaging (MRI), lumbar spine MRI, dopamine transporter imaging and electromyogram of her leg, were all normal.

DISCUSSION

We believe these tremors are organic and not functional. We were unable to mimic the movement in ourselves. They did not change with distraction, did not change with stress, were always present when awake, and evoked no secondary gain. We do not think her other disorders can account for the tremors, and thus believe they are related to the APS. Chorea is the most common movement disorder reported;[2] there are also reports of ataxia, dystonia and hand tremors. We could not find any case report describing isolated toe tremors. The mechanism of movement disorders in APS can be secondary to structural brain disorders like strokes or can be immune mediated.[3] Her MRI of the brain was normal, and the localization was too exquisite to reflect a stroke. We believe, but cannot prove, that her movements are immune mediated, although her APS has been otherwise well controlled.

Video. Isolated Toe Tremor Associated with Antiphospholipid Syndrome
https://vimeo.com/928776563

References

1. Dabit JY, Valenzuela-Almada MO, Vallejo-Ramos S, Duarte-García A. Epidemiology of Antiphospholipid Syndrome in the General Population. Curr Rheumatol Rep. 2022 Jan 5;23(12):85. doi: 10.1007/s11926-021-01038-2. PMID: 34985614; PMCID: PMC8727975.
2. Shpiner DS, Dixon C, Ortega MR, Moore H. Movement Disorders in Antiphospholipid Syndrome & Systemic Lupus Erythematosus. Practical Neurology. September 2020:56-60
3. Leal Rato M, Bandeira M, Romão VC, Aguiar de Sousa D. Neurologic Manifestations of the Antiphospholipid Syndrome –an Update. Curr Neurol Neurosci Rep. 2021 Jun 14;21(8):41. doi: 10.1007/s11910-021-01124-z. PMID: 34125304; PMCID: PMC8200381

Authors

Biju Gopalakrishnan, MD, Movement Disorders Program, Butler Hospital and Department of Neurology, The Warren Alpert Medical School of Brown University, Providence, RI.

Joseph H. Friedman, MD, Movement Disorders Program, Butler Hospital and Department of Neurology, The Warren Alpert Medical School of Brown University, Providence, RI.

Acknowledgment

We thank the patient for her support for publishing this report. This work was not funded.

Disclosures

Conflicts of Interest: None

Ethical compliance statement: The authors confirm that the approval of an institutional review board was not required for this work.

Informed consent was obtained from the patient. (Only her toes and foot are visible, no other identification of the patient is present in the manuscript.)

We confirm that we have read the Journal's position on issues involved in ethical publication and affirm that this work is consistent with those guidelines.

Correspondence

Biju Gopalakrishnan, MD
401-455-6669
Fax 401-455-6670
biju_gopalakrishnan@brown.edu

Association Between Hispanic Ethnicity and Engagement in a Remote Postpartum Blood Pressure Monitoring Programs: Secondary Analysis of a Pilot Randomized Trial

ADAM K. LEWKOWITZ, MD, MPHS; LAUREN E. SCHLICHTING, PhD; NINA K. AYALA, MD, ScM; AMANDA O'NEILL, BSN; KATHERINE D. McCLEARY, MD; ERICA J. HARDY, MD, MMSc; MAUREEN HAMEL, MD; METHODIUS G. TUULI, MD, MPH, MBA

This research letter was presented at SMFM's Annual Pregnancy Conference from February 10–14, 2024.

ABSTRACT

OBJECTIVE: Remote self-measured blood pressure (SMBP) programs improve racial health equity among postpartum people with hypertensive disorders of pregnancy (HDP) who receive recommended blood pressure ascertainment after hospital discharge.[1-3] However, as prior studies have been conducted within racially diverse but ethnically homogeneous populations,[1-3] the effect of SMBP programs on ethnicity-based inequities is less understood.[4] We examined whether SMBP rates differed among Hispanic versus non-Hispanic participants in remote SMBP programs.

STUDY DESIGN: This is a planned secondary analysis of a RCT conducted among postpartum patients with HDP who were enrolled into our remote SMBP program, in which they obtain SMBP and then manually enter the SMBP value into a patient portal for individual provider response. In the parent trial, consenting patients were randomized to continued manual blood pressure entry of SMBP or use of a Bluetooth-enabled blood pressure cuff synched to a smartphone application utilizing artificial intelligence to respond to each obtained blood pressure or symptom for six weeks and to flag abnormalities for providers. Both SMBP programs were available in Spanish and English. For this study, women who self-reported their ethnicity were stratified into two ethnic groups – Hispanic and non-Hispanic – regardless of randomization group. Those who did not self-report ethnicity but completed all study procedures in Spanish were also categorized as Hispanic. Outcomes were the same in the parent study and this secondary analysis. The primary outcome was ≥1 SMBP assessment within 10 days postpartum. Secondary outcomes included number of blood pressure assessments and healthcare utilization outcomes (remote antihypertensive medication initiation or dose-increase and presentation to the Emergency Department or readmission for hypertension within 30 days of discharge). Participants rated their experience with SMBP via a scale from 0 (worst possible) to 10 (best possible) and the Decision Regret Scale, which assessed their regret in SMBP program participation (0=no regret; 100=high regret)).[5] Outcomes were compared between groups. Risk differences (RD) were calculated for categorical and regression coefficients for continuous outcomes. The parent RCT was IRB-approved and published on clinicaltrials.gov (NCT05595629) before enrollment.

Table 1. Outcomes among Hispanic versus non-Hispanic participants in a randomized controlled trial comparing two self-measured blood pressure (SMBP) programs among postpartum patients with hypertensive disorders of pregnancy

	Hispanic (n=23)	Non-Hispanic (n=62)	Risk difference or Beta (95% Confidence Interval (CI))*
Primary Outcome			
Assessment of SMBP within 10 days postpartum	15 (65)	49 (79)	–0.1 (–0.4–0.1)
Secondary Outcomes: SMBP			
Number of remote BP assessments	14 (7–45)	23 (12–37)	1.1 (1.0–1.2)
Secondary Outcomes: Health Care Utilization			
Remote BP medication initiation	0 (0)	6 (10)	–0.1 (–0.2–0)
Remote BP medication titration	3 (13)	16 (26)	–0.1 (–0.3–0)
Presentation to ED within 30 days for hypertension	3 (13)	11 (18)	–0.1 (–0.2–0.1)
Readmission within 30 days for hypertension	2 (9)	7 (11)	0 (–0.2–0.1)
Secondary Outcomes: Patient experience/mood			
Decisional Regret Score at end of program	2.5 (0–10)	0 (0–25)	–6.79 (–21.12–7.55)
"Using any number from 0 to 10 where 0 is the worst possible experience and 10 is the best possible experience, please rate your experience in the postpartum hypertension program"	10 (9–10)	10 (9–10)	0.36 (–0.70–1.43)

Data are n (%) or median (interquartile range)
*Risk difference was calculated for categorical outcomes and regression coefficient was calculated for continuous outcomes.

RESULTS: Among 119 women in the parent study, 83 (70%) self-reported ethnicity and the proportion of Hispanic people was similar in both treatment groups. This study compared 23 Hispanic (19% monolingual in Spanish) to 62 non-Hispanic women. Rates of SMBP assessment within 10 days postpartum was similar (Hispanic 64% vs non-Hispanic 79%; RD –0.1 (95% Confidence Interval (CI) –0.4, 0.1). There were no differences in mean number of remote SMBP assessments or rates of remote antihypertensive medication initiation or dose titration. The rates of hypertension-related presentations to the Emergency Department or hospital readmission were also similar between groups. Lastly, regardless of ethnicity, participants had low scores on the Decision Regret Scale and rated their experience with their remote SMBP program highly favorably. (See **Table 1.**)

CONCLUSION: Hispanic and non-Hispanic postpartum patients with HDP had similar outcomes and favorable patient perceptions. The small sample size in this study may have produced inadequate power to detect a difference between study groups, thereby leading to Type II error. Thus, more research on Hispanic participants in remote SMBP programs is needed. However, the effect of remote SMBP programs on perinatal equity may not be limited to race-based disparities.

References

1. Society for Maternal-Fetal M, Gibson KS, Combs CA, Bauer S, Hamm RF, Healy A, Morgan J, Toner L, Whitsel A, Patient S, Quality Committee. Electronic address sso. Society for Maternal-Fetal Medicine Special Statement: Quality metric for timely postpartum follow-up after severe hypertension. Am J Obstet Gynecol. 2022;227(3):B2-B8. Epub 20220527. doi: 10.1016/j.ajog.2022.05.045. PubMed PMID: 35644249.
2. Hirshberg A, Sammel MD, Srinivas SK. Text message remote monitoring reduced racial disparities in postpartum blood pressure ascertainment. American Journal of Obstetrics and Gynecology. 2019;221:283-5.
3. Arkerson B, Finneran M, Harris S, Schnoor J, McElwee E, Demosthenes L, Sawyer R. Remote Monitoring Compared With In-Office Surveillance of Blood Pressure in Patients With Pregnancy-Related Hypertension. Obstet Gynecol. 2023:Online ahead of print. doi: DOI: 10.1097/AOG.0000000000005327.
4. Steele DW, Adam GP, Saldanha IJ, Kanaan G, Zahradnik ML, Danilack-Fekete VA, Stuebe AM, Peahl AF, Chen KK, Balk EM. Postpartum Home Blood Pressure Monitoring: A Systematic Review. Obstet Gynecol. 2023;142(2):285-95. Epub 20230613. doi: 10.1097/AOG.0000000000005270. PubMed PMID: 37311173.
5. Brehaut JC, O'Connor AM, Wood TJ, Hack TF, Siminoff L, Gordon E, Feldman-Stewart D. Validation of a decision regret scale. Med Decis Making. 2003;23(4):281-92. doi: 10.1177/0272989X03256005. PubMed PMID: 12926578.

Authors

Adam K. Lewkowitz, MD, MPHS, Department of Obstetrics and Gynecology, Warren Alpert Medical School of Brown University; Center for Digital Health, Brown School of Public Health, Providence, Rhode Island.

Lauren E. Schlichting, PhD, Hassenfeld Child Health Innovation Institute, Brown School of Public Health, Providence, Rhode Island.

Nina K. Ayala, MD, ScM, Department of Obstetrics and Gynecology, Warren Alpert Medical School of Brown University, Providence, Rhode Island.

Amanda O'Neill, BSN, Department of Obstetrics and Gynecology, Warren Alpert Medical School of Brown University, Providence, Rhode Island.

Katherine D. McCleary, MD, Department of Family Medicine, Warren Alpert Medical School of Brown University, Providence, Rhode Island.

Erica J. Hardy, MD, MMSc, Department of Internal Medicine, Warren Alpert Medical School of Brown University, Providence, Rhode Island.

Maureen Hamel, MD, Department of Obstetrics and Gynecology, Warren Alpert Medical School of Brown University, Providence, Rhode Island.

Methodius G. Tuuli, MD, MPH, MBA, Department of Obstetrics and Gynecology, Warren Alpert Medical School of Brown University, Providence, Rhode Island.

Acknowledgments

The authors would like to acknowledge Ms. Rackeem Baker and Crystal Ware, as well as Drs. Alisse Hauspurg and Dwight Rouse, for their support in collecting and interpreting data for this study.

Disclosures

Conflicts of Interest: Dr. Lewkowitz has served on a medical advisory board for Pharmacosmos Therapeutics, Incorporated in 2022, and on a medical advisory board for Shields Pharmaceuticals in 2021.

Funding: Dr. Lewkowitz is supported by the NICHD (K23HD103961). This study was also supported by a grant from the CVS Foundation/Essential Hospitals Institute. These funding sources had no role in study design, collection, analysis, or interpretation of the data, or in the decision to submit the article for publication.

Clinical Trials.gov information:
1) Date of registration: October, 21, 2022
2) Date of initial participant enrollment: November 7, 2022
3) Clinical trials number: NCT 05595629
4) Website: https://clinicaltrials.gov/study/NCT05595629

Social Media Statement: In a secondary analysis of an RCT comparing postpartum remote blood pressure monitoring programs, Hispanic and non-Hispanic participants had similar engagement rates and outcomes, reducing ethnicity-based inequities.

Correspondence

Adam K. Lewkowitz, MD, MPHS
Women and Infants Hospital, Division of Maternal Fetal Medicine
101 Plain Street, 7th floor, Providence, RI 02903
401-247-1122
Fax 401-453-7622
Alewkowitz@kentri.org

Impact of Simulation Exercises on Total Laparoscopic Hysterectomy Surgical Outcomes: A Systematic Review and Meta-Analysis

TRICIA GIGLIO-AYERS, MD; FABRIZIO ZULLO, MD; ALICIA HERSEY, MD; INDIRA RANAWEERA, MD; LARA OUELLETTE, MLS; DANIELE DI MASCIO, MD; CHRISTINE E. FOLEY, MD; STEPHEN M. WAGNER, MD

ABSTRACT

BACKGROUND: As resources into gynecological surgical simulation training increase, research showing an association with improved clinical outcomes is needed.

OBJECTIVE: To evaluate the association between surgical simulation training for total laparoscopic hysterectomy (TLH) and rates of intraoperative vascular/visceral injury (primary outcome) and operative time.

SEARCH STRATEGY: We searched Medline OVID, Embase, Web of Science, Cochrane, and CINAHL databases from the inception of each database to April 5, 2022.

SELECTION CRITERA: Randomized controlled trials (RCTs) or cohort studies of any size published in English prior to April 4, 2022.

DATA COLLECTION AND ANALYSIS: The summary measures were reported as relative risks (RR) or as mean differences (MD) with 95% confidence intervals using the random effects model of DerSimonian and Laird. A Higgins I2 >0% was used to identify heterogeneity. We assessed risk of bias using the Cochrane Risk of Bias tool 2.0 (for RCTs) and the Newcastle Ottawa Scale (for cohort studies).

MAIN RESULTS: The primary outcome of this systematic review and meta-analysis was to evaluate the impact of simulation training on the rates of vessel/visceral injury in patients undergoing TLH. Of 989 studies screened 3 (2 cohort studies, 1 randomized controlled trial) met the eligibility criteria for analysis. There was no difference in vessel/visceral injury (OR 1.73, 95% CI 0.53–5.69, p=0.36) and operative time (MD 13.28, 95% CI –6.26 to 32.82, p=0.18) when comparing before and after simulation training.

CONCLUSION: There is limited evidence that simulation improves clinical outcomes for patients undergoing TLH.

INTRODUCTION

The utility of surgical simulation (a technique to replace or amplify real experiences with guided experiences, often immersive in nature, that evoke or replicate substantial aspects of the real world in a fully interactive manner) has been long recognized,[1] with the oldest documented utilization of surgical simulators dating to 600BC in India.[2] Multiple factors have led to an appreciable increase in the use of surgical simulation over the past several decades, including ACGME restrictions on resident work hours, the advancement of technology, and the introduction of the Fundamentals of Laparoscopic Surgery course.[3,4] While there is extensive literature demonstrating the impact of simulation on surgical training and procedures,[5-8] literature on gynecological surgery is limited.[9]

It is estimated that over 1,300 hysterectomies are performed in the United States every day.[10] Nearly two-thirds of all hysterectomies are performed via a minimally invasive (laparoscopic or robotic) approach.[10,11] There is a high variation in reported rates of complications including bowel and bladder injuries for patients undergoing hysterectomy.[12-14] Multiple publications have examined the use of simulation for total laparoscopic hysterectomy (TLH), and these studies have demonstrated increased provider comfort, knowledge, and confidence in the procedure, as well as improved technical skills.[15-17] However, there is a paucity of research examining whether TLH simulation improves clinical outcomes.

The primary outcome of this systematic review and meta-analysis was to evaluate the impact of simulation training on the rates of vessel/visceral injury in patients undergoing TLH. Secondary outcomes included operative time, transfusion rates, conversion rates and hospital readmission. We hypothesized that implementation of simulation training would lead to a decrease in vessel/visceral injury.

METHODS

Information sources and search strategy

This meta-analysis was performed according to a protocol recommended for systematic review.[18] The review protocol was designed by a priori defining methods for collecting, extracting, and analyzing data. Registration of this systematic review and meta-analysis on the PROSPERO database (CRD42022312403) was performed prior to initiation of the study. The study was reported per the PRISMA criteria, and a PRISMA-2 Reporting guideline is included in the supplement (email corresponding author for supplementary material).

In March 2022, a trained medical librarian (LO), started a systematic search to compile literature on Laparoscopic Hysterectomies and Simulation Training. Using Medline OVID (Medline on OVIDSP) as the primary database. The topic was explored and determined to have two main concepts: Hysterectomies (Laparoscopic) (1) and Simulation (2). The search was deliberately developed to be as broad as possible, utilizing two concepts, due to the overall lack of literature found on the topic and was developed as broad as possible.

The concepts were developed using both controlled and natural languages. MeSH terms were identified, and keywords were gathered along with various synonyms. The keywords were searched using the title, abstract, and keyword fields within the Medline OVID database. The English language filter was used, but no other limiters were implemented. Searching was completed from March 25, 2022 through April 4, 2022. Once the searches were thoroughly developed, they were given to the investigators for final approval.

The Medline OVID search strategy was approved on April 1, 2022. Five databases were used: Medline OVID, Embase, Web of Science, Cochrane Library, and CINAHL w/Full Text (EBSCO). For continuity, after translation, the searches were all run again on April 5, 2022 individually, in each database. The results from these final searches were then uploaded to the EndNote citation manager for de-duplication. De-duplication was completed on April 5, 2022 within the citation manager system, and then performed manually. Before de-duplication citations totaled 1,751; after de-deduplication, the total number of citations was 989.

Eligibility criteria and study selection

Selection criteria included randomized controlled trials (RCTs) and prospective and retrospective cohort studies published in English that reported on the association between simulation training and at least one of our primary or secondary outcomes of interest. Abstracts were independently screened by two investigators (TG, AH), and if the abstract was identified as being possibly relevant the full text was double-screened. Studies that did not report on simulation training for TLH or did not report the primary or secondary outcomes were excluded.

Data extraction

A custom data extraction form in Microsoft Excel® was independently completed by two investigators (TG, AH), with discrepancies resolved by a third investigator (SW). Variables that were extracted included: study design, publication type, year of study publication, study country, rates of intraoperative vascular/vesicular injury (primary outcome) and operative time, transfusion rates, conversion rates, hospital length-of-stay, and readmission.

Risk-of-bias assessment

Risk-of-bias assessment was independently completed by two authors (SW, MM). The Cochrane Risk-of-Bias 2.0 tool for randomized trials (RoB 2) was used for RCTs,[19] and the Newcastle-Ottawa Scale (NOS) was used for cohort studies.[20] A third investigator (AH) was available to resolve any discrepancies in the risk-of-bias assessment.

Data synthesis

Data analysis was completed using Review Manager 5.4.1 (Copenhagen: The Nordic Cochrane Center, Cochrane Collaboration, 2020). The summary measures were reported as summary relative risks (RRs) or as summary mean differences (MDs) with 95% of confidence intervals (CIs) using the random effects model of Der-Simonian and Laird.[12] (Higgins I2) >0% was used to identify heterogeneity. Potential publication biases were assessed graphically by using the funnel plot. The meta-analysis was reported according to the Preferred Reporting Item for Systematic Reviews and Meta-analyses (PRISMA) statement.[21] Due to the limited number of studies, no subgroup analyses were undertaken.

RESULTS

Summary of identified evidence

Following de-deduplication, the total number of unique records to screen was 989 (**Figure 1**); 62 full-text articles were screened and 59 of them were excluded. The most common reasons for exclusion were either incorrect outcomes, most commonly physician comfort/confidence with performing the surgery, (34 studies) or study designs without comparator groups (12 studies). Three articles (describing three studies)

Figure 1. PRISMA flow diagram

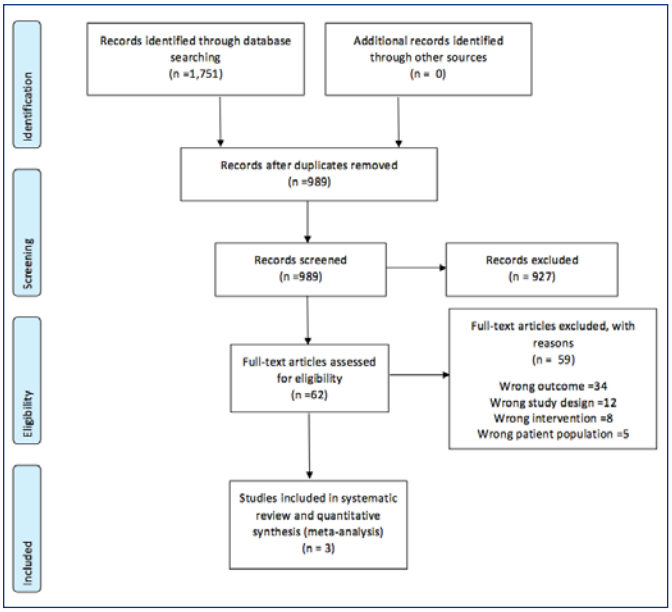


Table 1. Study Characteristics

Author	Publication year	Study location	Study type	Total Hysterectomies		Total Laparoscopic Hysterectomy	
				Pre-Intervention	Post-Intervention	Pre-Intervention	Post-Intervention
Asoglu et al	2016	USA	Cohort	188	1209	40	232
Jokinen et al	2019	Finland	RCT	10	10	10	10
Oman et al	2013	USA	Cohort	855	751	396	500

met the eligibility criteria. These three studies encompassed two cohort studies and one RCT (**Table 1**).[22-24]

The two cohort studies encompassed 1,168 TLHs of which 732 (62.6%) were performed following the implementation of simulation training.[22,24] Both studies were conducted in the United States and were rated as having a high risk of bias (**Table 2a**). Concerns regarding the lack of control for potential differences in patient populations drove the high risk of bias in both cohort studies.

