1917 2018 101

RHODE ISLAND MEDICAL JOURNAL

SYED RIZVI, MD, EMHL
NEUROTHERAPEUTICS
MARCH 2018

CHESTON B. CUNHA, MD, FACP
ANTIMICROBIAL STEWARDSHIP
JUNE 2018

ROBERT B. HACKEY, PhD
PAs
AUGUST 2018

ROXANNE VREES, MD
OB/GYN
OCTOBER 2018

CAROL T. LEWIS, MD
PCMH–KIDS
DECEMBER 2018

PATRICIA FLANAGAN, MD
PCMH–KIDS
DECEMBER 2018

RIMJ Guest Editors of 2018

See page 15

DECEMBER 2018 VOLUME 101 • NUMBER 10 ISSN 2327-2228

STAY FOCUSED AMONG THE DISTRACTIONS.

Minimize the things that get in the way of why you're in healthcare to begin with. A focus on reducing lawsuits is just one way we do this.

MEDICAL PROFESSIONAL LIABILITY INSURANCE • ANALYTICS • RISK MANAGEMENT • EDUCATION

COVERYS®

Insurance products issued by:
ProSelect Insurance Company®

RHODE ISLAND
MEDICAL JOURNAL


P Flanagan, MD


C. Lewis, MD

RHODE ISLAND
MEDICAL JOURNAL

RHODE ISLAND
MEDICAL JOURNAL

IN THE NEWS

PEOPLE/PLACES

DECEMBER 2018
VOLUME 101 • NUMBER 10

RHODE ISLAND MEDICAL JOURNAL

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. All rights reserved. ISSN 2327-2228. Published articles represent opinions of the authors and do not necessarily reflect the official policy of the Rhode Island Medical Society, unless clearly specified. Advertisements do not imply sponsorship or endorsement by the Rhode Island Medical Society.

CONTRIBUTIONS

CASE REPORT

PUBLIC HEALTH

Your records are secure.

Until they're not.

Data theft can happen to anyone, anytime. A misplaced mobile device can compromise your personal or patient records. RIMS IBC can get you the cyber liability insurance you need to protect yourself and your patients. Call us.

401-272-1050

RIMS IBC

IN COOPERATION WITH

BMI BUTLER & MESSIER, INC. INSURANCE

RIMS INSURANCE BROKERAGE CORPORATION 405 PROMENADE STREET, SUITE B, PROVIDENCE RI 02908-4811

MEDICALPROFESSIONAL/CYBER LIABILITY PROPERTY/CASUALTY LIFE/HEALTH/DISABILITY

'Goodbye, and thanks…'

JOSEPH H. FRIEDMAN, MD
joseph_friedman@brown.edu

Two eminent professional friends who recently retired from their positions as co-editors-in-chief of a neurology journal used the famous quote from the Douglas Adams' book, *The Hitchhiker's Guide to the Galaxy*, "Goodbye, and thanks for all the fish." For those of us who liked that book, it was a fitting final note to the readers, a non-sequitur suggesting that retaining a sense of humor was a bedrock principle for their work. As editor of a journal with a less ambitious purpose than my friends' journal, I am always aware of our mission, not, as with most international journals, to increase its impact factor, but rather to encourage the Rhode Island medical community to maintain and expand its sense of identity.

I am hugely pleased by the two editors who have taken over the reins of the *Rhode Island Medical Journal* (RIMJ). Unfortunately, they face the same existential crisis I did when I started – will the journal survive? Twenty years ago I was told that the journal was on life support, that the size of the issues needed to be curtailed and that advertising revenue had to increase, since the journal was subsidized by the Rhode Island Medical Society (RIMS) and advertising. The RIMS considered the journal an extremely important communication and the elected officers and administration have been extremely dedicated to keeping the journal alive, but financial constraints were fixed. I guess that surviving 20 years is one measure of success but the continued rocky financial road also underscores another metric, which suggests the opposite.

If I had known how to make the journal pay for itself, I would certainly have done it. I think our best hope now is the new journal leadership, both physicians with more extensive ties to the medical community and the medical school than I had, and new and better ideas for increasing interest in and support for the journal.

When the journal was still a print publication, it was distributed, free of charge, subsidized by the RIMS, to all Brown medical students. I wrote a column describing the peculiar feeling a writer, ie, me, gets when publishing something and getting no feedback. Zero. I noted that although I had lectured to medical students for many years, that none had ever come up to me after a lecture and asked, "Are you the guy who writes that monthly column in the medical journal?" About six months later, a student told me that he had read that column and was now going to ask that question. It made a difference to me, although, to be honest, not a large one. Over the years I've had occasional feedback, although never again by a student. Rhode Island readers are considerate, and none have criticized me, except for one group of physicians who I had criticized, minimally, in making a point, unrelated to them, but unknowingly picking a wound. We got