The one RCT, done in the United States, examined 20 TLHs, 10 (50%) were with residents who underwent simulation training. This study was rated as having a low risk of bias (**Table 2b**).[23]

Risk of Vessel/Visceral Injury

In the primary meta-analysis (three studies), simulation training was not associated with a decreased risk of vessel/visceral injury (OR 1.73, 95% CI 0.53–5.69, p=0.36) (**Figure 2**).[22-24]

Risk of Secondary Outcomes

Two studies (one cohort, one RCT) reported on operative time.[22,23] There was no difference in operative time (MD 13.28, 95% CI –6.26 to 32.82, p=0.18) when comparing before and after simulation training (**Figure 3**). None of the studies reported on the association between TLH simulation training and transfusion rates, conversion rates, hospital length-of-stay, and readmission.

DISCUSSION

This systematic review and meta-analysis did not demonstrate a decreased risk of vessel/visceral injury in patients undergoing TLH following the implementation of simulation training. Likewise, there was no difference in operative time, and a lack of data on further secondary outcomes.

These findings are not consistent with the impact of simulation on surgical outcomes in

Table 2a. Newcastle-Ottawa Scale (NOS) for assessing the quality of non-randomized studies

Studies	Selection (Maximum 4)	Comparability (Maximum 2)	Outcome (Maximum 3)
Asoglu et al (2016)	3	0	3
Oman et al (2013)	2	0	2

Thresholds for converting the Newcastle-Ottawa scales to AHRQ standards (good, fair, and poor):

Good quality: 3 or 4 stars in selection domain AND 1 or 2 stars in comparability domain AND 2 or 3 stars in outcome/exposure domain

Fair quality: 2 stars in selection domain AND 1 or 2 stars in comparability domain AND 2 or 3 stars in outcome/exposure domain

Poor quality: 0 or 1 star in selection domain OR 0 stars in comparability domain OR 0 or 1 stars in outcome/exposure domain

Table 2b. Revised Cochrane risk-of-bias tool for randomized trials (RoB-2)

	Bias arising from the randomization process	Bias due to deviations from intended interventions	Bias due to missing outcome data	Bias in measurement of the outcome	Bias in selection of the reported result	Overall risk of bias
Jokinen et al.	Low	Low	Low	Low	Low	Low

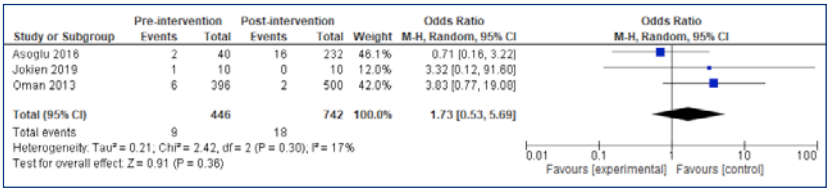
Overall risk-of-bias judgement criteria

Low risk of bias: The study is judged to be at low risk of bias for all domains for this result.

Some concerns: The study is judged to raise some concerns in at least one domain for this result, but not to be at high risk of bias for any domain.

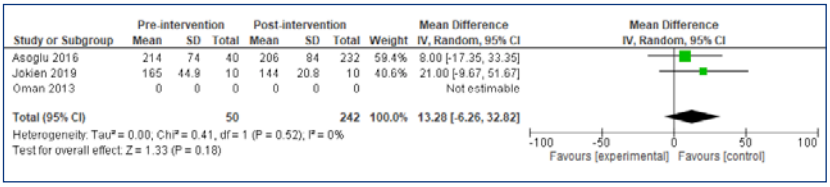
High risk of bias: The study is judged to be at high risk of bias in at least one domain for this result. The study is judged to have some concerns for multiple domains in a way that substantially lowers confidence in the result.

Figure 2. Meta-Analysis of the Association Between Total Laparoscopic Hysterectomy Simulation and intraoperative vascular/vesicular injury



I2: measure of heterogeneity

Figure 3. Changes in Total Laparoscopic Hysterectomy Operative Time



other specialties , where decreased adverse outcomes (e.g., decreased damage to gallbladder and surrounding structures during cholecystectomy, decreased capsule tears during cataract surgery)[7,25] and operative time have been demonstrated.[26] Limited research on simulation training in vaginal hysterectomy and robotic hysterectomy has failed to show a reduction in operative time, consistent with the results found in this study.[27,28] The conclusions drawn in this systematic review and meta-analysis highlight the paucity of data examining the impact of TLH simulation training on patient level outcomes.

As part of an initiative to incorporate simulation and standardize surgical training, the American Board of Obstetrics and Gynecology (ABOG) added the Fundamentals of Laparoscopic Surgery course certification as a pre-requisite for board certification in obstetrics and gynecology for residents graduating after May 31, 2020. More recently, on January 9, 2023, the Essentials in Minimally Invasive Gynecologic Surgery certification was approved as an alternative option to meet the Surgical Skills Program standard for ABOG certification. The limited studies identified in this systematic review and the lack of improved patient outcomes call into question whether there is sufficient evidence to support these training requirements and certification procedures.

There are several limitations to this systematic review and meta-analysis that should be acknowledged. Only three studies meet the inclusion criteria for this analysis and the only randomized controlled trial had a sample size of 20 patients. All three studies were performed in the United States or Finland, so the applicability of simulation in low-resource settings is unclear. Furthermore, this study did not examine the cost effectiveness of simulation training.

A strength of this analysis is that, to our knowledge, it is the first systematic review and meta-analysis to explore the impact of TLH simulation training on patient-level outcomes. A recent well-designed systematic review and meta-analysis examined the impact of simulation on gynecological surgeries, but TLH was excluded from that analysis.[9] The primary limitation to this analysis is the lack of studies and small sample size, which included only 1,168 TLHs in total. Furthermore, both cohort studies were rated to be poor quality per the NOS.

CONCLUSIONS

The current data is limited and fails to demonstrate that clinical outcomes for patients undergoing TLH are improved with the implementation of simulation training. This systematic review and meta-analysis highlight the need for further research to support the national mandates for simulation training for gynecological surgeons.

References

1. Gaba DM. 2004. The future vision of simulation in health care. *Qual Saf Health Care* 13 Suppl 1:i2-10
2. Persing JA, Evans GRD. 2007. *Soft-tissue surgery of the craniofacial region*. New York: Informa Healthcare
3. Jamal MH, Rousseau MC, Hanna WC, Doi SA, Meterissian S, Snell L. 2011. Effect of the ACGME duty hours restrictions on surgical residents and faculty: a systematic review. *Acad Med* 86:34-42
4. Leon MG, Dinh TA, Heckman MG, Weaver SE, Chase LA, DeStephano CC. 2021. Correcting the Fundamentals of Laparoscopic Surgery "Illusion of Validity" in Laparoscopic Vaginal Cuff Suturing. *J Minim Invasive Gynecol* 28:1927-34
5. James J, Irace AL, Gudis DA, Overdevest JB. 2022. Simulation training in endoscopic skull base surgery: A scoping review. *World J Otorhinolaryngol Head Neck Surg* 8:73-81
6. Lawaetz J, Skovbo Kristensen JS, Nayahangan LJ, Van Herzeele I, Konge L, Eiberg JP. 2021. Simulation Based Training and Assessment in Open Vascular Surgery: A Systematic Review. *Eur J Vasc Endovasc Surg* 61:502-9
7. Seymour NE, Gallagher AG, Roman SA, O'Brien MK, Bansal VK, et al. 2002. Virtual reality training improves operating room performance: results of a randomized, double-blinded study. *Ann Surg* 236:458-63; discussion 63-4
8. Toale C, Morris M, Kavanagh D. 2021. Perceptions and experiences of simulation-based assessment of technical skill in surgery: A scoping review. *Am J Surg* 222:723-30
9. Orejuela FJ, Aschkenazi SO, Howard DL, Jeppson PC, Balgobin S, et al. 2022. Gynecologic surgical skill acquisition through simulation with outcomes at the time of surgery: a systematic review and meta-analysis. *Am J Obstet Gynecol* 227:29 e1- e4
10. Wright JD, Huang Y, Li AH, Melamed A, Hershman DL. 2022. Nationwide Estimates of Annual Inpatient and Outpatient Hysterectomies Performed in the United States. *Obstet Gynecol* 139:446-8
11. Doll KM, Dusetzina SB, Robinson W. 2016. Trends in Inpatient and Outpatient Hysterectomy and Oophorectomy Rates Among Commercially Insured Women in the United States, 2000-2014. *JAMA Surg* 151:876-7
12. Makinen J, Johansson J, Tomas C, Tomas E, Heinonen PK, et al. 2001. Morbidity of 10 110 hysterectomies by type of approach. *Hum Reprod* 16:1473-8
13. Multinu F, Casarin J, Hanson KT, Angioni S, Mariani A, et al. 2018. Practice Patterns and Complications of Benign Hysterectomy Following the FDA Statement Warning Against the Use of Power Morcellation. *JAMA Surg* 153:e180141
14. Pande B, Pradhan P, Pradhan SK, Mansingh S, Mishra SK. 2023. Complications of Total Laparoscopic Hysterectomy in a Tertiary Care Center. *Cureus* 15:e36510
15. Arora C, Menzies A, Han ES, Lee M, Lauer JK, et al. 2020. Comparing Surgical Experience and Skill Using a High-Fidelity, Total Laparoscopic Hysterectomy Model. *Obstet Gynecol* 136:97-108
16. Frazzini Padilla PM, Farag S, Smith KA, Zimberg SE, Davila GW, Sprague ML. 2018. Development and Validation of a Simulation Model for Laparoscopic Colpotomy. *Obstet Gynecol* 132 Suppl 1:19s-26s
17. Knight S, Aggarwal R, Agostini A, Loundou A, Berdah S, Crochet P. 2018. Development of an objective assessment tool for total laparoscopic hysterectomy: A Delphi method among experts and evaluation on a virtual reality simulator. *PLoS One* 13:e0190580
18. Henderson LK, Craig JC, Willis NS, Tovey D, Webster AC. 2010. How to write a Cochrane systematic review. *Nephrology (Carlton)* 15:617-24
19. Sterne JAC, Savovic J, Page MJ, Elbers RG, Blencowe NS, et al. 2019. RoB 2: a revised tool for assessing risk of bias in randomised trials. *BMJ* 366:l4898

20. GA Wells BS, D O'Connell, J Peterson, V Welch, M Losos, P Tugwell. 2013. *The Newcastle-Ottawa Scale (NOS) for assessing the quality of nonrandomised studies in meta-analyses*.
21. Moher D, Liberati A, Tetzlaff J, Altman DG, Group P. 2010. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Int J Surg* 8:336-41
22. Asoğlu MR, Achjian T, Akbilgiç O, Borahay MA, Kılıç GS. 2016. The impact of a simulation-based training lab on outcomes of hysterectomy. *J Turk Ger Gynecol Assoc* 17:60-4
23. Jokinen E, Mikkola TS, Härkki P. 2020. Simulator training and residents' first laparoscopic hysterectomy: a randomized controlled trial. *Surg Endosc* 34:4874-82
24. Oman SA. 2013. Minimally invasive surgical simulation lab in a community teaching hospital: A multi-use space for practice improvement. *Journal of Minimally Invasive Gynecology* 20(6):S24
25. Belyea DA, Brown SE, Rajjoub LZ. 2011. Influence of surgery simulator training on ophthalmology resident phacoemulsification performance. *J Cataract Refract Surg* 37:1756-61
26. Larsen CR, Oestergaard J, Ottesen BS, Soerensen JL. 2012. The efficacy of virtual reality simulation training in laparoscopy: a systematic review of randomized trials. *Acta Obstet Gynecol Scand* 91:1015-28
27. Culligan P, Gurshumov E, Lewis C, Priestley J, Komar J, Salamon C. 2014. Predictive validity of a training protocol using a robotic surgery simulator. *Female Pelvic Med Reconstr Surg* 20:48-51
28. Geoffrion R, Gebhart J, Dooley Y, Bent A, Dandolu V, et al. 2012. The mind's scalpel in surgical education: a randomised controlled trial of mental imagery. *Bjog* 119:1040-8

Authors

Tricia Giglio-Ayers, MD, Department of Obstetrics and Gynecology, Alpert Medical School, Brown University, Providence, Rhode Island.

Fabrizio Zullo, MD, Department of Maternal and Child Health and Urological Sciences, Sapienza University of Rome, Italy.

Alicia Hersey, MD, Department of Obstetrics and Gynecology, Alpert Medical School, Brown University, Providence, Rhode Island.

Indira Ranaweera, MD, Department of Obstetrics and Gynecology, Beth Israel Deaconess Medical Center; Department of Obstetrics, Gynecology and Reproductive Biology, Harvard Medical School, Boston, MA.

Lara Ouellette, MLS, Department of Obstetrics, Gynecology and Reproductive Sciences, McGovern Medical School at The University of Texas Health Science Center at Houston (UTHealth), Houston, Texas.

Daniele Di Mascio, MD, Department of Maternal and Child Health and Urological Sciences, Sapienza University of Rome, Italy.

Christine E. Foley, MD, Department of Obstetrics and Gynecology, Alpert Medical School, Brown University, Providence, Rhode Island.

Stephen M. Wagner, MD, Department of Obstetrics and Gynecology, Beth Israel Deaconess Medical Center; Department of Obstetrics, Gynecology and Reproductive Biology, Harvard Medical School, Boston, MA.

Disclosures

There is no financial support to report for this manuscript.

Dr. Wagner has previously provided consulting services to Pfizer regarding Headaches in Pregnancy; there are no other potential conflicts of interest to report.

Correspondence

Stephen M. Wagner, MD
Beth Israel Deaconess Medical Center
Harvard Medical School
330 Brookline Ave.
Boston, MA 02215
717-283 7796
smw5120@gmail.com

Prescribing Patterns for Postpartum Contraception Among Breastfeeding Patients Insured Under Medicaid in Rhode Island: A PRAMS Analysis

ANNA R. WHELAN, MD; SIRAJ AMANULLAH, MD, MPH; ANNIE GJELSVIK, PhD

ABSTRACT

INTRODUCTION: Disparities in contraceptive counseling are well documented in the United States. People of color, those of lower socio-economic status, and Medicaid insurance are more likely to receive contraception/sterilization counseling than White patients. Postpartum contraceptive choice is an important aspect for pregnant people, especially for those who plan to breastfeed. This study assessed postpartum contraception/sterilization prescription among breastfeeding people in Rhode Island insured under Medicaid compared to other insurance carriers.

METHODS: Secondary analysis of data from the Rhode Island Pregnancy Risk Assessment Monitoring System (PRAMS) from 2016–2019. Participants who answered yes to 'having ever breastfed' were included and dichotomized based on insurance into 'Medicaid' or 'other insurance'. Primary outcome was postpartum contraception/sterilization prescription. Stata software version 15 was used to perform multivariable logistic regression accounting for complex survey design and weighting.

RESULTS: Of 3686 participants, 868 (24.4%) were insured under Medicaid. Medicaid participants were younger, had higher BMIs and were more likely to identify as Black or mixed race or Hispanic ethnicity than those with other insurers. Those insured under Medicaid were 1.5 times more likely to be prescribed postpartum contraception than those with other insurers (95% CI 1.26,1.78). After adjusting for race/ethnicity, education level, marital status and preterm delivery, those with Medicaid were 1.28 times more likely to be prescribed contraception (95% CI 1.05,1.57).

CONCLUSION: In this study, breastfeeding participants with Medicaid were more likely to be prescribed postpartum contraception than those with other insurances. Future research should be focused on assessing provider bias, contraception coercion, and initiatives to provide equitable and patient-centered counseling in this population.

INTRODUCTION

Access to contraception is one of the most important aspects of healthcare in reproductive-age people. Contraception is also an important tool in public health.[1] Unfortunately, disparities exist in the United States in regards to the prescription of contraception with examples dating back over a century.[2] People of color, particularly Black and Latinx individuals, are more likely to be prescribed permanent or long-active reversible contraception (LARC) when compared to White patients.[3-7]

These disparities have been amplified by a system focused on metrics and population level outcomes rather than on individual preference. In order to combat the high level of unintended pregnancy, the WHO and CDC developed a "tiered-effectiveness" counseling approach for contraception.[4] This method consists of health-care providers' counseling centered on each method's effectiveness of preventing pregnancy rather than the individual patient's desires and reproductive plans (i.e., sterilization and LARC are tier 1, the pill and shot are tier 2 etc.). Over the last 2-3 years, the tiered-effectiveness model has been criticized as coercive and experts in reproductive justice have recommended moving away from this widely taught method.[4]

Obstetric-care providers are also trained in using the tiered-effectiveness for patients in the postpartum period.[8] Postpartum people are a special population, with additional factors that set them apart from other reproductive-age individuals, such as maternal physiology (and increased thrombosis risk), breastfeeding and goals for future childbearing. By focusing solely on preventing pregnancy, these other factors are often ignored. Despite good intentions, many obstetric-care providers that are trained in the US medical-industrial system inherently pick up on the biases perpetuated by such a system.

To date, there is a paucity of data on the association between race/racism and socio-economic status and the prescription of contraception among breastfeeding postpartum people. Postpartum people who are of lower socioeconomic background and people of color tend to have lower rates of exclusive breastfeeding in general, due to a plethora of factors, including the lack of paid leave, time and space to express breastmilk.[9,10] Another possible major barrier to success is the choice of contraception. Estrogen-containing methods have been shown to decrease milk supply[11,12];

however, almost a quarter of patients also report concerns regarding their milk supply after starting a non-estrogen containing contraception method.[13] For some patients, the effectiveness of a contraceptive may not be the most important factor.[4] Evidence continues to emerge on the need for more open-ended discussion between patients and providers about the use of contraception during lactation, particularly in the first 6 months postpartum.[4]

For this study, we assessed the association between the prescription of postpartum contraception or sterilization in breastfeeding patients and the socio-economic status, a known risk for disparities in contraception prescription. Specifically, this study looked at these differences based on the Medicaid insurance status of the patient, as Medicaid insurance status is frequently used as a marker for lower socioeconomic status in public health research and all individuals are eligible for Medicaid during pregnancy.

METHODS

Secondary analysis of data from the Rhode Island Pregnancy Risk Assessment Monitoring System (RIPRAMS) from 2016 through 2019[14] was performed. RIPRAMS is a population-based survey of people who have delivered a liveborn infant and is conducted at 2 to 6 months postpartum to assess experiences and behaviors before, during and after pregnancy. Stratified samples of 160 residents of Rhode Island are selected each month, with oversampling of people who delivered low-birth weight infants (less than 2500 grams) in order to better assess risk factors for low-birth weight deliveries.[14] The surveys are conducted both by phone and by mail and are performed in English, Spanish and Mandarin.

In order to capture participants who planned to breastfeed, the eligible population for this study was participants who responded to the RIPRAMS survey and responded "Yes" when asked "did you ever breastfeed or pump breast milk to feed your new baby, even for a short period of time?" Those participants who either responded "No", did not respond, or had missing or invalid data were excluded.

Medicaid is a publicly funded health insurance program in the United States that is reserved for individuals with limited income and resources, including people with disabilities.[15] All pregnant people are eligible to be covered under Medicaid.[15] For the study purposes, self-reported information related to Medicaid insurance status was utilized , with 'yes' response to the question "Is your insurance paid by Medicaid?" If they responded no to this question or responded yes to insurance being paid by private insurer, self-pay, military (Champus/Tricare), or other provider, they were included in the non-Medicaid cohort.

The primary outcome assessed was the prescription of postpartum contraception. This was a self-reported variable in which patients were asked "are you or your husband or partner doing anything now to keep from getting pregnant?" If a participant responded yes, they were then asked "what kind of birth control are you or your husband or partner using now to keep from getting pregnant?" For this study we converted the responses to this question into a binary variable. If the participant responded with "tubes tied or blocked," "birth control pills," "shots or injection," "contraceptive patch or vaginal ring," "intrauterine device," or "contraceptive implant in the arm" this was coded as "prescribed birth control." If the participant reported not using contraception or using "condoms," "natural family planning," "abstinence," or "withdrawal," this was coded as "not prescribed birth control."

Demographic variables assessed were maternal age, BMI, self-reported race as categorized by RIPRAMS (White, Black, American Indian, Chinese, Filipino, Other Asian, Other, and Mixed race and not reported) and ethnicity. Marital status was included as support of the father of the baby has been linked to success of breastfeeding goals, particularly among younger and low-income parents.[16] We additionally included education level (<12th grade vs. 12th grade or higher) as a covariate.

Statistical Analyses

Data from RIPRAMS was analyzed using Stata version 15 (College Station, TX).[17] Weighting for RIPRAMS accounts for oversampling of low-birth weight infants.[14] Demographic, maternal, obstetric, delivery and outcome variables were analyzed according to Medicaid insurance status using Fisher's exact test for categorical variables and Kruskal-Wallis one-way ANOVA for continuous variables. Odds ratios were calculated using logistic regression, utilizing complex survey design, for the overall prescription of contraception by Medicaid status and adjusted for education level, race, ethnicity, marital status and delivery at term. Due to use of publicly available de-identified data, IRB approval was not required for this study.

RESULTS

During the study time period of 2016-2019, 3686 participants planned to breastfeed; 898 (24.4%) with Medicaid insurance and 2788 (75.6%) with other insurances (**Table 1**). On average, those with Medicaid insurance were younger, of Black and mixed race, of Hispanic ethnicity, and had a higher BMI (**Table 1**). The group with Medicaid were significantly less likely to be married (30.5%) compared to those with other insurance (69.0%)(p<0.001) and less likely to complete high school (77.4% vs 87.0%, p<0.001).

Comparison of obstetric and delivery factors showed that those with Medicaid insurance were more likely to undergo a vaginal birth (72.5%) or repeat cesarean birth (13.4%) as compared to those with other insurance (vaginal birth 63.8%, repeat cesarean 12.2%)(p<0.001 and p<0.05 respectively). Mean gestational age at delivery and birth weight

were also lower among participants with Medicaid (**Table 1**).

Those with Medicaid were 1.50 times more likely to be prescribed postpartum contraception (95% CI 1.26,1.78) as compared to those with other insurance providers (**Table 2**). After adjusting for education level, race, ethnicity, marital status and preterm delivery, those with Medicaid were still 1.28 times more likely to receive a prescription for birth control or sterilization as compared to those with other insurance (95% CI 1.06,1.95). Participants who did not report their race (OR 1.66, 95% CI 1.39,1.59), Hispanic (OR 1.85, 95% CI 1.58, 2.18), unmarried (OR 1.48, 95% CI 1.27, 1.72), and who had a 12th grade education or less (OR 1.41, 95% CI 1.09, 1.83) were more likely to be prescribed contraception compared to their counterparts. Additionally, those participants who had a preterm delivery were more likely to be prescribed contraception than those who had a term delivery (OR 1.45, 95%CI 1.18, 1.78). Ethnicity, marital status and preterm delivery remained significant in the adjusted model as well. (**Table 2**).

Type of contraception differed between participants with Medicaid and participants with other insurances. Participants with Medicaid were more likely to be prescribed sterilization, shots, patch/ring, or contraceptive implants and less likely to be prescribed pills compared to those with other insurances (**Table 3**).

Table 1. Demographics and baseline health characteristics of Rhode Island mothers who planned to breastfeed by whether or not they are insured under Medicaid or other insurance

Demographic and Baseline Data	Medicaid (n=898)	Other insurance (n=2788)	p-value
Maternal Age mean (SE)	27.5 (0.2)	30.6 (0.2)	**<0.001**
Maternal BMI mean(SE)	33.5 (0.3)	31.8 (0.1)	**<0.001**
Maternal Race			**<0.001**
White	46.7	66.7	**<0.001**
Black	11.0	6.0	**<0.001**
Asian Am. & Pacific	3.1	5.8	**0.03**
Islander	0.6	0.6	0.31
Indigenous American	4.7	2.9	**<0.001**
Mixed Race	33.9	18.0	**<0.001**
Not reported			
Maternal ethnicity			**<0.001**
Hispanic	43.8	23.9	
Non-Hispanic	54.9	75.6	
Not reported	1.3	0.5	
Marital status			**<0.001**
Married	27.0	69.0	
Not Married	72.0	30.8	
Not reported	1.0	0.2	
Mode of delivery			
Vaginal birth	72.5	63.8	**<0.001**
Vacuum assisted	2.4	3.2	0.32
Forceps assisted	0.3	0.9	**0.01**
Primary cesarean	11.4	19.9	**<0.001**
Repeat cesarean	13.4	12.2	**0.05**
Delivery at term:			**0.03**
Term (>37 weeks)	92.5	92.2	
Preterm (<37 weeks)	7.5	7.8	
Gestational age at delivery mean (SE)	38.6 (0.05)	38.8 (0.03)	**<0.001**
Birthweight mean(SE)	3294 (17.4)	3343.1 (9.3)	**0.001**
Maternal education level			**<0.001**
<12th grade	14.8	6.8	
12th grade or higher	77.4	87.0	
Missing	7.7	6.2	
Household income			**<0.001**
<20,000	50.4	16.1	
>20,000	42.2	77.9	
Missing	7.4	6.0	

Data are reported weighted percent unless otherwise noted. Weighted values account for complex survey design and are indicated in italics.
Fisher's exact and Kruskal Wallis performed for analysis.
Bold indicates significance at p<0.05.

Table 2. Unadjusted and adjusted odds of receiving a prescription for birth control among participants who planned to breastfeed

	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Insurance status		
Medicaid	**1.50** (1.26,1.78)	**1.28** (1.05,1.57)
Other insurance (reference)	1.00	1.00
Maternal education level		
<12th grade	**1.41** (1.09,1.83)	0.92 (0.69,1.23)
12th grade and above (reference)	1.00	—
Annual Household income		
<20,000	**1.53** (1.29, 1.83)	
>20,000 (reference)	1.00	
Maternal Race		
Black	1.24 (0.94,1.64)	1.26 (0.92,1.71)
Asian Am. & Pacific Islander	**0.53** (0.38,0.75)	**0.67** (0.47,0.97)
Indigenous American	1.15 (0.39,3.38)	1.12 (0.35,3.54)
Mixed Race	1.00 (0.64,1.50)	.99 (0.64,1.53)
Not reported	**1.66** (1.39,1.59)	1.21 (0.92,1.59)
White (reference)	1.00	—
Maternal ethnicity		
Hispanic	**1.85** (1.58,2.18)	**1.45** (1.15,1.85)
Non-Hispanic (reference)	1.00	—
Marital status		
Not Married	**1.48** (1.27,1.72)	**1.19** (1.00,1.43)
Married (reference)	1.00	-—
Gestational age at delivery		
<37 weeks	**1.45** (1.18,1.78)	**1.38** (1.11,1.72)
≥37 weeks (reference)	1.00	—
Mode of delivery		
Vaginal birth (reference)	1.00	
Vacuum assisted	0.99 (0.65,1.53)	
Forceps assisted	0.54 (0.21,1.39)	
Primary cesarean	0.91(0.76,1.10)	
Repeat cesarean	**1.74** (1.40,2.17)	

Adjusted model accounts for Medicaid status, race, ethnicity, maternal education, marital status and preterm delivery. Bold indicates significance at p<0.05.

Table 3. Postpartum Contraception and Breastfeeding Outcomes

	Medicaid (n=898)	Other insurance (n=2788)	p-value
Prescribed Contraception Yes No	 50.8 49.2	 40.9 59.1	**<0.001**
Pills	16.1	21.8	**0.001**
Sterilization	15.0	11.5	**0.01**
Shot	10.4	3.6	**<0.001**
Patch/Ring	3.8	1.7	**<0.001**
IUD	21.2	19.7	0.30
Implant	15.6	6.9	**<0.001**
Breastfeeding Outcomes			
Breastfeeding time (weeks) Mean (SE)	 8.0 (0.3)	 8.7 (0.2)	**0.01**
Breastfeeding at time of survey? Yes No	 39.4 60.6	 60.2 39.8	**<0.001**

Data are reported weighted percent unless otherwise noted. Weighted values account for complex survey design and are indicated in italics.
Fisher's exact and Kruskal Wallis performed for analysis.
Bold indicates significance at p<0.05.

DISCUSSION

Among breastfeeding participants in the 2016–2019 RIPRAMS survey, Medicaid insurance status was significantly associated with the prescription of postpartum contraception, even when accounting for race, ethnicity and marital status and preterm delivery. Additionally, those who identified as Hispanic ethnicity and were unmarried were significantly more likely to be prescribed contraception.

The results of this current study are concordant with prior research on disparity of the prescription of contraception. In 2010, Dehlendorf et al conducted a survey of obstetric and gynecologic care providers using standardized patient videos portraying individuals of different racial and ethnic backgrounds.[18] This survey revealed that the standardized patients who were Black or Latina or were from lower socioeconomic status were more likely to be recommended IUDs for contraception as compared to white patients.[18] Similarly, Dude et al in 2018 reported in their observational study of postpartum contraception counseling that patients who were non-Hispanic Black received contraceptive counseling more frequently and had higher rates of postpartum LARC utilization.[8,19] A further study by Ngendahimana et al in 2021 evaluating the rates of prescription of patient-desired contraceptive method by race and ethnicity discovered that Black and Hispanic women were less likely to receive their chosen method and more likely to receive LARC.[20]

These findings highlight that the discrepancies in contraception prescribing are likely due to provider bias than patient preference. Since the early 2000s, tiered-effectiveness counseling has been the standard of care when discussing postpartum contraception with patients.[4] This model, which promotes the use of IUD/implants to prevent pregnancies, has recently come under criticism as it focuses more on national statistics (preterm birth and unintended pregnancy) than on a patient's priorities. In order to continue to strive for true reproductive justice, which centers that all individuals should decide when, how and where they want to grow their families, contraceptive counseling needs to center the individuals' desires.

The current study which focused on breastfeeding postpartum people adds an important variable to understanding trends around postpartum contraception prescription. While the majority of patients do intend to use contraception in the postpartum period (in one study >91%), less than 25% of patients consider the timing and effects of contraception on breastfeeding.[19] As the field of obstetrics and gynecology moves toward creating more patient-focused contraceptive counseling, it is important that we share and discuss the timing and effects of contraception on lactation with our patients who plan to breastfeed.

PRAMS respondents included in our study who were insured under Medicaid were less likely to breastfeed and breastfed for less time, despite reporting that they planned to breastfeed while they were pregnant. The same group was also more likely to be prescribed any contraception and had higher rates of contraceptive implant use and sterilization. Contraceptive implants are a form of LARC, which require a provider to place and/or remove, barring the ability of individuals to self-discontinue the method. In a country with a long history of forced sterilizations and contraceptive coercion (including coercion to use LARC devices such as implants), this study demonstrates that continued presence of these inequities. While this study was not designed to find causal relationships, these findings highlight the urgent need to understand the differences delineated here and to design interventions aimed at improving access to lactation resources and patient-centered postpartum contraception.

Limitations

As with any survey there are limitations to how the data can be evaluated and generalized. In Rhode Island, the PRAMS survey is conducted both as a mailed survey and over the phone. It is conducted in English, Spanish and Mandarin. Participants who do not speak or read these languages would be excluded from participating. Participant report of current contraception use also is limited in that it does not account for prior prescription with discontinuation of use. We were unable to correlate reported prescription with medical or pharmacy records and we may have misclassified some participants. Because we did not have information on counseling we are also unable to assess patient and provider factors. We are also unable to make any assumptions regarding counseling between providers and participants as this was not discussed in detail as part of the PRAMS survey.

In regards to breastfeeding, there are many factors which lead to early cessation, many of which could not be assessed

with this survey. Lack of access to paid parental leave, childcare and time/space for breastmilk expression have been shown to limit length of breastfeeding.[10, 21, 22] These are also issues that patients of lower socioeconomic status face at higher rates. Lastly, this study also only assessed data from one state, Rhode Island, and therefore cannot be generalized to other states where healthcare practices may differ.

Future work should focus on how providers counsel their patients and the link between patients' understanding of breastfeeding and their choice of contraception should be performed. More detailed qualitative work in this area will be instrumental for advancing equity for postpartum individuals.

CONCLUSION

In this state-based study, breastfeeding patients insured under Medicaid were prescribed postpartum contraception at higher rates than those with other insurance providers, even when accounting for race, ethnicity, marital status and preterm delivery. In order for our country to move toward true reproductive justice, the inequalities in contraceptive trends in postpartum individuals must be further evaluated.

References

1. Committee opinion no. 615: Access to contraception. *Obstet Gynecol*. Jan 2015;125(1):250-255. doi:10.1097/01.AOG.0000459866.14114.33
2. Kathawa CA, Arora KS. Implicit Bias in Counseling for Permanent Contraception: Historical Context and Recommendations for Counseling. *Health Equity*. 2020;4(1):326-329. doi:10.1089/heq.2020.0025
3. Moniz MH, Spector-Bagdady K, Heisler M, Harris LH. Inpatient Postpartum Long-Acting Reversible Contraception: Care That Promotes Reproductive Justice. *Obstet Gynecol*. Oct 2017;130(4):783-787. doi:10.1097/AOG.0000000000002262
4. Brandi K, Fuentes L. The history of tiered-effectiveness contraceptive counseling and the importance of patient-centered family planning care. *Am J Obstet Gynecol*. Apr 2020;222(4S):S873-S877. doi:10.1016/j.ajog.2019.11.1271
5. Harris LH, Wolfe T. Stratified reproduction, family planning care and the double edge of history. *Curr Opin Obstet Gynecol*. Dec 2014;26(6):539-44. doi:10.1097/GCO.0000000000000121
6. Goulding AN, Bauer AE, Muddana A, Bryant AG, Stuebe AM. Provider Counseling and Women's Family Planning Decisions in the Postpartum Period. *J Womens Health (Larchmt)*. Jun 2020;29(6):847-853. doi:10.1089/jwh.2019.7872
7. Thiel de Bocanegra H, Braughton M, Bradsberry M, Howell M, Logan J, Schwarz EB. Racial and ethnic disparities in postpartum care and contraception in California's Medicaid program. *Am J Obstet Gynecol*. Jul 2017;217(1):47 e1-47 e7. doi:10.1016/j.ajog.2017.02.040
8. Dude A, Matulich M, Estevez S, Liu LY, Yee LM. Disparities in Postpartum Contraceptive Counseling and Provision Among Mothers of Preterm Infants. *J Womens Health (Larchmt)*. May 2018;27(5):676-683. doi:10.1089/jwh.2017.6561
9. Mercier RJ, Burcher TA, Horowitz R, Wolf A. Differences in Breastfeeding Among Medicaid and Commercially Insured Patients: A Retrospective Cohort Study. *Breastfeed Med*. May 2018;13(4):286-291. doi:10.1089/bfm.2017.0228
10. Shumbusho DI, Kucera CW, Keyser EA. Maternity Leave Length Impact on Breastfeeding and Postpartum Depression. *Mil Med*. Dec 30 2020;185(11-12):1937-1940. doi:10.1093/milmed/usaa137
11. Bryant AG, Bauer AE, Muddana A, et al. The Lactational Effects of Contraceptive Hormones: an Evaluation (LECHE) Study. *Contraception*. Jul 2019;100(1):48-53. doi:10.1016/j.contraception.2019.03.040
12. Goulding AN, Wouk K, Stuebe AM. Contraception and Breastfeeding at 4 Months Postpartum Among Women Intending to Breastfeed. *Breastfeed Med*. Jan/Feb 2018;13(1):75-80. doi:10.1089/bfm.2017.0064
13. Stanton TA, Blumenthal PD. Postpartum hormonal contraception in breastfeeding women. *Curr Opin Obstet Gynecol*. Dec 2019;31(6):441-446. doi:10.1097/GCO.0000000000000571
14. Shulman HB, D'Angelo DV, Harrison L, Smith RA, Warner L. The Pregnancy Risk Assessment Monitoring System (PRAMS): Overview of Design and Methodology. *Am J Public Health*. Oct 2018;108(10):1305-1313. doi:10.2105/AJPH.2018.304563
15. Services CfMM. Medicaid.gov. https://www.medicaid.gov/medicaid/index.html
16. Alexander A, O'Riordan MA, Furman L. Do breastfeeding intentions of pregnant inner-city teens and adult women differ? *Breastfeed Med*. Dec 2010;5(6):289-96. doi:10.1089/bfm.2009.0083
17. *Stata Statistical Software: Release 15*. StataCorp LLC; 2017.
18. Dehlendorf C, Ruskin R, Grumbach K, et al. Recommendations for intrauterine contraception: a randomized trial of the effects of patients' race/ethnicity and socioeconomic status. *Am J Obstet Gynecol*. Oct 2010;203(4):319 e1-8. doi:10.1016/j.ajog.2010.05.009
19. Clare CA, Young M, Nash J, Long S. Contraception Utilization in Black Women via a Reproductive Justice Lens. *Breastfeed Med*. Dec 2021;16(12):935-937. doi:10.1089/bfm.2020.0391
20. Ngendahimana D, Amalraj J, Wilkinson B, et al. Association of race and ethnicity with postpartum contraceptive method choice, receipt, and subsequent pregnancy. *BMC Womens Health*. Jan 7 2021;21(1):17. doi:10.1186/s12905-020-01162-8
21. Kapinos KA, Bullinger L, Gurley-Calvez T. Lactation Support Services and Breastfeeding Initiation: Evidence from the Affordable Care Act. *Health Serv Res*. Dec 2017;52(6):2175-2196. doi:10.1111/1475-6773.12598
22. Santacruz-Salas E, Aranda-Reneo I, Hidalgo-Vega A, Blanco-Rodriguez JM, Segura-Fragoso A. The Economic Influence of Breastfeeding on the Health Cost of Newborns. *J Hum Lact*. May 2019;35(2):340-348. doi:10.1177/0890334418812026

Authors

Anna R. Whelan, MD, Department of Obstetrics and Gynecology, Division of Maternal-Fetal Medicine, University of Massachusetts Chan Medical School, Worcester, MA.

Siraj Amanullah, MD, MPH, Department of Emergency Medicine, Pediatrics and Health Services, Policy and Practice. Hasbro Children's Hospital/Rhode Island Hospital; Alpert Medical School of Brown University and Brown University School of Public Health, Providence, RI.

Annie Gjelsvik, PhD, Brown University School of Public Health, Providence, RI.

Disclosures

The authors report no conflicts of interest.

Manuscript presented as a poster titled "Prescription of Postpartum Contraception among Breastfeeding Patients with and without Medicaid Insurance" at the American College of Obstetrician and Gynecologist's Annual Clinical and Scientific Meeting, May 19, 2023, Baltimore, MD.

Correspondence

Anna R. Whelan MD

119 Belmont St., Jaquith Building level 2, Worcester, MA, 01605

508-334-1000

anna.whelan.md@gmail.com

Theater for Healthcare Equity; A Model for Inclusion and Anti-Bias Training in Academic Medicine

NEISHAY AYUB, MD; CAMILLA REGALIA; TANEISHA WILSON, MD; CARLI GAUGHF, MA; CHENNEL ANDERSON, BS; DEBASREE BANERJEE, MD, MS

ABSTRACT

There are no standardized methods for training medical personnel in antiracist action, such as how to be an upstander or how to use micro-resistance. Roleplay and drama-based pedagogy can empower and educate healthcare professionals by providing experiential training and a safe space for antiracist practice and discussion.

The Theater for Healthcare Equity (THE) is an innovative methodology that explores upstander techniques in real time with facilitated instruction. We implemented eight THE sessions at our institution and assessed participant responses via a voluntary survey.

Forty-one participants completed a REDCap survey, and 32 participants completed the Continuing Medical Education survey. Participants appreciated the creation of safe spaces, the practice format, and the learning experience, which provided an honest and open environment for the sharing of experiences, addressing race-based bias, and practicing responses to real-life scenarios. Constructive feedback included changes to session duration, participant discomfort with improvisation, and lack of printed tools.

KEYWORDS: Equity, Healthcare, Theater, Antiracism

INTRODUCTION

Medical providers are not explicitly taught how to combat racism in medicine. However, this skill can be crucial as some practitioners of medicine often face internalized, interpersonal, and structural racism when providing clinical care to patients, teaching in academia, and navigating the work environment. Building antiracist skills can serve to advance health equity.[1] Author Ibram X. Kendi wrote that "being an antiracist requires persistent self-awareness, constant self-criticism, and regular self-examination."[2] In addition to self-reflection, translating beliefs to concrete action via practice of upstander behaviors is necessary among healthcare workers.[3] Upstander behavior requires active effort in allyship through indirect strategies, such as redirection and elevation of the target of a microaggression, or direct strategies, such as communication of impact, raising awareness and establishment of boundaries. Some examples of common upstander behaviors include speaking up for patients, making space for challenging the status quo, or confronting an issue while intervening on someone else's behalf for a particular support or cause, rather than acting simply as a bystander.[4]

There is no standardized method for upstander training in medicine. Courses on diversity offered by many medical schools focus on establishing that racism exists in medicine, rather than educating on how to actively mitigate it. Anti-racist training often involves didactic sessions with little hands-on practice.[5] These techniques, while beneficial, do not replicate the complexities and pressures of real-life interactions within healthcare settings. Consequently, there is a need for innovative, experiential learning approaches that allow medical professionals to practice and enhance their upstander skills in a more realistic and immediate context.

Theater has been used as one way to introduce and reinforce education on racism. Medical faculty who attended workshops with a theater component to explore bias and privilege reported increased confidence when teaching about racism,[6] while medical student participation improved perceptions of diversity and its consequences on individual identity.[7] Theater-based instruction can address a knowledge gap, particularly in the exercise of and comfort with anti-racist practice in medicine. Here we describe feedback from a theater-based workshop targeted to all members of a multi-site health system that took place at Rhode Island Hospital.

METHODS

The Theater for Healthcare Equity (THE) was created in 2019 by Carli Gaughf in partnership with the University of Rochester's Medical Humanities Department and the Office for Diversity, based on the tenets of the Theatre of the Oppressed, to confront bias "while cultivating empathy and practicing effective communication."[8] Theatre of the Oppressed makes use of theater troupes comprised of everyday people and incorporates group challenges to confront inequality and injustice. Eight 90-minute sessions were offered over the course of two days (November 17th and 18th, 2022), to all employees and trainees at our large urban northeast academic health center, which includes seven hospitals and one medical school. Each session, led by expert external facilitators (CA and CG), addressed microaggressions related

Table 1. Examples of Scenarios Presented in Training

Scenario	Concepts Addressed
A mother who is Black brings her child into the emergency department with a broken arm. The doctor who is White is portrayed as curt, making assumptions of child abuse.	Implicit racial biases and lack of proper care evaluation.
A person misidentifies their coworker for someone with a similar race. They initially refuse to acknowledge their mistake. However, when the coworker repeats that it was not them because they were away at that time, the initial person acknowledges the mistake and adds, "You all look alike." A bystander is present for this conversation.	Upstanding, allyship, bystander effect, and recognition of one's own bias

to race, gender, hierarchy, and other facets of discrimination in medicine (**Table 1**). The sessions' format included improvisational theatrical exercises, pre-scripted scenes, and opportunities for participants to create their own scenarios in interdisciplinary teams. Sessions were capped at 25 participants and offered at different time slots to try and accommodate work schedules.

The pedagogy behind the theater techniques used were based on the work by Augusto Boal, a dramatist and political activist, and creator of Theater of the Oppressed. The aim for the first half of each workshop was to warm-up the participants to the process of role play and to begin the process of "demechanization."[9,10] This is Boal's term for disrupting daily patterns of moving and sensing to disrupt normal patterns of thinking, thus allowing for different possibilities. One of several games was chosen at each session. For example, one game asked participants to do the opposite movement of the instruction given (i.e., what they usually do "automatically"); for example, a participant will try to be still when asked to walk or walk when asked to stop. This dissonance between mental shortcuts and the objective of the game allowed participants to temporarily re-activate their thinking and set the foundation for being receptive to new ideas. Sessions also began with participants giving themselves new names for the duration of the workshop – perhaps based on how they were feeling or a name they always wanted to be called. Examples were "Sunshine", "Disgruntled", and "Simon". This helped neutralize hierarchy in medicine (so participants were not solely a "doctor" or "administrator") and provided a fresh palette for the session, particularly among participants who did not know each other.

After the warmup, the participants were asked to partake in roleplay. Facilitators CG and CA created scenarios based on the real experiences of marginalized staff and faculty based on input from providers at the institution (NA, TW and DB). For example, one scenario was of a Black resident being confused for another resident by a White faculty member. The mix-up is witnessed by another faculty member. Participants were given the opportunity to step in as the witness and practice how they might be an ally to the resident. Participants were then asked to work in small groups to brainstorm scenarios and act out situations where microaggressions or systemic bias have affected patients or healthcare workers.

Table 2. 8-item survey

Question Prompt	Question Type
Have you ever done a theater facilitation workshop like this before?	Yes or No
If yes, when did you do a theater facilitation workshop and what was it?	Free Response
What did you enjoy the most about today's workshop?	Free Response
What did you enjoy the least about today's workshop?	Free Response
How did this workshop change your mindset and/or behavior?	Free Response
How will you use what you learned today in the workplace and in your personal life?	Free Response
Would you recommend this workshop?	Yes or No
What do you hope to see JEDI BPI do in the future?	Free Response

All participants were asked to complete a survey on a secure online research database (REDCap), while attending physicians also completed a continuing medical education (CME) survey.[11] Survey results were de-identified, and to encourage participation, minimal personal demographics were queried. The 8-item survey (**Table 2**) included open-ended questions on experience in and usefulness of the workshop.

Open-ended survey responses were analyzed to catalog participant experiences about THE. First, an analytical code book was created that contained both deductive and inductive codes. Next, the open-ended responses were independently coded by three reviewers (NA, DB, and CR) for key concepts and themes. The independent reviewers met regularly to compare codes, add new codes, if necessary, discuss discrepancies and come to a consensus about those discrepancies; TW adjudicated any discrepancies and reviewed coding to ensure consistent use. Framework analysis was applied to final codes. Summaries for all relevant codes were written by reviewers and used to develop the themes reported here. This study was approved by our health system's Institutional Review Board.

RESULTS

Each session consisted of 8-25 participants, for a total of 76 participants over the course of two days. Forty-one participants completed a REDCap survey, and 34 participants completed the CME survey, including 25 attending physicians and representation from multiple departments.

What Participants Liked Best About THE

In reviewing what participants liked best, the following three themes emerged from respondent data: creation of safe spaces, innovative format, and a gained experience in allyship and advocacy.

Theme 1. Creation of Safe Spaces

Participants consistently reported specific attributes such as *"honesty"* [Participant 40], *"vulnerability"* [Participant 31], and *"openness"* [Participant 9], that helped to create *"a safe environment to share experiences and opinions"* [Participant 33]. Similarly, another respondent wrote that the non-judgmental environment aided in "*addressing issues about racism in a non-threatening and practical way."*

Theme 2. Practice Format

The format of the training session was commended for being "*great at demonstrating real-life scenarios"* [Participant 33]. A recurring concept among participant entries was practicing the skills and tools learned. One participant enjoyed *"actually getting the chance to practice what I would say/do in the moment"* [Participant 29]. Another respondent echoed this, writing that they appreciated the ability *"to practice and paus[e] the scenarios multiple times to discuss if [they]... supported the person who the microaggression was against"* [Participant 41].

Table 3. Major Themes with Participant Affirmations

What Participants Liked Best	
Themes	**Participant Quotes**
Creation of safe spaces	"Honesty", "vulnerability", and "openness" of facilitators, creating "a safe environment to share experiences and opinions" [Participant 40, 31, 9, 33]
	Non-judgmental environment aiding in "addressing issues about racism in a non-threatening and practical way" [Participant 37]
Practice Format	"Great at demonstrating real-life scenarios" [Participant 33]
	"Actually, getting the chance to practice what I would say/do in the moment" [Participant 29]
	Ability to "practice and pause the scenarios multiple times to discuss if [they]... supported the person who the microaggression was against" [Participant 41]
Learning Experience	"I will say it has challenged me to speak up more as an individual of color as I tend to be more passive and non-confrontational in those issues." [Participant 25]
	"I learned how to be a stronger ally." [Participant 15]
	"Learning different approaches to dealing with various situations" [Participant 14]
	"I learned some good language to use when witnessing an uncomfortable situation." [Participant 19]

Theme 3. Learning Experience

Participants felt they gained confidence in navigating encounters with microaggressions and *"learned how to be a stronger ally"* [Participant 15], *"learn[ed] different approaches to dealing with various situations"* [Participant 14], as well as *"learned some good language to use when witnessing an uncomfortable situation"* [Participant 19]. (See **Table 3.)**

What Participants Liked Least About THE

Themes, including session length, discomfort with improvisation, and lack of concrete tools acquired after participation, were among the response of what participants liked the least.

Theme 1. Timing/Length of Training

Several participants noted the timing was *"too short"* [Participant 1 & 13], while one participant reported: *"In some ways it was too short and some ways too long. I recognize it is difficult to arrange many people into sections, but I wonder if two one-hour sessions would [be a] better fit [for] these topics than one 90-minute session"* [Participant 13].

Theme 2. Discomfort with Improvisation

Five participants described their own discomfort with the improvisational format. For example, one participant recognized, "*I feel like I had to get over my initial hesitation to do things in front of the group*" [Participant 41].

Theme 3. Lack of Concrete Tools Acquired After Participation

Five participants hoped for *"more concrete examples of how to respond"* [Participant 42], or *"a handout to reinforce specific language we learned"* [Participant 43], and others reported: *"I was looking for some more concrete action plans, tools, or techniques to respond to micro-aggressions. The session was creative, and I enjoyed it, but I don't feel confident that I gained any new skills"* [Participant 44]. (See **Table 4**.)

Table 4. Major Themes with Participant Qualms

What Participants Liked Least	
Themes	**Participant Quotes**
Timing/Length of Training	Timing being "too short" [Participant 1 & 13]
	Suggestion for two one-hour sessions instead of one 90-minute session [Participant 13]
Discomfort with improvisation	Initial hesitation to perform in front of the group [Participant 41]
Lack of concrete tools acquired	Desire for "more concrete examples of how to respond" [Participant 42] and "a handout to reinforce specific language learned" [Participant 43]
	Feeling that the session was creative and enjoyable but not confident in gaining new skills [Participant 44]

How THE Changed Participants Mindset and Behavior

Participants evaluated how this workshop may have changed their mindset and behavior. Themes that emerged related to mindfulness of one's own bias and behaviors; importance of upstanding; and skill development.

Theme 1. Mindfulness of One's Own Bias and Behaviors

During role playing exercises, participants discovered how lived experiences impact perspective such that *"everyone views the same scenario different[ly]"* [Participant 1], which *"made [them] more accepting that discrimination and prejudice experiences are even more common than [they] realized and happen every day, despite the best intentions"* [Participant 33]. This led to realizations among participants about their daily conduct and its effect on patients as described by this respondent: *"daily clinical work develops into a rote way of conducting yourself; if we do not take into consideration how behaviors, works, actions can be perceived by our audience we will miss opportunities to engage our patients who are marginalized and they will suffer health consequences from our actions"* [Participant 35].

Theme 2. Recognizing the Importance of Upstanding

There was improved recognition and understanding of the importance of upstanding. Participants recognized that *"I am not doing as much in the moment and to stand up more for colleagues and learners"* [Participant 29]. One respondent acknowledged the power dynamics surrounding a microaggression and the impact of upstanding: *"Upstanding: saying anything/all attempts were better than standing up/doing nothing. Keeping in mind that the feelings of the vulnerable person who has been microaggressed against before are higher order than the pride of the micro-aggressor"* [Participant 24]. Participants also reflected on why they may not have been upstanding in the past: *"I will say it has challenged me to speak up more as an individual of color as I tend to be more passive and non-confrontational in those issues"* [Participant 25].

Theme 3. Skill Development

Five participants felt they gained comfort and skills because of the workshop. Participants learned how to *"to intervene, learn to be more comfortable intervening in uncomfortable situations"* [Participant 17], as well as learned *"effective skills to diffuse microaggression"* [Participant 16]. From this, participants felt *"more empowered to interrupt bias"* [Participant 18], and *"learned how to be a more proactive ally in the moment"* [Participant 15].

Theme 4. Gaining Experience

While most participants (n = 37, 84.1%) had not participated in a theater-facilitation workshop before, the majority of participants (n = 41, 93.2%) reported they would recommend the workshop to others. (See **Table 5**.)

Table 5. Major Themes in Participant Mindfulness

Changed Mindset and Behavior	
Themes	**Participant Quotes**
Mindfulness of one's own bias and behaviors	"Realizing how lived experiences affect perspective, how everyone views the same scenario differently" [Participant 1]
	"Made me more accepting that discrimination and prejudice experiences are even more common than I realized and happen every day, despite the best intentions" [Participant 33]
	"Daily clinical work develops into a rote way of conducting yourself; if we do not take into consideration how behaviors, works, actions can be perceived by our audience, we will miss opportunities to engage our patients who are marginalized and they will suffer health consequences from our actions." [Participant 35]
	"More attention to how previous overt racism can affect day to day interactions and result in miscommunication and further marginalization. make every effort to overcome these situations with grace, confidence and compassion" [Participant 35]
Recognizing the importance of upstanding	"I am not doing as much in the moment and need to stand up more for colleagues and learners." [Participant 29]
	"I would speak up more and be an ally in all situations when I can…it takes a lot of courage and confidence to speak up about issues that need to be addressed." [Participant 25]
	"Upstanding: saying anything/all attempts were better than standing up / doing nothing. Keeping in mind that the feelings of the vulnerable person who has been microaggressed against are higher order than the pride of the microaggressor" [Participant 24]
Skill development	"Learning to intervene, learn to be more comfortable intervening in uncomfortable situations" [Participant 17]
	"Learned effective skills to diffuse microaggression" [Participant 16]
	"Feeling more empowered to interrupt bias" [Participant 18]
	"Learned how to be a more proactive ally in the moment" [Participant 15]

How Participants Will Incorporate THE Experience into Daily Lives

When reflecting on how participants will use what they learned from the workshops in the workplace and in their personal lives, the themes related to improved mindfulness of situations and a commitment to practice skills and upstanding emerged.

Theme 1. Mindfulness of Situations

Participants noted that participation in THE encouraged them to pay *"more attention to how previous overt racism can affect day-to-day interactions and result in miscommunication and further marginalization"* [Participant 35].

Theme 2. Practice Skills and Upstanding

Participation in this workshop highlighted the importance and prevalence of microaggressions and the need for resistance at the individual level. This increased awareness propelled this participant to want to *"make every effort to overcome these situations with grace, confidence and compassion"* [Participant 35]. One participant wrote that they *"understand the need to engage doesn't have to be perfect or brilliant, it just has to be"* [Participant 23]. And to engage, they need to practice their words and behaviors. Another respondent wrote: *"I am a firm believer that we all need to have an idea of what words to say when we encounter micro- and macroaggressions; I think knowing how to respond takes practice and doesn't come naturally, and so the opportunity to practice responding is helpful* [Participant 32]. (See **Table 6**.)

Table 6. Major Themes for Future Practice

Incorporating THE Experience	
Themes	**Participant Quotes**
Mindfulness of situations	"Paying more attention to how previous overt racism can affect day-to-day interactions and result in miscommunication and further marginalization" [Participant 35]
Practice skills and upstanding	"I want to make every effort to overcome these situations with grace, confidence, and compassion." [Participant 35]
	"I understand the need to engage, it doesn't have to be perfect or brilliant, it just has to be." [Participant 23]
	"We all need to have an idea of what words to say when we encounter micro and macro aggressions; I think knowing how to respond takes practice and doesn't come naturally, so the opportunity to practice responding is helpful." [Participant 32]

DISCUSSION

Here we describe an in-depth qualitative review of the Theater for Healthcare Equity. In this curriculum, participants were provided a controlled, safe, multidisciplinary environment to role-play uncomfortable real-life scenarios, taking in different perspectives, while pausing, reflecting, and practicing the same scene with different verbal and non-verbal approaches. Overall, participants found the theater-based learning led to increased mindfulness of their own biases and the importance of interrupting microaggressions while developing and practicing the skills to do so. Theater-based workshops where medical students re-enacted and observed difficult encounters has been shown to increase empathy scores, which is closely associated with improved clinical outcomes for patients and lower physician burnout.[12] Similarly, attendance at theater-based workshops is positively correlated with confidence and comfort in a medical environment.[13] Our study adds to the current literature by expanding the participation to all employees and trainees of a large healthcare setting, thereby providing increased opportunity for interdisciplinary dialogue and practice through an innovative format of THE that may be implemented at any healthcare site.

Our study possesses limitations, including being a single-site study and soliciting self-reported data. All sessions were not filled, and this may be due to multiple reasons, including scheduling conflicts (especially due to length of sessions), improper/inadequate advertising and nature of the topic. Our next steps will be to examine the long-term effects of THE and participant commitment to mindfulness, upstanding, and application of the skills acquired during the workshops in both their professional and personal lives. This commitment is critical to building a more equitable healthcare system both for patients and for healthcare workers. Implicit bias not only contributes to propagate healthcare disparities for marginalized patients but also contributes to high prevalence of workplace discrimination.[14] Workplace discrimination among physicians can lead to career dissatisfaction, burnout, and job turnover.[15] Thus, innovative educational curricula that require introspection, reflection and advocacy within safe spaces are critical to mitigating healthcare inequity and promoting a diverse workforce within a healthcare system.

CONCLUSION

An interactive, theater-based antiracism workshop can be a useful tool in practicing upstanding in medical clinical environments.

References

1. Nunez-Smith M, Pilgrim N, Wynia M, Desai MM, Bright C, Krumholz HM, et al. Health care workplace discrimination and physician turnover. Journal of the National Medical Association. 2009;101(12):1274–82. https://doi.org/10.1016/S0027-9684(15)31139-1
2. Kendi I. How to be an antiracist. Bodley Head. 2019.
3. Lawrence E. What Doctors Aren't Always Taught: How to Spot Racism in Health Care. KFF Health News. 2020. https://kffhealthnews.org/news/racism-in-health-care-what-medical-schools-teach/
4. Ehie O, Muse I, Hill L, Bastien A. Professionalism: microaggression in the healthcare setting. Current Opinion in Anaesthesiology. 2021 Feb 23;34(2):131–6. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7984763/
5. Edgoose J, Brown Speights J, White-Davis T, Guh J, Bullock K, Roberson K, De Leon J, Ferguson W, Saba G. W. Teaching About Racism in Medical Education: A Mixed-Method Analysis of a Train-the-Trainer Faculty Development Workshop. 2021. Fam Med, 53(1):23-31. https://doi.org/10.22454/FamMed.2021.408300
6. Ivory KD, Dwyer P, Luscombe G. Reactions to Diversity: Using Theater to Teach Medical Students about Cultural Diversity. 2016. J Med Educ Curric Dev, 3. https://doi.org/10.4137/jmecd.S37986
7. Gaughf C. Theatre for Healthcare Equity. https://www.carligaughf.com/theatre-for-healthcare-equity.
8. PA Harris, R Taylor, R Thielke, J Payne, N Gonzalez, JG Conde, Research electronic data capture (REDCap) – A metadata-driven methodology and workflow process for providing translational research informatics support, J Biomed Inform. 2009 Apr; 42(2):377-81.
9. Raynor R. (De)composing Habit in Theatre-as-Method. Geo Humanities. 2017;3(1):108-121, https://doi.org/10.1080/2373566X.2016.1258321
10. Boal A. Games for actors and non-actors. United Kingdom: Routledge. 1992.
11. Sevrain-Goideau M, Gohier B, Bellanger W, Annweiler C, Campone M, & Coutant R. Forum theater staging of difficult encounters with patients to increase empathy in students: evaluation of efficacy at The University of Angers Medical School. BMC Med Educ. 2020;20(1):58. https://doi.org/10.1186/s12909-020-1965-4
12. Ravindra P, Fitzgerald JE, Bhangu A, Maxwell-Armstrong CA. Quantifying factors influencing operating theater teaching, participation, and learning opportunities for medical students in surgery. J Surg Educ. 2013;70(4), 495-501. https://doi.org/10.1016/j.jsurg.2013.02.011
13. Farley J, Gallagher J, Richardson Bruna K. Disrupting narrow conceptions of justice: Exploring and expanding "bullying" and "upstanding" in a university honors course. https://doi.org/10.1177/1746197919853808
14. Filut A, Alvarez M, Carnes M. Discrimination Toward Physicians of Color: A Systematic Review. J Natl Med Assoc. 2020;112(2):117-140. https://doi.org/10.1016/j.jnma.2020.02.008
15. Nunez-Smith M, Pilgrim N, Wynia M, Desai M, Bright C, Krumholz HM, Bradley EH. Health care workplace discrimination and physician turnover. J Natl Med Assoc. 2009; 101(12):1274-1282. https://doi.org/10.1016/s0027-9684(15)31139-1

Authors

Neishay Ayub, MD, Department of Neurology, Alpert Medical School of Brown University, Providence, RI.

Camilla Regalia, Brown University'24, Providence, RI.

Taneisha Wilson, MD, Department of Emergency Medicine, Alpert Medical School of Brown University, Providence, RI.

Carli Gaughf, MA, Medical Humanities Department and the Office for Diversity, University of Rochester.

Chennel Anderson, BS, Department of Neurology, University of Rochester.

Debasree Banerjee, MD, MS, Division of Pulmonary, Critical Care, and Sleep Medicine, Department of Medicine, Alpert Medical School of Brown University, Providence, RI.

Disclosures

NA is supported by Brown Physicians, Inc. and Pappito Opportunity Connection.

TW is supported by an SAEM, Research Training Grant #RE2020-0000000080; a BPI Faculty Assessment Award; NIH P20 GM139664; R21 MD016467; CDC R01CE003516.

CG was provided with an honorarium and travel/lodging expenses for the workshop.

CA was provided with an honorarium and travel/lodging expenses for the workshop.

CR has no financial disclosures.

DB is supported by Brown Physicians Inc to organize antiracism education.

Acknowledgment

Brown Physicians, Inc. provided honorariums and expenses for CG and CA during the workshop.

Correspondence

Debasree Banerjee MD, MS
Assistant Professor of Medicine
Division of Pulmonary, Critical Care & Sleep Medicine
Rhode Island Hospital
593 Eddy Street, POB Suite 224
Providence, RI 02903
401-444-4191
Fax 401-444-0094
debasree_banerjee@brown.edu

Comparing Experiences of Community Reintegration Following Hospitalization Versus Jail Detention During a Mental Health Crisis

NICHOLAS A. STRELTZOV, MD-ScM'24; KOREN CARBUCCIA; IVAN MILLER, PhD; JENNIFER E. JOHNSON, PhD; BRANDON A. GAUDIANO, PhD; LINDSEY STEVENS, MA; HANNAH GRAVES, ScM; LAUREN M. WEINSTOCK, PhD

ABSTRACT

BACKGROUND: This comparative qualitative study explores the experiences of individuals transitioning back to the community after institutionalization following an episode of acute suicidality.

METHODS: Semi-structured interviews were conducted with eight individuals who had either been hospitalized (n=4) or incarcerated (n=4) during a mental health crisis that involved acute suicidality. Thematic analysis was conducted first within groups and then between groups.

RESULTS: The findings reveal possible disparities in social determinants of mental health, family dynamics, treatment seeking, and coping mechanisms between groups. Social isolation, barriers to socioeconomic stability, and lack of treatment access were all found to be risk factors for poor outcomes during the vulnerable transition period and were experienced by participants in this limited sample.

CONCLUSIONS: Individuals transitioning from the hospital after a suicide crisis may benefit from increased family involvement, follow-up, and social support at discharge. After a suicide crisis and incarceration, there is a significant need for housing and employment support to allow for mental health treatment seeking. Future research should build on the proof of concept for comparing the experiences of individuals across institutional settings.

KEYWORDS: Mental health, incarceration, qualitative research

INTRODUCTION

In the United States, the criminal-legal system serves as a major point of contact for individuals experiencing a mental health crisis, with jails housing a larger population of people with mental illness than any other institutional setting.[1-8] With psychiatric patients three times more likely to be incarcerated than hospitalized, jails and prisons have become de facto mental health systems, and suicide attempts can result in patients being brought either to the hospital or to jail.[9-11] In contrast to prisons, the majority of people detained in jails are awaiting trial or serving short sentences.[12-15] Both psychiatric hospitals and jails have an average length of stay of 1–2 weeks before individuals are released.[12,15-18]

The transition to the community from a correctional or inpatient psychiatric setting is a highly vulnerable period with an increased risk of mortality and suicide.[19-25] After incarceration, people face obstacles to social and structural determinants of mental health, which may confer additional risk and decreased treatment engagement.[12,26-29] After psychiatric hospitalization, patients face numerous barriers to a healthy transition.[30] However, the ways that patients experience institutionalization during a mental health crisis and what it is like to transition back to the community during this vulnerable period has been highlighted as a critical literature gap, and there is a near absence of research directly comparing the experience of incarceration to inpatient psychiatric treatment.[1,30]

This study addressed a literature gap by exploring the experiences of individuals transitioning to the community after psychiatric or carceral institutionalization following acute suicidality. Utilizing semi-structured interviews, we aimed to understand the unique and shared challenges faced by patients in each setting and inform potential areas of reform to improve the mental health system.

METHODS

Semi-structured interviews were conducted with eight individuals, evenly split between those admitted to pretrial jail detention and those admitted to a psychiatric hospital during a suicide crisis, also referred to as a mental health crisis (**Table 1**). Participants in the current study were recruited from the routine care control arm of one of two randomized-controlled trials to reduce suicidal behavior among high-risk individuals from a Rhode Island jail (NCT #02759172) and a Rhode Island psychiatric hospital (NCT #02313753). These individuals, who had previously provided permission to be contacted for future research, were contacted at least one year after completing the parent trials. To be eligible in either trial, participants were required to be adults (18+ years of age) who had been recently admitted to either the jail or the hospital and had made a suicide attempt or expressed suicidal ideation with intent within 48 hours of admission to be eligible for the hospital trial, or in the past

Table 1. Demographics

ID	Age	Sex	Racial & Ethnic Group	Length of index institutionalization (days)	Number of psychiatric hospitalizations	Number of arrests
J1	32	M	Multi-racial (Black & White), non-Hispanic	14	3	11
	28	M	White, non-Hispanic	45	1	5
J3	29	M	White, non-Hispanic	10	1	5
J4	29	M	Black, non-Hispanic	32	1	5
H1	47	F	White, non-Hispanic	8	2	0
H2	27	M	White, Hispanic	7	1	0
H3	43	F	White, non-Hispanic	5	2	0
H4	32	M	White, non-Hispanic	8	12	1

ID = Subject identifier. J = jail population. H = hospital population. All sex and racial/ethnic information based on self-report.

month (typically prior to arrest) for the jail trial. Additional detail regarding initial eligibility for each study is available in their respective clinicaltrials.gov entries. Participants in the current study were consented under protocols approved by the Institutional Review Boards of both Brown University and Butler Hospital.

Interviews were rooted in the social contextual model, which seeks to understand how individual, interpersonal, and community factors influence health behaviors.[31] Questions were designed to elicit perceptions of factors influencing mental health, individual needs, and experiences of mental health care at three broad timepoints: pre-institutionalization, while institutionalized, and after release. The focus of the current paper is on experiences after release.

All interview recordings were manually transcribed. A reflexive thematic approach was used in coding the transcripts.[32] Each transcript received initial, line-by-line coding, and each code was tagged with a thematic theme. As new themes emerged from subsequent interviews, prior transcripts were re-coded in an iterative process to develop the broadest initial codebook. After the initial coding and thematic tagging of all interviews, codes were reconciled initially within groups, and eventually between groups. The iterative process of constant comparative analysis allowed for identification of thematic saturation, and only recurrent themes that were thoroughly described are included in this analysis.

RESULTS

Demographic information is highlighted in **Table 1**. The hospital sample had a mean age of 37 years (SD: 9.3), compared to 29.5 years (SD: 1.73) in the jail sample. All participants from the jail sample were men compared to half of the hospital sample. The majority of the overall sample was White, although there was more racial diversity among the jail sample. Most participants were familiar with both institutional settings; all members of the jail sample had exposure to psychiatric hospitalization, while one member of the hospital sample had been previously arrested during a mental health crisis.

Three primary themes regarding the transition from institutionalization emerged from the interviews: social determinants of mental health, family and social support, and coping mechanisms and treatment seeking.

I. Social Determinants of Mental Health

Participants leaving jail faced challenges in housing stability, employment, and reintegration due to probation constraints. In contrast, hospital participants experienced more stability and fewer barriers to reintegration. All participants had stable housing at the time of hospital admission and there were no housing concerns after discharge. For those who had been incarcerated, there was ubiquitous housing instability. One participant described being "discharged to the streets," from jail. Another described the process by which he lost his apartment while incarcerated. Every participant required support from family for housing after release. Participants shared the perceived impossibility of legally achieving stability after incarceration, a problem that dovetails with the difficulty of finding both employment and housing with criminal-legal involvement: "I needed to actually get some stability because just trying to build yourself up from the streets, it's like impossible….You can't go paycheck to paycheck and expect to save money when you're homeless. You just can't."

Every participant from the jail sample described difficulty with employment after release. Once employed, the fear of losing work was a barrier to treatment engagement. Participants from the hospital sample had greater employment stability. Those with a job at the time of hospitalization received a medical leave of absence. Others received disability related to their chronic mental health conditions. Others were able to find work when they were ready but did not describe additional barriers due to hospitalization. No hospitalized participants lost their job due to hospitalization or recovery. By contrast, those transitioning from jail were desperate to find employment. Employment was such an important issue that one participant went directly to his former job after release while, "I still smelled like jail," before going home.

The transition to the community for those who were arrested was further complicated by probation and ongoing criminal-legal surveillance. "It's a big stressor knowing that I have that on my back 24/7. One little false move and… you're going to get the three years." One participant spoke about frustration with the "revolving door" of incarceration, in which the burdens of "staying right" in the eyes of the state are nearly impossible to navigate. Most participants who had been jailed referred to the difficulty of navigating probation restrictions, such as the need to maintain housing and employment, or the burden of obtaining transportation and excuses from work to attend meetings with probation officers.

II. Family and Social Support

Compared to the jail sample, participants in the hospital group were more socially isolated and spoke frequently about the lack of family and social ties at the time of hospitalization. Most were living alone or relying on a significant other as their only close relationship: "My support network consisted of my boyfriend and our dogs."

For individuals in the jail sample, family was a source of material stability, emotional support, and purpose. In both groups, there was a feeling that restoring relationships with family was important to long-term recovery, but only in the jail sample was it critical to the initial transition. No hospital participants were parents, but for those with children in the jail sample, repairing relationships with their family was a major motivation in recovery: "My son. I needed to see my kids, drastically. I just needed to be around my family." A common theme in this sample was the importance of being able to provide for one's family as a source of hope and motivation during the transition to the community; however, there were often significant financial, legal, and logistical barriers to regaining custody of children.

III. Post-Release Mental Health: Coping Mechanisms and Treatment Seeking

Multiple participants in the jail sample described worsening of mental health during the initial transition back to the community. One participant described feeling numb when reflecting on the overwhelming emotional burden of his recent experiences in jail and the burdens of life after release: "Usually you're excited that you're getting out of there. Then it gets to the point where it's like wow this really just happened. And you're just too numb to even feel anything. That's what it was, totally numb." Most participants expressed ups and downs in their mental health after incarceration, which culminated for some in exacerbations of underlying depression and suicide risk leading to psychiatric hospitalization.

A sense of control over mood and mental health was an important theme expressed by all the participants who experienced incarceration, often described as "getting over it," both during incarceration and after discharge. "You just got to get over it." Another shared, "You're sad, get over it. You're upset, get over it. I wasn't paying attention to what underlying things or causes that there was. I was just living. I was just existing." This was also expressed as, "keeping problems to myself," or another coping mechanism: "forgetting that I had mental problems." When managing his mood in jail, one participant explained, "I kind of just wanted to get over the fact of it. I didn't even want to think about it, just not think about that at all."

In the hospital sample, participants did not speak about needing to "get over" mood symptoms, instead emphasizing the importance of mental health treatment in managing the stress of hospitalization and transition back to the community. All participants sought treatment shortly after hospital discharge. During this period, several participants described feeling overwhelmed and fearful of a relapse, re-hospitalization, and for their own safety. Participants generally had ups and downs after hospitalization with a gradual, positive improvement over time. Important factors in the long-term transition included building a larger social support network, reconnecting with family, engaging in intensive treatment, and finding the right medications and the right therapist. "I definitely needed medication and I needed talk therapy." "The medication for sure once we hit on the right combination of medications; that was a miracle."

In the immediate period after release, no participants transitioning from incarceration felt that mental health treatment was a high priority, despite acknowledging that it would have been helpful in retrospect. There was a consensus that life stressors were major barriers to treatment seeking: "Honestly, I didn't have the time." Unlike the hospital sample, it was more common for participants to begin seeking treatment after six months to a year from release from jail, and all participants eventually engaged in treatment at least once to help manage stressors and to process experiences related to incarceration.

DISCUSSION

The unique challenges faced by individuals leaving jails include the nearly impossible task of achieving stability while navigating the "revolving door" of incarceration.[29,33] Social determinants of mental health, such as housing and employment, pose significant barriers to this group.[29,34-35] Family and social support play a critical role in the transition from jail, serving as an essential source of material and emotional stability in lieu of adequate social services and treatment access.[29,36-38]

In contrast, individuals leaving psychiatric hospitals experience social isolation but may benefit from relatively fewer structural barriers to socioeconomic stability. The degree of social isolation endorsed by participants in this limited study aligns with what has been observed in other studies,

where it has been identified as a significant risk factor for relapse or suicidality after hospital discharge.[25,30] In this population, the lack of meaningful interpersonal bonds was an impediment to achieving positive mental health. All participants described an initial period of isolation, but as they recovered, they made attempts to build stronger relationships with family, friends, social community, and recovery groups. In the long-term transition from hospitalization, social connectedness was both a sign of improved mental health and a cause of improved mood.

Previous research with people transitioning from incarceration has characterized a coping mechanism in which individuals will "push through emotional despair," in a process of "being strong and going on."[34,39] In this study, formerly incarcerated individuals repeatedly stated the importance of having control over mental health, with all participants referring to "getting over" symptoms of depression or anxiety. In this group, there was minimal treatment engagement in the initial stage after discharge. Participants recognized that treatment would have been beneficial, but there were more immediate material concerns. Other researchers have described "a hierarchy in help-seeking activities post-release in which clients' access to treatment services was predicated on their ability to first find sustainable economic and material support."[12] Without stable housing or income, participants in this sample did not seek mental health treatment. This may also explain why those who were hospitalized did not endorse the same need to manage problems on their own. All participants sought mental health treatment in the initial transition period from the hospital, and intensive treatment was a central part of each participant's path to recovery. The access to treatment and relative stability of their material conditions allowed for outpatient treatment seeking upon discharge.

LIMITATIONS

The findings should be taken in light of the study's limitations. The sample sizes were small. Although the jail sample generally reflected the racial demographics within the Rhode Island Department of Corrections, future work will seek to understand the role of race and racism in the experience of each institutional setting. In addition, no individuals from the hospital group experienced involuntary commitment, seclusion, or restraint. Future research should explore how the experience of involuntary commitment in a psychiatric hospital compares to the experience of arrest. The study may have been affected by a selection bias due to the sampling method of recruiting participants who had stable contact information several years after enrolling in their original trial. Coding saturation was determined to be present for all themes presented in this paper, but given the small sample size, there was the possibility of premature saturation.

CONCLUSION

This study sheds light on a current literature gap by demonstrating proof of concept for comparing the experiences of individuals transitioning back to the community after institutionalization following a mental health crisis. The themes provide insights for interventions tailored to the specific needs of each group during a vulnerable period of transition. Considering the heterogeneity of these populations, and the frequency with which individuals who end up in jail during a mental health crisis require inpatient psychiatric care after release, each institutional setting may benefit from the lessons highlighted in these interviews. Ultimately, the insights and recommendations provided by participants offer valuable guidance to policymakers, hospital and jail administrators, social service agencies, and to clinicians who are committed to mitigating the adverse effects of institutionalization and to facilitating more supportive and compassionate reintegration for individuals experiencing a mental health crisis.

References

1. Jacobs LA, Giordano SN. "It's Not Like Therapy": Patient-inmate perspectives on jail psychiatric services. Administration and Policy in Mental Health and Mental Health Services Research. 2018 Mar;45:265-75.
2. Timmer A, Nowotny KM. Mental illness and mental health care treatment among people with criminal justice involvement in the United States. Journal of Health Care for the Poor and Underserved. 2021;32(1):397-422.
3. Rosenberg KP. *Bedlam: An Intimate Journey into America's Mental Health Crisis* (p. 29). 2019. Avery, an imprint of Penguin Random House.
4. Bronson J, Berzofsky M. Indicators of mental health problems reported by prisoners and jail inmates, 2011–12. Bureau of Justice Statistics. 2017 Jun(Special Issue):1-6.
5. Al-Rousan T, Rubenstein L, Sieleni B, Deol H, Wallace RB. Inside the nation's largest mental health institution: A prevalence study in a state prison system. BMC public health. 2017 Dec;17(1):1-9.
6. James DJ, Glaze LE. Mental health problems of prison and jail inmates. Bureau of Justice Statistics, 1-12. 2016.
7. Mulvey EP, Schubert CA. Mentally ill individuals in jails and prisons. Crime and justice. 2017 Jan 1;46(1):231-77.
8. Sayers SK, Domino ME, Cuddeback GS, Barrett NJ, Morrissey JP. Connecting mentally ill detainees in large urban jails with community care. Psychiatric Quarterly. 2017 Jun;88:323-33.
9. Safran MA, Mays RA, Jr, Huang LN, McCuan R, Pham PK, Fisher SK, et al.: Mental health disparities.American Journal of Public Health, 2009; doi:10.2105/AJPH.2009.167346.
10. Torrey EF, Kennard AD, Eslinger D, et al. More mentally ill persons are in jails and prisons than hospitals: A survey of the states. Treatment Advocacy Center Arlington, VA; 2010.
11. Torrey EF, Zdanowicz MT, Kennard AD, Lamb HR, Eslinger DF, Biasotti MC, Fuller DA. The treatment of persons with mental illness in prisons and jails: a state survey. A joint report of the treatment advocacy center and the national Sheriff's association. Association', http://tacreports. org/storage/documents/treatment-behind-bars/treatment-behind-bars. pdf. 2014.
12. Blank Wilson A. How people with serious mental illness seek help after leaving jail. Qualitative Health Research. 2013 Dec; 23(12):1575-90.
13. Draine J, McTighe L, Bourgois P. Education, empowerment and community based structural reinforcement: An HIV prevention response to mass incarceration and removal. International Journal of Law and Psychiatry. 2011 Jul 1;34(4):295-302.

14. Spaulding AC, Seals RM, Page MJ, Brzozowski AK, Rhodes W, Hammett TM. HIV/AIDS among inmates of and releasees from US correctional facilities, 2006: declining share of epidemic but persistent public health opportunity. PloS one. 2009 Nov 11;4(11):e7558.
15. Minton TD, Zeng Z. Jail inmates at midyear 2014. NCJ. 2015 Jun 1;241264:2018-04.
16. Lee S, Rothbard AB, Noll EL. Length of inpatient stay of persons with serious mental illness: effects of hospital and regional characteristics. Psychiatr Serv. 2012 Sep 1;63(9):889-95. doi: 10.1176/appi.ps.201100412. PMID: 22751995.
17. Minton TD, Ginder S, Brumbaugh SM, Smiley-McDonald H, Rohloff H. Census of jails: Population changes, 1999–2013. NCJ. 2015 Dec 1;248627:22.
18. Cunniff MA. Jail crowding: Understanding jail population dynamics. Washington, DC: National Institute of Corrections; 2002 Jan.
19. Binswanger IA, Stern MF, Deyo RA, Heagerty PJ, Cheadle A, Elmore JG, Koepsell TD. Release from prison—a high risk of death for former inmates. New England Journal of Medicine. 2007 Jan 11;356(2):157-65.
20. Johnson JE, Jones R, Miller T, Miller I, Stanley B, Brown G, Arias SA, Cerbo L, Rexroth J, Fitting H, Russell D. Study Protocol: A randomized controlled trial of suicide risk reduction in the year following jail release (the SPIRIT Trial). Contemporary clinical trials. 2020 Jul 1;94:106003.
21. Morgan ER, Rivara FP, Ta M, Grossman DC, Jones K, Rowhani-Rahbar A. Incarceration and subsequent risk of suicide: a statewide cohort study. Suicide and Life-Threatening Behavior. 2022 Jun;52(3):467-77.
22. Stewart LM, Henderson CJ, Hobbs MS, Ridout SC, Knuiman MW. Risk of death in prisoners after release from jail. Australian and New Zealand journal of public health. 2004;28(1):32-36.
23. Chung DT, Ryan CJ, Hadzi-Pavlovic D, Singh SP, Stanton C, Large MM. Suicide rates after discharge from psychiatric facilities: a systematic review and meta-analysis. JAMA psychiatry. 2017 Jul 1;74(7):694-702.
24. Goldacre M, Seagroatt V, Hawton K. Suicide after discharge from psychiatric inpatient care. Lancet. 1993;342(8866):283-6.
25. Troister T, Links PS, Cutcliffe J. Review of predictors of suicide within 1 year of discharge from a psychiatric hospital. Current Psychiatry Reports. 2008 Feb;10(1):60-5.
26. Begun AL, Early TJ, Hodge A. Mental health and substance abuse service engagement by men and women during community reentry following incarceration. Administration and Policy in Mental Health and Mental Health Services Research. 2016 Mar;43:207-18.
27. Lurigio AJ. Effective services for parolees with mental illnesses. Crime & Delinquency. 2001 Jul;47(3):446-61.
28. Mojtabai R, Olfson M, Sampson NA, Jin R, Druss B, Wang PS, Wells KB, Pincus HA, Kessler RC. Barriers to mental health treatment: results from the National Comorbidity Survey Replication. Psychological medicine. 2011 Aug;41(8):1751-61.
29. Nishar S, Brumfield E, Mandal S, Vanjani R, Soske J. "It's a revolving door": understanding the social determinants of mental health as experienced by formerly incarcerated people. Health & Justice. 2023 Dec;11(1):1-9.
30. Mutschler C, Lichtenstein S, Kidd SA, Davidson L. Transition experiences following psychiatric hospitalization: a systematic review of the literature. Community mental health journal. 2019 Nov;55:1255-74.
31. Sorensen G, Emmons K, Hunt MK, Barbeau E, Goldman R, Peterson K, Kuntz K, Stoddard A, Berkman L. Model for incorporating social context in health behavior interventions: applications for cancer prevention for working-class, multiethnic populations. Preventive medicine. 2003 Sep 1;37(3):188-97.
32. Braun V, Clarke V. Using thematic analysis in psychology. Qualitative research in psychology. 2006 Jan 1;3(2):77-101.
33. Jones, A. New data: The revolving door between homeless shelters and prisons in Connecticut. Prison Policy Initiative. 2021, February 10. https://www.prisonpolicy.org/blog/2021/02/10/homelessness/
34. Addison HA, Richmond TS, Lewis LM, Jacoby S. Mental health outcomes in formerly incarcerated Black men: A systematic mixed studies review. Journal of Advanced Nursing. 2022 Jul;78(7):1851-69.
35. Alegría M, NeMoyer A, Falgàs Bagué I, Wang Y, Alvarez K. Social Determinants of Mental Health: Where We Are and Where We Need to Go. Curr Psychiatry Rep. 2018 Sep 17;20(11):95. doi: 10.1007/s11920-018-0969-9
36. Clark MG, Metcalfe RE, Caffery CM, Conn AD, Kjellstrand JM. Parenting through re-entry: Ecologically-grounded perspectives of parents returning to the community after incarceration. Journal of Child and Family Studies. 2023 Aug;32(8):2465-81.
37. Kjellstrand J, Clark M, Caffery C, Smith J, Eddy JM. Reentering the community after prison: Perspectives on the role and importance of social support. American Journal of Criminal Justice. 2022 Apr 1:1-26.
38. Sinko R, DeAngelis T, Alpajora B, Beker J, Kramer I. Experience of stigma post incarceration: A qualitative study. The Open Journal of Occupational Therapy. 2020;8(3):1-6.
39. Perkins DE, Kelly P, Lasiter S. "Our depression is different": Experiences and perceptions of depression in young Black men with a history of incarceration. Archives of Psychiatric Nursing. 2014 Jun 1;28(3):167-73.

Authors

Nicholas A. Streltzov, MD-ScM'24, Warren Alpert Medical School of Brown University, Providence, RI.

Koren Carbuccia, Warren Alpert Medical School of Brown University, Providence, RI.

Ivan Miller, PhD, Department of Psychiatry & Human Behavior, Warren Alpert Medical School of Brown University, Providence, RI.

Jennifer E. Johnson, PhD, Charles Stewart Mott Department of Public Health, College of Human Medicine, Michigan State University, Flint, MI.

Brandon A. Gaudiano, PhD, Department of Psychiatry & Human Behavior, Warren Alpert Medical School of Brown University; Butler Hospital, Psychosocial Research Program Providence, RI.

Lindsey Stevens, MA, Department of Psychiatry & Human Behavior, Warren Alpert Medical School of Brown University, Providence, RI.

Hannah Graves, ScM, Department of Psychiatry & Human Behavior, Warren Alpert Medical School of Brown University, Providence, RI.

Lauren M. Weinstock, PhD, Department of Psychiatry & Human Behavior, Warren Alpert Medical School of Brown University, Providence, RI.

Acknowledgments

Thank you to the staff and faculty from the Primary Care Population Medicine program at the Alpert Medical School for their encouragement and guidance with this research project. Thank you to Jon Soske and to Roberta Goldman for their teaching of qualitative methods which informed this work. Thank you to Toni Amaral for administrative support.

Disclosures

The authors have no conflicts of interest relevant to this article.
The authors did not receive funding for this work.

Correspondence

Nicholas A. Streltzov
Warren Alpert Medical School of Brown University
Box G-0004, 222 Richmond St., Providence, RI 02903
nicholas_streltzov@brown.edu

Rhode Island Monthly Vital Statistics Report
Provisional Occurrence Data from the Division of Vital Records

VITAL EVENTS	REPORTING PERIOD		
	OCTOBER 2023	12 MONTHS ENDING WITH OCTOBER 2023	
	Number	Number	Rates
Live Births	917	10,804	10.2*
Deaths	947	10,890	10.3*
Infant Deaths	2	46	4.3#
Neonatal Deaths	2	29	2.7#
Marriages	811	6,511	6.1*
Divorces	190	2,500	2.4*

* Rates per 1,000 estimated population
# Rates per 1,000 live births

Underlying Cause of Death Category	REPORTING PERIOD			
	APRIL 2023	12 MONTHS ENDING WITH APRIL 2023		
	Number (a)	Number (a)	Rates (b)	YPLL (c)
Diseases of the Heart	212	2,398	218.5	3,065.0
Malignant Neoplasms	184	2,213	201.7	4,727.0
Cerebrovascular Disease	46	519	47.3	647.0
Injuries (Accident/Suicide/Homicide)	99	1,084	98.8	14,013.0
COPD	39	468	42.6	435.0

(a) Cause of death statistics were derived from the underlying cause of death reported by physicians on death certificates.
(b) Rates per 100,000 estimated population of 1,097,379 for 2020 (www.census.gov)
(c) Years of Potential Life Lost (YPLL).

NOTE: Totals represent vital events, which occurred in Rhode Island for the reporting periods listed above.
Monthly provisional totals should be analyzed with caution because the numbers may be small and subject to seasonal variation.

Working for You:
RIMS advocacy activities

From left to right: **Matthew Smith, MD**; **Heather Smith, MD, MPH**; and **Mariah Stump, MD**

April 1, Monday

RIMS Council meeting: **Heather Smith, MD, MPH**, President

Protect our Health Care Policy Group: Stacy Paterno, staff

April 2, Tuesday

RIMS Physician Health Committee (PHC): **Herb Rakatansky, MD**, Chair

RIMS and United Healthcare Commercial CMO Dr. Ana Stankovic meeting

April 3, Wednesday

Healthcare for All monthly meeting: Stacy Paterno, staff

April 4, Thursday

RIMS and United Healthcare Quarterly meeting: **Heather Smith, MD, MPH**, President

RIMS testimony at State House on H7955: **Catherine Cummings, MD**, Past-President

April 8, Monday

UnitedHealthcare Call on ChangeHealthcare Cyberattack: Stacy Paterno, staff

Warren Alpert Medical School Primary Care and Population Health program health policy panel: Stacy Paterno, staff

April 10, Wednesday

Rhode Island Department of Health (RIDOH) Board of Medical Licensure and Discipline (BMLD): Stacy Paterno, staff

Governor's Overdose Intervention and Prevention Task Force: **Sarah Fessler, MD**, Past President

CTC-RI Primary Care Workforce Taskforce Meeting: Past Presidents **Peter Hollmann, MD**; **Elizabeth Lange, MD**; and **Mariah Stump, MD, MPH**, Secretary

Neighborhood Health Plan of Rhode Island Quarterly Meeting: **Heather Smith, MD, MPH**

RI Healthy School Meals Coalition meeting: Stacy Paterno, staff

Health Professions Loan Repayment Program meeting: Stacy Paterno, staff

April 11, Thursday

Raising RI Monthly Update: Stacy Paterno, staff

Rhode Island Medical Society April Council Meeting Highlights

The Rhode Island Medical Society (RIMS) held its Council Meeting on April 1, 2024, with key discussions centered around healthcare's future. The meeting featured **John Fernandez**, President and CEO of Lifespan, who presented his vision for the health system and the importance of collaboration in achieving healthcare goals. Lifespan's new Chief Physician Officer, **Dr. Babar Khokhar**, was also introduced, marking a new chapter in Lifespan's leadership. Council members took the opportunity for a detailed Q&A with Fernandez, addressing various aspects of Lifespan's strategies and objectives. The session provided valuable insights into the challenges and opportunities within the healthcare landscape. The meeting underscored the importance of dialogue and collaboration among healthcare professionals in Rhode Island, paving the way for continued discussions on improving healthcare services and outcomes.

RIMS and BCBSRI bi-monthly meeting: **Heather Smith, MD, MPH**, President; **Elizabeth Lange, MD**, Past President; **Kara Stavros, MD**, President-elect and **Mariah Stump, MD, MPH**, Secretary

Health Information Technology Steering Committee: Stacy Paterno, staff

April 12, Friday

RIMS and RI Health Center Association monthly meeting: Stacy Paterno, staff

AAMSE State Society CEO meeting: Stacy Paterno, staff

April 15, Monday

Governor's Health Care Systems Planning Cabinet interview: Stacy Paterno, staff

RIDOH World Diabetes Day Planning Committee: Stacy Paterno, staff

Protect our Health Care Policy Group: Stacy Paterno, staff

RIMS Public Laws Committee: **Michael Migliori, MD**, chair

April 16, Tuesday

Senate Health Policy meeting: Stacy Paterno, staff

Office of Health Insurance Commissioner Health Insurance (OHIC) Advisory Council: **Catherine Cummings, MD**

RIMS presentation to Rhode Island Primary Care Physicians Corporation board: **Thomas Bledsoe, MD**, Immediate Past President and Membership Committee Chair; **Heather Smith, MD, MPH**, President

April 17, Wednesday

Workers Compensation Board meeting: Stacy Paterno, staff

April 18, Thursday

RI Shield Bill Coalition meeting: Stacy Paterno, staff

April 22, Monday

Protect our Health Care Policy Group: Stacy Paterno, staff

May 6, Monday

RIDOH World Diabetes Day Planning Committee: Stacy Paterno, staff

New England Delegation to the AMA: **Peter Hollmann, MD**, and **Sara Fessler, MD**, AMA Delegates; **Thomas Bledsoe, MD**, AMA Alternate Delegate; and **Heather Smith, MD, MPH**, President

May 7, Tuesday

Butler Hospital Psychiatric Residency Program Advocacy Presentation: Stacy Paterno and Steve DeToy, staff

May 8, Wednesday

Rhode Island Department of Health (RIDOH) Board of Medical Licensure and Discipline (BMLD): Stacy Paterno, staff

Governor's Overdose Intervention and Prevention Task Force: **Sarah Fessler, MD**, Past President

CTC-RI Primary Care Workforce Taskforce Meeting: Past Presidents **Peter Hollmann, MD**; **Elizabeth Lange, MD**, and **Mariah Stump, MD, MPH**, Secretary

May 9, Thursday

Raising RI Coalition meeting: Stacy Paterno, staff

RIMS and Lifespan Physician Group meeting: **Thomas Bledsoe, MD**, Immediate Past President and Membership Committee Chair; **Heather Smith, MD, MPH**, President

Medicaid Consumer Advisory Council: Stacy Paterno, staff

May 10, Friday

RIMS and RI Health Center Association monthly meeting: Stacy Paterno, staff

RI Shield Bill Coalition meeting: Stacy Paterno, staff

May 13, Monday

OHIC Cost Trends Annual Update: **Peter Hollmann, MD**, AMA Delegate; and Stacy Paterno, staff

Protect our Health Care Policy Group: Stacy Paterno, staff

RIMS Board meeting: **Heather Smith, MD, MPH**, President

May 14, Tuesday

RI Shield Bill Coalition Update: Stacy Paterno, staff

May 15, Wednesday

CharterCare IPA Legislative Update: **Michael Migliori, MD**, Public Laws Chair; and **Heather Smith, MD, MPH**, President

May 16, Thursday

Rhode Island Medical Malpractice Joint Underwriting Association Board meeting: Stacy Paterno, staff

Health Information Technology Steering Committee meeting: Stacy Paterno, staff

May 20, Monday

RIMS Public Laws Committee: **Michael Migliori, MD**, chair

May 21, Tuesday

RI Lifesciences Hub Inaugural Summit: Stacy Paterno, staff

National Government Services Stakeholder meeting: Stacy Paterno, staff

AAMSE State Society planning meeting: Stacy Paterno, staff

May 22, Wednesday

CTC-RI Primary Care Workforce Taskforce planning meeting: Stacy Paterno, staff

Healthcare Workforce Advocacy meeting: Stacy Paterno, staff

AMA Webinar What's exacerbating the physician shortage crisis—and what's needed to fix it: Stacy Paterno, staff

May 23, Thursday

Warren Alpert Medical School Medical Student Awards Ceremony: Stacy Paterno and Ali Walz, staff

May 28, Tuesday

Speaker of the House, Senate President and US Senator Sheldon Whitehouse Healthcare Summit: Stacy Paterno, staff

Protect our Health Care Policy Group: Stacy Paterno, staff

May 29, Wednesday

RIMS Finance Committee meeting: **Matthew Smith, MD**, Treasurer

May 30, Thursday

RIMS and Care New England Medical Group meeting: **Thomas Bledsoe, MD**, Immediate Past President and Membership Committee Chair; **Heather Smith, MD, MPH**, President

RIDOH BMLD and RIMS monthly meeting: Stacy Paterno, staff

RIMS gratefully acknowledges the practices who participate in our discounted Group Membership Program

ANCHOR MEDICAL ASSOCIATES

BROWN EMERGENCY MEDICINE
BROWN PHYSICIANS, INC.

BROWN MEDICINE
BROWN PHYSICIANS, INC.

BROWN SURGICAL ASSOCIATES
BROWN PHYSICIANS, INC.

COASTAL MEDICAL

Diabetes & Endocrinology Associates, Inc.

east bay community action program
THE BRIDGE to SELF-RELIANCE

Orthopaedic Associates, Inc.

Ortho Rhode Island

SKIN PROS

The Providence CENTER

Thundermist HEALTH CENTER

Tri-County CommunityAction Agency
Helping people. Changing lives.

UNIVOTO
University Otolaryngology

Wood River Health Services
The Heart of South County since 1976

For more information about group rates, please contact Ali Walz, RIMS Director of Member Services

State Legal Initiatives to Restrict and Protect Mifepristone Access

ELI Y. ADASHI MD, MS; DANIEL P. O'MAHONY, MSLS; I. GLENN COHEN, JD

Mifepristone, an established progesterone receptor antagonist, comprises the centerpiece of widely deployed regimens for the medical termination of intrauterine gestation.[1-5] Approved as the brand Mifeprex by the U.S. Food and Drug Administration (FDA) on September 28, 2000 for the "medical termination of intrauterine pregnancy," mifepristone has since come to account for over half of all the abortions carried out in the U.S.[6] More recently, however, in the course of litigating the *Alliance for Hippocratic Medicine v. FDA*, the very validity of the approval of mifepristone by the FDA has been called into question.[7] On April 7, 2023, in the Northern District of Texas, Judge Matthew Kacsmaryk issued an injunction staying FDA's approval of mifepristone (i.e., essentially ordering FDA to treat it as unapproved). On the same day, Judge Thomas O. Rice of the U.S. District Court for the Eastern District of Washington acted to preserve access to mifepristone by ordering the FDA to maintain the status quo and permit the continued use of mifepristone; this decision covered 17 states (including Rhode Island) and the District of Columbia.[8] The Texas order, and its modification by the U.S. Court of Appeals for the Fifth Circuit, was stayed by the U.S. Supreme Court in April 2023 and further modified by a different Fifth Circuit panel of three judges in August. On December 13, 2023, the U.S. Supreme Court agreed to hear the case in order to resolve the conflicting rulings; the Court will ultimately decide the fate of mifepristone sometime in the spring of 2024. Until that time, the Texas injunction is not in force and mifepristone is available nationwide. Faced with legal uncertainty as to the ultimate status of mifepristone and an unresolved national pro-life and pro-choice debate, several states have recently taken it upon themselves to step into the breach in abortion-restrictive and protective directions, as we discuss in this Commentary.

First, we deal with the threats. On March 17, 2023, Wyoming Governor Samuel M. Gordon signed into law an act passed by state's legislature "*Prohibiting Chemical Abortions*" [SF0109].[9] This new state statute makes it "unlawful to prescribe, dispense, distribute, sell or use any drug for the purpose of procuring or performing an abortion on any person."[5] The newly crafted ban on abortifacient drugs goes on to state that any physician or other person who violates the statute "is guilty of a misdemeanor punishable by imprisonment for not more than six (6) months, a fine not to exceed nine thousand dollars ($9,000.00), or both."[9] Seeking to prevent the aforementioned state statute from going into effect on July 1, 2023, a number of nonprofit organizations filed a suit against the state. A ruling was issued from the bench on June 22, 2023 by Judge Melissa M. Owens of the Teton County Ninth District Court granting the plaintiffs a temporary restraining order. The same judge on March 22 had blocked a broader ban on abortions passed by the legislature, the "*Life is a Human Right Act*" [HB0152]. The Wyoming Supreme Court has declined to weigh in on whether the new abortion laws violate the right to health care guaranteed in the Wyoming state constitution, instead sending the case back to Judge Owens for further action. In the meantime, abortion remains legal in Wyoming.[10]

A different threat relates to attempts to restrict intra- and interstate travel for abortion. In a law with an effective date of May 5, 2023, Idaho (which has some of the U.S. strictest abortion restrictions) created a new criminal offense of "abortion trafficking," with a penalty of two to five years in prison, that applies to any adult "who, with the intent to conceal an abortion from the parents or guardian of a pregnant, unemancipated minor, either procures an abortion" or "obtains an abortion-inducing drug for the pregnant minor to use for an abortion by recruiting, harboring, or transporting the pregnant minor within this state."[11] On July 11, a lawsuit was filed in Federal Court challenging the law as violating the Federal Constitution's First Amendment freedom of speech, the right to interstate travel, and alleging the law lacks sufficient clarity to be lawful.[12] On November 9, U.S. Magistrate Judge Debora Grasham issued a preliminary injunction, blocking the state from enforcing the law for the time being. Depending on how the case is resolved, other states may copy this approach or even become more aggressive and seek to design similar laws that apply beyond minors.

As states like Wyoming and Idaho seek to restrict abortion access, including by limiting access to mifepristone, we see other states trying to protect abortion access including for out-of-state parties. On May 10, 2023, Philip B. Scott, the Republican Governor of Vermont, signed a so-called "shield law" [H.89/S.37] titled: "An act relating to access to legally protected health care activity and regulation of health care providers."[9] The Act defines its key term "Reproductive health care services" to "include medication that was approved by the U.S. Food and Drug Administration (FDA) for termination of a pregnancy as of January 1, 2023, regardless of the medication's current FDA approval status," which clearly covers mifepristone.[13] Among the protections it gives those prescribing mifepristone is to prohibit medical malpractice insurers from adjusting a health care provider's risk classification or to apply additional premium charges if:

- the health care provider provides or assists in the provision of legally protected health care activity in this State that is unlawful in another state;
- another state's laws create potential or actual liability for that activity; or
- abusive litigation against a provider concerning legally protected health care activity resulted in a judgment against the provider.[13]

It also prohibits a health care provider from being subject to professional disciplinary action "solely for providing or assisting in the provision of legally protected health care activity" and prohibits taking "adverse action on an application for certification, registration, or licensure of a qualified health care provider based on a criminal or civil action or disciplinary action by a licensing board of another state that arises from the provision of or assistance in legally or assisting in the provision of legally protected health care services."[13]

More recently, the New York State Legislature passed its version of a "shield law" [A01709B/S1066-B] with an eye towards protecting New York-based health care providers who "prescribe abortion medication to out-of-state patients by means of telehealth."[14] New York Governor Kathy Hochul signed the bill into law on June 23, 2023. The new law seeks, among other things, to protect reproductive health service providers that provide legally protected health activities, and includes protections from extradition, arrest and legal proceedings in other states relating to such services.[14] Currently, 22 states and the District of Columbia have shield laws in place, and five – Massachusetts, Washington, Vermont, Colorado and New York – have specific telemedicine protections.[15]

The ever-growing preoccupation of the states with abortion in general and with mifepristone in particular, has everything to do with the fallout from *Dobbs v. Jackson Women's Health Organization.* Justice Alito's opinion for the Court in *Dobbs* purported to return the authority to regulate abortion to the states and away from the courts. The reality is that proliferation of laws on both sides of the abortion debate is instead likely to embroil the courts for years to come. ❖

References

1. Adashi EY, Rajan RS, O'Mahony DP, Cohen IG. The next two decades of mifepristone at FDA: History as destiny. Contraception 2022(109):1-7.
2. Neilson JP, Hickey M, Vazquez J. Medical treatment for early fetal death (less than 24 weeks). Cochrane Database Syst Rev 2006;3:CD002253-CD002253.
3. Schreiber CA, Creinin MD, Reeves MF, Harwood BJ. Mifepristone and misoprostol for the treatment of early pregnancy failure: a pilot clinical trial. Contraception 2006;74:458-462.
4. Kollitz KM, Meyn LA, Lohr PA, Creinin MD. Mifepristone and misoprostol for early pregnancy failure: a cohort analysis. Am J Obstet Gynecol 2011;204(5):386.e1-386.e6.
5. Creinin MD, Schwartz JL, Pymar HC, Fink W. Efficacy of mifepristone followed on the same day by misoprostol for early termination of pregnancy: report of a randomised trial. BJOG 2001;108:469-473.
6. Jones RK, Kirstein M, Philbin J. Abortion incidence and service availability in the United States, 2020. Perspectives on Sexual and Reproductive Health. 2022 Dec;54(4):128-41.
7. Zettler OJ, Adashi EY, Cohen IG. *Alliance for Hippocratic Medicine v. FDA* – Dobbs's Collateral Consequences for Pharmaceutical Regulation. N Engl J Med 2023 Mar 9;388(10):e29. Doi: 10.1056/NEJMp2301813. Epub 2023 Feb 22.
8. United States District Court Eastern District of Washington. Order Granting in Part Plaintiffs' Motion for Preliminary Injunction. April 7, 2023 (https://int.nyt.com/data/documenttools/court-decision-keeping-mifepristone-available/1d2b761e-9ab275f7/full.pdf).
9. State of Wyoming 67th Legislature. SF0109 – Prohibiting chemical abortions. March 17, 2023 (https://wyoleg.gov/Legislation/2023/SF0109).
10. Merzbach H. Wyoming Supreme Court declines to take up state abortion case. Wyoming Public Radio. April 9, 2024. (https://www.wyomingpublicmedia.org/politics-government/2024-04-09/wyoming-supreme-court-declines-to-take-up-state-abortion-case)
11. Idaho Code § 18-623 (2023) (https://legislature.idaho.gov/wp-content/uploads/sessioninfo/2023/legislation/H0242.pdf)

12. Varney S. Groups sue to overturn Idaho 'Abortion Trafficking' law targeting teens. KFF Health News. July 11, 2023. (https://kffhealthnews.org/news/article/idaho-abortion-travel-ban-lawsuit-challenge/)
13. Vermont General Assembly. H.89/S.37. An act relating to civil and criminal procedures concerning legally protected health care activity. May 10, 2023 (https://legislature.vermont.gov/bill/status/2024/H.89).
14. New York State Senate. S01066B. An Act to amend the criminal procedure law, the executive law, the civil practice law and rules, the insurance law and the education law, in relation to legally protected health activity providers. June 23, 2023. (https://www.nysenate.gov/legislation/bills/2023/S1066/amendment/B).
15. Seigel R, Leiter AB. State Abortion Shield Laws: Key Findings and Infographic. Manat Health. September 26, 2023. (https://www.manatt.com/insights/white-papers/2023/state-abortion-shield-laws-key-findings-and-infogr)

Authors

Eli Y. Adashi, MD, MS, Professor of Medical Science, Former Dean of Medicine and Biological Sciences, Brown University, Providence, RI.

Daniel P. O'Mahony, MSLS, Director of Library Planning and Assessment, Brown University Library, Providence, RI.

I. Glenn Cohen, JD, Deputy Dean and James A. Attwood and Leslie Williams Professor of Law, Harvard Law School; Faculty Director, Petrie-Flom Center for Health Law Policy, Biotechnology, and Bioethics, Harvard University, Cambridge, MA.

Disclosures

Financial Disclosures/Conflicts: Professor Adashi and Mr. O'Mahony declare no conflict of interest. Prof. Cohen is a member of the ethics advisory board for Illumina and the Bayer Bioethics Council.

Funding/Support: None. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Correspondence

Eli Y. Adashi, MD, MS
222 Richmond St., Providence, RI, 02903
401-274-4032
Eli_Adashi@brown.edu

Isolated Toe Tremor with APS: Why Publish?

JOSEPH H. FRIEDMAN, MD

My niche discipline, movement disorders, a rather narrow piece of the neurological disorders' spectrum, occupies a minority position in clinical medicine. As our techniques for objective testing for medical disorders increase, continually narrowing the need for clinical expertise, movement disorders, in contrast, remains rooted in the great history of classical neurology, more closely based on clinical acumen, experience and history than on objective diagnostic testing. It is also distinguished by the usual ability of the practitioner to see the effects of therapy. Unlike the common disorders, headache, back pain, epileptic seizures, stroke, concussion, we generally get to see the response to our interventions, and not just the indirect effects, such as better quality of life due to less pain, fewer seizures, etc. We can see better walking, better tremor control, fewer involuntary movements. And, because the movements are always visible, although sometimes episodic and not present in the office, we usually see the responses, or we try to get video recordings of the episodic disorders. We like to share the videos we find interesting. That's one reason for our Video in Medicine report in this issue of RIMJ, "Isolated Toe Tremor Associated with Antiphospholipid Syndrome."

Reporting "interesting cases" is attractive to those of us who try to publish because we think of them as being educational for the reader, interesting to read ("Who would imagine you could see this problem in disease X?"), interesting to watch, and easy to write. For faculty, the case report can be an important first step in encouraging and mentoring a student, resident or fellow for an academic career. For readers, it may help them diagnose a puzzling disorder. In many disciplines, photos and video images have become commonplace and allow the reader to see a procedure or a treatment effect that they have only read about. They may see a movement they are unfamiliar with and know that the video has been vetted by experts, and not simply something posted on YouTube with unknown provenance.

The problem with trying to publish case reports is that it is often difficult to prove that the problem you're addressing is due to the explanation you propose, since all case reports describe rare things. In the case of our toe tremor case, we noted that tremors of only two toes on one foot had not, to the best of our knowledge, been reported. We could be wrong about this, search engines being not completely reliable. Tremors of the four smaller or all five toes is rare in my experience, but might be seen in Parkinson's disease, whereas tardive dyskinesia or dystonia, often affects the great toe, the four smaller toes or all five. Whenever we see a movement disorder that is rare or unexpected, we try to mimic the disorder to determine if it may possibly be functional, that is, occurring on a "voluntary" or "psychogenic" basis. I saw a patient with an impressive, reportedly involuntary contraction of his soft palate which I thought was functional, based on several factors, but I reasoned that if I could not mimic it, it might be organic, whereas if it was a psychogenic disorder then I should be able to do it myself. After practicing for a while, I was able to mimic it quite well, supporting my diagnosis, which led to a successful treatment. When an author can't perform the movement, it provides support for the movement being physiologic, hence a movement that is less likely occurring on a functional, that is, psychogenic basis.

The real problem with case reports is connecting the disorder with the proposed etiology. In the toe tremor case, we associated the tremor with an uncommon syndrome, anti-phospholipid antibody syndrome (APS). What if there had never been any movement disorder associated with this autoimmune coagulation disorder? We would likely think to ourselves, like detectives in novels, "I don't believe in coincidences," and, not having an alternative explanation for the tremors, ascribe the movement to the APS. We would not likely have found too many people willing to believe this as an explanation. I see many patients with movement disorders for which I cannot find an explanation. I don't blame their diabetes or their hypertension or their medications. I simply report that I can't provide a diagnosis. When a rare medical condition is followed by a rarer movement disorder we start to assume a connection, but, as we all know, "assume makes an ass of you and me." However, in our case, we argued that APS has been

associated with a variety of movement disorders, fortifying our argument.

What value does the report have? A doctor confronting an unusual disorder for which no cause can be found might come across the report on a computer search and might then check if the patient might have had problems, like miscarriages, or thromboses, to suggest the APS. Several years ago, I saw a patient with unexplained ataxia. He had been evaluated elsewhere with no explanation found. When I saw him, it was summertime and he was wearing shorts, which revealed his livedo reticularis. I checked his coagulation parameters, which were remarkably abnormal, but before he got to his appointment with a hematologist, he suffered a bowel infarct, requiring surgery.

With sufficient case reports, someone collects enough cases to deduce patterns that might help guide recognition and treatment. In the meanwhile, I invite you to try and wiggle your smallest two toes. ❖

Author

Joseph H. Friedman, MD, Stanley Aronson Chair in Neurodegenerative Disorders and Professor, Department of Neurology at the Alpert Medical School of Brown University; Director of Butler Hospital's Movement Disorders Program.

Correspondence

joseph_friedman@brown.edu

Lovell General Hospital: A Civil War-era Hospital in Portsmouth

MARY KORR
RIMJ MANAGING EDITOR

Figure 1. Photograph of Lovell General Hospital, Portsmouth, Rhode Island, shows view of main building of hospital, also known as Portsmouth Grove Hospital, with water and boats in front. [WILLIAMS, JOSHUA A., PHOTOGRAPHER, LIBRARY OF CONGRESS]

During the Civil War, US Army Surgeon General William A. Hammond authorized RI Gov. William Sprague to open a facility in the state to treat both the Union and Confederate wounded. It was one of 204 military Civil War-era hospitals that were initially commissioned. They decided on a site in Portsmouth Grove, an amusement park, hotel and event venue, with visitors arriving by horse and carriage or steamboat.

The Portsmouth Grove Hospital opened in the Portsmouth Grove House in 1862 (**Figures 1,2**). The wooden edifice, which became the medical administrative building, was situated along the waterfront in what is now the Melville Marina district. Shortly thereafter, the hospital's name changed to the Lovell General Hospital, after Joseph Lovell, US Army Surgeon General from 1818–1836.

Figure 2. Smaller buildings behind main building of hospital with soldiers in yard, some sweeping and one holding a dog; a young girl stands nearby. [WILLIAMS, JOSHUA A., PHOTOGRAPHER. LIBRARY OF CONGRESS]

Two steamships transported the first contingent of soldiers wounded on a Virginia battlefield to Portsmouth on July 6, 1862. According to the Naval War College Museum blog,[1] the initial influx of patients numbered 1,724. Treatment was provided by nine surgeons and more than 100 nurses (**Figure 3**).

Nurses played a crucial role in addressing the critical needs of the burgeoning hospital population. In Portsmouth, nurse Katherine Prescott Wormeley was a leader in the field (**Figure 4**). A Newport resident, she volunteered on the Virginia frontlines and later on the ships conveying the wounded to the newly established Army hospitals. She joined the U.S. Sanitary Commission relief organization and, in August 1962, was appointed Lady Director (essentially superintendent) of the 1,700 bed Portsmouth Grove Hospital.

Most patients were treated for typhoid and gunshot wounds, with amputations done closer to the battlefield sites. During the construction of hospital buildings, patients were housed in tents. Ultimately, a complex grew over the 12-acre site in Portsmouth Grove, and included wards,

Figure 3. Assistant Surgeon William F. McCormick, MD, of Lovell General Hospital in uniform with his son. [LIBRARY OF CONGRESS]

Figure 4. Katherine Prescott Wormeley of Newport, superintendent of Portsmouth Grove Hospital. [LIBRARY OF CONGRESS]

Figure 5. Civil War soldier, with one leg, full-length portrait, seated, facing front, holding guitar. [BELL & BROTHER, PHOTOGRAPHERS, WASHINGTON, D.C. FEINBERG-WHITMAN COLLECTION. LIBRARY OF CONGRESS]

each accommodated 59 patients; a mess hall, barracks, a chapel, bakery, laundry, carpenter shops, blacksmith, and a store, or hospital PX.

Robert F. Reilly, MD, writes that in the Civil War "twice as many soldiers died of disease than in combat."[2] It was the pre-antibiotic and germ theory of disease era. Poor sanitation and overcrowding were the norm in the early field hospitals, resulting in gastrointestinal disorders, with chronic diarrhea and dysentery prevalent. There were measle outbreaks but no recorded cholera. Smallpox outbreaks occurred as well, despite the fact that the vaccine was developed by Edward Jenner 70 years prior; however, most of the soldiers were unvaccinated.

He writes that medical care was not in the Middle Ages; rather medical and surgical advances rapidly evolved, including: the use of quarantine, which virtually eliminated yellow fever; quinine to prevent malaria, bromine to treat gangrene, the use of anesthetics in surgery (mostly chloroform), and development of techniques for arterial ligation, the performance of the first plastic surgery, and rudimentary neurosurgery.[2]

Medical response, education and infrastructure underwent seismic chances. A comprehensive ambulance corps and hospital system was developed by Jonathan Letterman, MD, medical director under Surgeon General Hammond. It included mobile, field, brigade, general, specialty and rehabilitation hospitals.[1] Medical inspector generals visited to make sure standards of care and sanitation were compliant.

"One of the major accomplishments during the Civil War was the establishment of an effective hospital system that threaded the wounded and diseased through a series of continuously improving treatments and rehabilitation," writes Stanley B. Burns, MD.[3]

During the war, more than one million soldiers received care in Union hospitals, and probably as many in Confederate hospitals.[3] (**Figures 5,6**) By the end of the war, the Portsmouth hospital had treated more than 10,500 patients, with 308 deaths recorded.[1] It closed in 1865, and today no traces remain of the buildings. The vintage photographs shown here, however, offer glimpses of the soldiers and heroes – military and medical – who stepped up to the enormous challenges wrought by the weapons of war. ❖

References

1. Cembrola B. Soundings in Narragansett Bay's Naval History. Naval War College Museum. April 22, 2021. http://naval-warcollegemuseum.blogspot.com/2021/04/lovell-general-hospital.html
2. Reilly, RF. Medical and surgical care during the American Civil War, 1861–1865. Proc (Bayl Univ Med Cent). 2016 Apr; 29(2):138–142. doi: 10.1080/08998280.2016.11929390
3. Burns SB. Behind the Lens: A History in Pictures. Civil War-Era Hospitals. PBS.org https://www.pbs.org/mercy-street/uncover-history/behind-lens/index.html

Figure 6. Civil War soldiers shown at a U.S. Army hospital. [LIBRARY OF CONGRESS]

NIH-funded clinical trial links frequent anger to increased risk of heart disease

BETHESDA, MD – Recurring feelings of anger may increase a person's risk of developing heart disease by limiting the blood vessels' ability to open, according to a new study supported by the National Institutes of Health. The study, published in the *Journal of the American Heart Association* (JAHA), shows for the first time that anger is linked to this vascular impairment – a precursor to the kind of long-term damage that can lead to heart attack and stroke.

"We've long suspected, based on observational studies, that anger can negatively affect the heart. This study in healthy adults helps fill a real knowledge gap and shows how this might occur," said **LAURIE FRIEDMAN DONZE, PhD**, a psychologist and program officer in the Clinical Applications and Prevention Branch of the National Heart, Lung, and Blood Institute (NHLBI), which funded the study. "It also opens the door to promoting anger management interventions as a way to potentially help stave off heart disease, the leading cause of death in this country."

While a brief spurt of occasional anger is normal and generally has a benign impact on the heart, it is recurring or frequent anger the researchers said raises concern. "If you're a person who gets angry all the time, you're having chronic injuries to your blood vessels," said study leader **DAICHI SHIMBO, MD**, a cardiologist at Columbia University Irving Medical Center in New York City. "It's these chronic injuries over time that may eventually cause irreversible effects on vascular health and eventually increase your heart disease risk."

For the randomized, controlled study, researchers recruited 280 healthy adults aged 18 to 73 years within the New York City area. The participants were free of cardiovascular disease and without risk factors such as history of hypertension, diabetes, and lipid imbalances, according to self-reported survey data. All participants were non-smokers, medication-free, and without a history of diagnosed mood disorders.

The researchers measured blood flow changes in the blood vessels of each participant's dominant arm. They then randomly assigned each to a task to elicit either anger, anxiety, sadness, or a neutral emotional state.

Using standard methods for laboratory experiments like these, the researchers asked the participants in the anger and anxiety groups to talk for 8 minutes about personal experiences that had evoked those emotions. Those in the sadness group read aloud for 8 minutes a series of brief statements designed to elicit sadness. The control group counted numbers out loud for 8 minutes to induce an emotionally neutral state. When each group was done, researchers measured blood vessel changes again – immediately at the end of the task, and after 3, 40, 70, and 100 minutes.

The researchers found that the ability of the blood vessels to dilate was significantly reduced among participants in the anger group compared to those in the control group. This vessel impairment was sustained up to 40 minutes after the initial recall event that triggered the anger and decreased afterward. In contrast, the blood vessels of those in the anxiety and sadness groups were not affected.

The reasons anger negatively affected blood vessel function are unclear, and the study was not designed to evaluate those mechanisms. However, Shimbo said several factors could be at play, including activation of the autonomic nervous system, changes caused by stress hormones, and increased arterial inflammation. Shimbo said the endothelium is likely involved in some way, too. The researchers plan to explore these possible mechanisms in future studies.

Because participants were generally young and healthy – with an average age of 26 – other studies will also need to explore whether the findings are generalizable to older adults with health problems who are likely taking medications. Future studies may explore, as well, whether positive emotions, such as joy or laughter, could blunt the adverse effects of anger on the heart.

Managing anger for people who are frequently angry is important, NHLBI's Donze said. Among the approaches that can help are exercise, yoga, deep breathing, and cognitive behavioral therapy (CBT). Effective CBT strategies for anger management can also be learned through self-help books.

The study was funded largely by the NHLBI under grants R01 HL116470 and K24 HL125704. Clinicaltrials.gov registration number: NCT01909895. ❖

Faster approach for starting extended-release naltrexone to treat opioid use disorder shown effective

BETHESDA, MD – Starting people with opioid use disorder on extended-release, injectable naltrexone (XR-naltrexone) within five to seven days of seeking treatment is more effective than the standard treatment method of starting within 10-15 days, but requires closer medical supervision, according to results from a clinical trial supported by the National Institutes of Health's (NIH) National Institute on Drug Abuse (NIDA). Published in JAMA Network Open, the findings suggest that this rapid treatment protocol could make XR-naltrexone more viable as a treatment option for opioid use disorder, which continues to take lives at an alarming rate.

"When someone is ready to seek treatment for opioid use disorder, it is crucial that they receive it as quickly as possible," said **NORA VOLKOW, MD**, NIDA director. "This study paves the way for more timely care with one of the three medications for opioid use disorder we have available, better supporting people in their ability to choose the treatment option that will work best for them."

XR-naltrexone is one of three Food and Drug Administration-approved medications for the treatment of opioid use disorder. However, starting treatment with XR-naltrexone has traditionally required patients to go through a seven to 10-day opioid-free period, to avoid experiencing painful withdrawal symptoms caused when naltrexone abruptly stops the effects of opioids in the brain. During this waiting period, patients are at high risk of returning to opioid use or discontinuing treatment. This has been a significant barrier to implementation of XR-naltrexone.

To address this challenge, researchers tested the effectiveness of a more rapid procedure to start people with opioid use disorder on XR-naltrexone. Between March 2021 and September 2022, the study enrolled and followed 415 patients with opioid use disorder who were admitted at six community-based inpatient addiction facilities across the U.S. and who chose treatment with XR-naltrexone. Every 14 weeks, the sites were randomized to either provide the standard XR-naltrexone procedure, or the more rapid procedure.

In the study, standard XR-naltrexone prescribing included a three- to five-day treatment period with buprenorphine to ease withdrawal symptoms, followed by a seven- to 10-day opioid-free period. The rapid procedure consisted of one day of buprenorphine (up to 10 mg), a 24-hour opioid-free period, and a gradual increase in low-dose oral naltrexone for three to four days prior to getting an injection of XR-naltrexone. Doctors also used medications such as clonidine and clonazepam throughout the process to manage withdrawal symptoms.

The study found that patients on the rapid five to seven-day treatment procedure were significantly more likely to receive a first injection of XR-naltrexone compared to those on the standard seven to 15-day treatment procedure (62.7% vs. 35.8%). Withdrawal severity was generally low and comparable across the two groups. Targeted safety events and serious adverse events (such as a fall or overdose) were infrequent overall but occurred more on rapid procedure (5.3% and 6.7%) than on standard procedure (2.1% and 1.6%), and the rapid procedure required more staff attention. This indicates that closer monitoring and greater clinical expertise may be needed if patients start treatment with the rapid procedure.

Though the shorter wait-time improved the proportion of people who started on XR-naltrexone overall, these findings underscore that challenges remain in starting patients on XR-naltrexone and also keeping them in treatment long term. Across both the standard and rapid procedures, the most commonly reported reason that participants did not receive a first dose of XR-naltrexone was that they chose to leave the treatment unit early. The authors also note that only about 10% of all patients entering treatment chose XR-naltrexone. These findings reaffirm that a small but sizable proportion of people with opioid use disorder do opt for treatment with XR-naltrexone when presented with all three medication choices, and that it is important to support research into making this evidence-based treatment option more viable for those who choose it.

"Time has been an important barrier that we've seen hinder the use of extended-release naltrexone for opioid use disorder in the past, both among individuals and treatment providers," said **MATISYAHU SHULMAN, MD**, a clinician researcher at New York State Psychiatric Institute and Columbia University Irving Medical Center, New York City, and lead author on the study. "We hope that these findings can help encourage more treatment settings to offer extended-release naltrexone as a safe and effective option for patients, to help prevent overdose and support recovery."

The authors note that future studies should explore sustainability, feasibility, and health economic aspects of this more rapid treatment protocol for XR-naltrexone. Despite cost savings from fewer days on the rapid procedure, the resources needed for intensive monitoring should also be considered.

The study, known as the Surmounting Withdrawal to Initiate Fast Treatment with Naltrexone (SWIFT) study, was conducted at six sites within the NIDA Clinical Trials Network and funded through NIH's Helping to End Addiction Long-Term Initiative (or NIH HEAL initiative). The study was led by researchers at New York State Psychiatric Institute and Columbia University Irving Medical Center. ❖

Rhode Island Foundation awards more than $360,000 in seed funding for medical research

PROVIDENCE – The Rhode Island Foundation announced that it is awarding more than $360,000 in seed funding to 15 promising medical research projects. The grants are designed to help early-career researchers advance projects to the point where they are competitive for national funding. With this round of grants, the Foundation has awarded more than $5.7 million since 1997.

"Together with our visionary donors, we are providing the crucial source of early funding that enables local researchers to purse promising medical advances," said **DAVID N. CICILLINE**, the Foundation's president and CEO. "Our hope is that their successes will lead to substantial new investments in the state's research sector that will grow our economy and improve the health of Rhode Islanders."

Laboratory, clinical and population-based research was eligible for funding. In addition to general medical research, grants were available to study infectious diseases, cardiac research, coronary artery disease, cerebral accidents, cancer, heart disease, multiple sclerosis, arthritis, diabetes, allergies, and performance enhancing substances.

The University of Rhode Island received $25,000 to study the impact of physical activity on children with ADHD, which negatively impacts many common childhood milestones such as decision-making, language development and goal-setting. The study will recruit children and adolescents ages 6 to 17 with and without ADHD.

"We will look at the association between levels of physical activity and neurocognitive functioning in all children, particularly those with ADHD who struggle with daily executive functioning skills," said **NICOLE LOGAN**, assistant professor of kinesiology, who will lead the study.

"We expect the results will support alternative methods of managing childhood ADHD symptoms and provide insight on alternative methods of ADHD diagnosis. Because physical activity and related outcomes like fitness, muscular strength and body composition are closely associated with neurocognitive function throughout childhood, we expect that children with ADHD will show improvement."

The University of Rhode Island also received $24,766 to look at whether healthy romantic relationships can help reduce the risk of stroke. The study will be led by **JESSICA CLESS**, assistant professor of human development and family science.

"Factors such as stress, coping strategies, and a person's experiences in romantic relationships have been shown to affect positive health behaviors such as maintaining a healthy diet and exercise routine," said Cless.

"In order to understand the more nuanced effects that stress and relationship factors have on positive health behaviors, we will collect data from adult romantic partners to understand how stress and relational experiences in romantic relationships can predict positive health behaviors," she said.

The results from this study are expected to provide preliminary practical recommendations for both mental and public health professionals as communities seek to develop prevention programming to bolster healthy behaviors, thereby reducing the risk for heart attacks, strokes and other stress-related illnesses.

The other grants and projects are:

1. Brown University received $25,000 for "The impact of small intestinal microbiome in sepsis during aging" led by **KARTHIKEYANI CHELLAPPA**, assistant professor of molecular microbiology and immunology.
2. The Ocean State Research Institute received $25,000 for "Impaired inflammatory arteriogenesis is the result of IL-1beta resistance and macrophage IL-1 receptor complex protein defects in the context of chronic Diabetes mellitus" led by **CHRIS MANTSOUNGA**, assistant professor of medicine at Brown University and a research biologist at the Institute.
3. Providence College received $23,769 for "Medial prefrontal cortical circuits in motivation and depression" led by **RYAN POST**, assistant professor of psychology and neuroscience.
4. Providence College received $25,000 for "Piloting a Mobile Adherence Game with Economic Incentives for Young People with HIV in Ghana" led by **NICHOLAS TARANTINO**, assistant professor of psychology.
5. Providence College received $25,000 for "Investigating

signaling networks linking cell size and growth to the cell cycle" led by **KRISTI MILLER**, assistant professor of biology.

6. Rhode Island Hospital received $25,000 for "Healthcare transition of adolescents living with HIV in Rwanda" led by **TANYA ROGO**, associate professor of pediatrics at The Warren Alpert Medical School of Brown University.

7. Rhode Island Hospital received $25,000 for "Implementation and Evaluation of Pre- Hospital Trauma Program for CHW's in far-west Nepal" led by **RAMU KHAREL**, an assistant professor or emergency medicine with an appointment in the Division of Global Emergency Medicine at the Alpert Medical School of Brown University.

8 Roger Williams University received $25,000 for "Cognitive Impairments in a Mouse Model of Bipolar Disorder" led by **VICTORIA HEIMER- MCGINN**, assistant professor of psychology.

9. The University of Rhode Island received $20,000 for "Access and Safety of Opioid Agonist Therapy in Pregnant Women" led by **XUERONG WEN**, associate professor of pharmacy practice.

10. The University of Rhode Island received $20,635 for "Serotonin neuron modulation after spinal cord injury" led by **MARIN MANUEL**, assistant professor of biomedical and pharmaceutical sciences.

11. The University of Rhode Island received $25,000 for "Upscaling participation in WIC: A Pilot Study" led by **ISSAC AGBEMAFLE**, an assistant professor in the Department of Nutrition.

12. The University of Rhode Island received $25,000 for "Development of Liquid Biopsy Assays for the Prediction of TKI Exposure in Cancer Patients" led by **BRAHIM ACHOUR**, an assistant professor in the Department of Biomedical and Pharmaceutical Sciences.

13.The University of Rhode Island received $25,000 for "Removal of catheter- associated biofilms using magnetic nanoparticles" led by **IRENE ANDREU**, assistant professor of chemical engineering.

A panel made up of scientists and physicians helped the Foundation evaluate the proposals. ❖

Adverse social determinants of health linked to treatment-resistant hypertension in Black Americans

BETHESDA, MD – People were more likely to develop a type of treatment-resistant hypertension when they experienced adverse effects of economic and social conditions that influence individual and group differences in health status, known as social determinants of health. Additionally, this risk was higher among Black American adults than White American adults, according to a study funded by the National Institute of Neurological Disorders and Stroke (NINDS), part of the National Institutes of Health.

Factors linked to this increased risk included having less than a high school education; a household income less than $35,000; not seeing a friend or relative in the past month; not having someone to care for them if ill or disabled; lack of health insurance; living in a disadvantaged neighborhood; and living in a state with low public health infrastructure. Apparent treatment-resistant hypertension is defined as the need to take three or more types of anti-high blood pressure medication daily and is associated with an increased risk for stroke, coronary heart disease, heart failure, and all-cause mortality.

Over a period of 9.5 years 24% of Black adults developed the condition compared with 15.9% of white adults. Exposure to adverse social determinants of health increased the risk in both Black and white adults, however, Black adults are more likely to face adverse social determinants of health. According to the researchers, addressing social determinants of health could reduce the racial disparities seen in apparent treatment-resistant hypertension and reduce the increased risk of stroke and heart attack in the Black American population.

For this study, scientists examined data on 2,257 Black and 2,774 white adults, who are part of a larger study(link is external) that includes more than 30,000 Americans, of whom approximately half live in the "Stroke Belt" in the southeastern United States where the rate of stroke mortality is higher compared to the rest of the country.

The NINDS Office of Global Health and Health Disparities is developing strategies to advance health equity at the institute. In August 2023, a supplement of 10 manuscripts were published, including recommendations for addressing SDOH (link is external). Launched in 2016, the NINDS's Mind Your Risks® campaign highlights the link between high blood pressure and dementia, particularly among Black men ages 28–45 and provides strategies for preventing and mitigating the effect of high blood pressure on brain and cardiovascular health.

Article link: Akinyelure OP, et al. "Social determinants of health and incident apparent treatment resistant hypertension among white and Black US adults: the REGARDS study."
JAHA. May 16, 2024. DOI: 10.1161/JAHA.123.031695 (link is external)

RI Medical Reserve Corps' Training, Innovation, & Leadership Institute open new training facility

The RI Medical Reserve Corps' (RI MRC), Training, Innovation, & Leadership Institute (TILI), held the inaugural ceremony and ribbon-cutting of their groundbreaking facility, on May 17th. The 10,000-square-foot facility will house three floors of integrated and technology-driven training and workspaces with each classroom capable of hosting in-person volunteer-led training for MRC members, community partners, and the public. [HHS PHOTOS]

WEST WARWICK – The RI Medical Reserve Corps' (RI MRC), Training, Innovation, & Leadership Institute (TILI), held the inaugural ceremony and ribbon cutting of their groundbreaking facility, dedicated to fostering growth, innovation, and leadership development in Rhode Island on May 17th. The event featured remarks from key stakeholders, VIPS, interactive demonstrations of the facility's features, and opportunities for networking and collaboration.

Rooted in their shared vision and mission, RI MRC and TILI are poised to become beacons of transformative learning and excellence in the community. This initiative has been partially supported by an MRC-STTRONG grant from the Department of Health & Human Services' Administration for Strategic Preparedness and Response (ASPR), totaling $2.2 million. Of this, $1.4 million has been dedicated to the development of the TILI and programs.

ASPR's MRC-STTRONG program awarded $50 million to 33 states and jurisdictions to expand, sustain, and improve the MRC network, focusing on health emergency preparedness, response, and health equity needs.

Situated at 297 Cowesett Ave., West Warwick, the collaborative facility boasts a range of features designed to provide immersive, hands-on learning experiences. Highlights include:

- 270-Degree 4K 4D Laser Projection Theater Classroom/Lab: Experience the future of learning in this state-of-the-art 4D theater, where high-definition visuals and dynamic sensory effects create an immersive educational environment with light effects, wind, touch interactive and scent.
- Wet Lab: Dive into hands-on experimentation and discovery in the fully equipped wet lab, providing learners with the opportunity to get hands on skills in a safe purpose-built space.
- Classrooms with Broadcast and 136″ UHD Touch Displays: Engage with cutting-edge technology in the classrooms, featuring broadcast capabilities and interactive UHD touch displays that facilitate dynamic learning experiences and collaboration among students and instructors.

As part of the National Medical Reserve Corps Network, a Health and Human Services, ASPR program, RI MRC plays a vital role in enhancing emergency preparedness and response training initiatives. Through this partnership with TILI, specialized programs and resources will be offered to equip individuals with the skills and knowledge needed to support public health efforts during emergencies and disasters.

RI MRC's Training, Innovation, & Leadership Institute, our goal is to empower individuals and organizations to realize their full potential and drive positive change in our communities," said **BROOKE A. LAWRENCE**, Executive Director of RI Medical Reserve Corps. "With our innovative facility and transformative programs, we are excited to embark on this journey of learning, growth, and leadership development, throughout Rhode Island."

"I've seen first-hand the positive impact that MRC units across the country have on the health and safety of their communities," said Deputy Assistant Secretary and ASPR Center for Preparedness Director **DEB KRAMER**. "MRC volunteers demonstrate exceptional dedication, selflessness, and expertise that shape the network into an extraordinary force for good. Today we are seeing the results of the millions of dollars invested in the Medical Reserve Corps to strengthen the public health infrastructure in the state of Rhode Island and across New England for public health threats." ❖

W&I Receives Infant CPR Anytime Training Kits from American Heart Association

PROVIDENCE – On May 21, the American Heart Association donated Infant CPR Anytime Training Kits to Women & Infants Hospital's Neonatal Intensive Care Unit (NICU) allowing new parents and families to learn basic lifesaving skills in approximately 20 minutes. The kit is ideal for NICU hospitals, community groups, new parents, grandparents, caregivers, and others.

The kits will be distributed to parents trained in CPR when they leave the hospital.

"Women & Infants Hospital is grateful to the American Heart Association for thinking of our most vulnerable patients and their families and supplying them with lifesaving kits. This is an invaluable gift to our hospital and to NICU families," said **JACK TANNER**, Nurse Director of the NICU and Respiratory Care.

The Infant CPR Anytime Kit is co-branded with the American Academy of Pediatrics. In addition, the Infant CPR Anytime Kit includes the Infant Anytime Interactive app, which provides a comprehensive, self-facilitated training solution in one web-based app that allows users to elevate their CPR and AED training experience through gamification. This includes calling 9-1-1 and performing CPR on an infant.

The kit includes:

- 1 reusable bag for convenient storage
- 1 Mini Baby® CPR personal manikin
- 1 Mini Baby replacement lung
- Instruction insert with QR code and URL to access the Infant CPR Anytime Community

Resource webpage, which includes:

- Infant CPR Anytime bilingual (English and Spanish) streaming videos in full animation

Photo from left to right: **Anne Jeffrey**, Instructor, Health Education, Women & Infants Hospital; **Michelle C. Clark**, Executive Director, American Heart Association; **Jack Tanner**, Nurse Director for the NICU and Respiratory Care, Women & Infants Hospital; **Christine Santerre, RN**, NICU, Women & Infants Hospital; **Michelle Amaral, RN**, Nurse, NICU, Women & Infants Hospital; **Kellis Blanchet, RN**, NICU, Women & Infants Hospital; **Kathie Gouin, RN**, Assistant Nurse Manager, NICU, Women & Infants Hospital; **Albert Whitaker, MA, MPH**, Community Impact Director, American Heart Association; **Lisa Harrington**, Program Coordinator, Health Education, Women & Infants Hospital; **Meaghan Napolitano, RN**, NICU, Women & Infants Hospital; **Ailyn Bohan, RN**, Assistant Nurse Manager, NICU, Women & Infants Hospital.

- Bonus topics: Bonus topics: Infant safety and injury prevention tips with a downloadable checklist (English and Spanish)
- Infant CPR Anytime Interactive app to enhance the training experience; includes a participation badge to share via social media (English and Spanish)
- Online educational reference materials: How to use the kit, skills reminder card, injury prevention checklist (English and Spanish)
- Official Infant CPR Anytime Certificate of Participation (English and Spanish) ❖

RI Delegation Delivers $21M NIH Grant for RI-INBRE

WASHINGTON, DC – U.S. Senators **JACK REED** and **SHELDON WHITEHOUSE** and Congressmen **SETH MAGAZINER** and **GABE AMO** recently announced that Rhode Island researchers and scientists will receive a $21 million federal grant to strengthen the biomedical workforce pipeline and boost the state's ability to carry out and expand innovation in the field of biomedical research.

The Rhode Island IDeA Network of Biomedical Research Excellence (RI-INBRE), which has been funded by the National Institutes of Health (NIH) since 2001 with over $81 million in previous grants, was established to expand statewide research capacity in the biomedical sciences, including research in cancer, neuroscience, and environmental health sciences.

This $21,004,945 federal grant will be deployed at several Ocean State colleges and universities over the next five years to boost research capacity, acquire new equipment, expand workforce development training programs, and assist in recruiting the next generation of biomedical researchers and scientists.

"Renewing this grant for another five years is great news for Rhode Island and great news for our researchers and scientists, who are advancing medical breakthroughs and developing new treatment options that help prevent and treat diseases like diabetes and rare forms of cancers," said Senator Reed, a senior member of the Appropriations Committee, who has been a longtime champion of RI-INBRE. "This federal funding will help usher in new, innovative medical research projects while providing the tools needed to train the next generation of biomedical professionals right here in the Ocean State."

"Rhode Island's public and private institutions of higher education are on the leading edge of biomedical research and innovation," said Senator Whitehouse. "This federal funding will help keep the Ocean State at the forefront and help prepare the next generation of talent for well-paying jobs in the life sciences industry."

The University of Rhode Island partners with Brown University, Rhode Island College, Providence College, Bryant University, Roger Williams University, Salve Regina University and the Community College of Rhode Island in the RI-INBRE program. **DR. BONGSUP CHO**, professor at the URI College of Pharmacy, serves as the program director of RI-INBRE. ❖

Pharmacy workers in Wakefield, Westerly file to unionize with The Pharmacy Guild

WOONSOCKET – The movement to unionize corporate pharmacies continues to gain momentum, as two more groups of pharmacy professionals filed to unionize in Rhode Island, the national headquarters for CVS.

Pharmacy technicians and pharmacy interns at a 24/7 CVS store in Wakefield, RI, have filed to unionize with The Pharmacy Guild (TPG) three and a half weeks after pharmacists at their store filed to join. Pharmacists at another CVS store in Westerly, RI, also filed to unionize with TPG just weeks after pharmacists at a neighboring store in Westerly filed to join the union. The rapid speed of organizing reflects the urgency within the industry – and the solidarity between pharmacists, pharmacy technicians, and pharmacy interns to protect their patients.

"We are proud to join our colleagues in standing up for the improved conditions our patients deserve," said **CHRIS DESROCHERS**, a pharmacy technician at CVS Wakefield active in the recent organizing. "By forming a wall-to-wall pharmacy union, where all pharmacy workers will be covered, we are building a union with the power to bring true change."

The new filings are the fourth and fifth TPG filings in just two months, after the first-in-the-nation victory in March. Pharmacy professionals cite the challenges of securing safe staffing levels at both stores as a major safety issue for patients. With collective bargaining units, workers will be entitled to negotiate with CVS over issues including staffing levels, patient care standards, and other issues critical for patient safety and the future of the profession. ❖

Leapfrog Group releases 2024 hospital safety grades

WASHINGTON, DC – The Leapfrog Group, an independent national nonprofit driving a movement for patient safety, on May 1st released its spring 2024 Hospital Safety Grades, assigning an "A," "B," "C," "D" or "F" to nearly 3,000 general hospitals on how well they prevent medical errors, accidents and infections.

Nationally, patient experience – a set of measures using patient-reported perspectives on hospital care – indicates significant signs of improvement since the fall 2023 Safety Grades, and preventable health care-associated infections show a sustained drop after unprecedented rates during the height of the pandemic.

In addition to assigning letter grades to individual hospitals, The Leapfrog Group also reports best patient safety performance by state (**See Table 1**) and, for the first time, by metro area based on highest percentage of "A" hospitals.

In spring 2024, Utah ranks number one among states for the second cycle in a row. The top three metro areas are Allentown (Pennsylvania), Winston-Salem (North Carolina), and New Orleans (Louisiana).

State and Metro Area Rankings: The top 10 states with the highest percentage of "A" hospitals

Spring 2024		
Rank	State	"A" Hospitals
1	Utah	57.7%
2	Virginia	56.3%
3	New Jersey	44.8%
4	Colorado	44.4%
4	Rhode Island	44.4%
6	Alaska	42.9%
7	Pennsylvania	42.7%
8	North Carolina	42.2%
9	South Carolina	42.0%
10	Maine	41.2%

Patient experience is measured through the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey, which the Centers for Medicare and Medicaid Services (CMS) uses to publicly report patients' perspectives of hospital care. Of the over 30 measures used to generate Hospital Safety Grades, The Leapfrog Group reports on five patient experience measures that have a direct impact on patient safety outcomes:

- Nurse communication
- Doctor communication
- Hospital staff responsiveness
- Communication about medicines
- Discharge information

Since the start of the pandemic, patient experience has worsened. This spring has shown the first sign of improvement with all measures significantly improving since fall 2023, but the measures are still far from pre-pandemic levels.

Since Leapfrog reported Hospital Safety Grades in fall 2022, when HAI rates were at their highest peak since 2016, 92% of hospitals have improved performance on at least one of three dangerous preventable infections. Average HAI scores have declined dramatically:

- Central line-associated bloodstream infections (CLABSI) decreased by 34%
- Catheter-associated urinary tract infections (CAUTI) decreased by 30%
- Methicillin-resistant Staphylococcus aureus (MRSA) decreased by 30%

To look up hospital's Safety Grade: HospitalSafetyGrade.org.

Study finds smartphone app can diagnose severe anemia in real-time

PROVIDENCE – **GREGORY JAY, MD, PhD**, an emergency medicine physician at Rhode Island Hospital and The Miriam Hospital, authored a study that published this month in PLOS ONE, in which doctors were able to successfully diagnose severe anemia simply using photos of patients' inner eyelids uploaded to an iPhone app. **SELIM SUNER, MD**, and **JAMES RAYNER, MD**, also emergency medicine physicians at Lifespan, were co-authors of the study.

Dr. Jay's study focuses on the performance of a smartphone application that captures images of the mucous membrane that lines the eyelids in RAW format. RAW format is the file type of an uncompressed image from a camera.

By relying on the computation of the tissue surface high hue ratio, the app estimates Hb concentration. The study involved obtaining images of bilateral conjunctivae from a convenience sample of 435 Emergency Department patients using a dedicated smartphone. The app was able to sufficiently detect severe anemia accurately and holds promise as a population-sourced screening platform or a non-invasive point-of-care anemia classifier.

The Complete Blood Count (CBC) has been the standard test for diagnosing anemia. But this method requires venipuncture, trained phlebotomists, laboratory technicians, chemical reagents, and dedicated lab equipment. In resource-rich hospitals, obtaining CBC results can take 1–4 hours. Consequently, anemia diagnosis is often limited to regions with adequate healthcare infrastructure. This poses a challenge as anemia is disproportionately prevalent in rural areas lacking these resources.

To address this unmet need, smartphone imaging of the inner eyelids has enabled non-invasive measurement of Hb. While previous studies have shown imprecise results using smartphone apps, the accessibility of smartphones to the general population outweighs this limitation. The ubiquity of cell phones presents a near-term opportunity for universal screening for anemia through telehealth apps.

By harnessing the power of smartphone cameras, healthcare professionals can diagnose anemia in real-time, particularly in underserved areas. This breakthrough has the potential to revolutionize anemia diagnosis and improve healthcare outcomes worldwide. ❖

Appointments

Jerome Larkin, MD, to lead Rhode Island Department of Health

PROVIDENCE–**JEROME M. LARKIN, MD**, was confirmed by the Rhode Island Senate as the next director of the Rhode Island Department of Health (RIDOH) on May 21.

"Dr. Larkin is a proven leader in the medical field and his experience will be a vital asset to our team and to the people of Rhode Island," said Governor **DAN MCKEE**. "Improving health outcomes for all Rhode Islanders is a top priority for our administration and I'm confident that Dr. Larkin will help us reach that goal."

With more than 30 years of experience in the health care field, Dr. Larkin currently serves as the Medical Director of Inpatient Infectious Diseases Consultation Services at Rhode Island Hospital.

"Dr. Larkin has the experience to lead the dedicated team at the Rhode Island Department of Health as we work to address the critical public health needs of our state," said Rhode Island Executive Office of Health and Human Services Secretary **RICHARD CHAREST**. "From health care system planning and addressing the opioid crisis, there are several interagency initiatives in which I look forward to having Dr. Larkin's expertise at the table."

"I look forward to working with Secretary Charest and Governor McKee, as well as the many dedicated and talented staff of the Department of Health in moving health care in Rhode Island forward," said Dr. Larkin.

An associate professor of clinical medicine at the Warren Alpert Medical School of Brown University, he is board-certified in internal medicine and infectious diseases by the American Board of Internal Medicine and in general pediatrics by the American Board of Pediatrics in General Pediatrics.

Dr. Larkin has authored many abstracts, chapters, and works in peer-reviewed journals and publications and has been recognized with multiple awards and honors, including the 2022 Steven M. Opal Award for teaching excellence and the 2015 Beckwith Family Award for Outstanding Teaching, both from the Alpert Medical School.

He received his medical degree from the Robert Wood Johnson Medical School at the University of Medicine and Dentistry of New Jersey and completed his undergraduate degree at Boston College. ❖

Recognition

South County Hospital earns 'A' from Leapfrog Hospital Safety Grade

WAKEFIELD – South County Hospital's efforts to provide high-quality care and ensure patient safety were recognized with an "A" rating from Leapfrog Hospital Safety Grade for the Spring of 2024. This national distinction celebrates South County Hospital's achievements in protecting patients from preventable harm and error in the hospital. This is the tenth "A" rating South County Hospital has received since 2018.

KEVIN CHARPENTIER, MD, VP and Chief Medical Officer at South County Health, said "South County Health is honored to receive this prestigious 'A' grade from Leapfrog Hospital Safety Grades. This recognition serves as validation of our unwavering commitment to ensuring patient safety and prioritizing the highest level of patient care above all else as Rhode Island's Most Trusted Health Partner. It is also a direct reflection of our dedicated staff including the leadership team, providers, clinicians, and volunteers, whose relentless dedication and commitment to excellence have made earning this top grade possible."

Leapfrog Hospital Safety Grades, formerly known as Hospital Safety Scores, serve as a gold standard measure of patient safety. Utilizing up to 30 national performance measures sourced from the Centers for Medicare & Medicaid Services (CMS), the Leapfrog Hospital Survey, and other supplemental data sources, the Leapfrog Hospital Safety Grade evaluates hospitals' overall performance in safeguarding patients against preventable harm and medical errors. The methodology behind this assessment has undergone rigorous peer review and is published in the esteemed Journal of Patient Safety.

Leapfrog's grading system – A, B, C, D, or F – is peer-reviewed, fully transparent, and free to the public. The grades are released twice each year and out of approximately 3,000 hospitals graded, only 29% received an A, underscoring the significance of this recognition for South County Hospital. ❖

Ana Sofia Barber De Brito, MSN, CNM, honored by ACNM

PROVIDENCE – **ANA SOFIA BARBER DE BRITO, MSN, CNM**, nurse midwife at Women & Infants Hospital received the 2024 Media Award from the American College of Nurse-Midwives (ACNM). The award recognizes earned media placement that positively shows midwifery, thereby promoting the midwifery profession. She received this award in recognition of her role in the recent Rhode Island Public Broadcasting Service (RI PBS) series special "The Risk of Giving Birth." ❖

BROWN UNIVERSITY

Rena R. Wing, PhD, awarded Susan Colver Rosenberger Medal of Honor at Brown commencement

PROVIDENCE – **RENA R. WING, PhD**, was awarded the Susan Colver Rosenberger Medal of Honor during the University's 256th Commencement on May 26th. The medal is the highest honor the Brown faculty can bestow, and it has been awarded just 35 times since its establishment in 1919.

Dr. Wing, a professor of psychiatry and human behavior, was recognized for her decades-long dedication to improving human health, as well as for her mentorship to early-career scientists. She launched and directs the Weight Control and Diabetes Research Center, a three-story building near the medical school. More than 50 researchers and staff members, including 14 Brown faculty members (clinical psychologists, dieticians, exercise physiologists and neuroscientists) and two postdoctoral fellows, conduct clinical trials and behavioral, observational and experimental studies.

Wing is being recognized for her decades-long dedication to improving human health, as well as for her mentorship to early-career scientists, said **STEVEN SLOMAN**, chair of the Faculty Executive Committee and a professor of cognitive, linguistic and psychological sciences at Brown, in a press release.

"Rena Wing's pioneering work on the prevention and treatment of obesity, diabetes, vascular disease and even Alzheimer's disease has had a major impact on the health of people in Rhode Island and across the country," Sloman said. "The faculty are proud to bestow upon her the highest honor that they can offer."

For more than 40 years, Wing has conducted research on the prevention and treatment of obesity, and she has published over 600 peer-reviewed research studies. Her scholarship on lifestyle approaches to the control of obesity, diabetes and cardiovascular diseases has had lasting impact on the science of behavioral medicine.

Wing developed the lifestyle intervention used in the Diabetes Prevention Program, for example. That federally funded study changed the worldwide approach to preventing diabetes, finding that changes to diet and increased physical activity reduced the risk of diabetes by 58%.

She was the principal investigator for the Miriam Hospital site of the Look AHEAD (Action for Health in Diabetes) study, and chair of the entire randomized clinical trial of 5,145 people spanning 16 centers across the U.S. The study, which lasted more than two decades, demonstrated that lifestyle interventions reduced the risk of complications from diabetes such as kidney failure, urinary incontinence, depression, frailty and remission. ❖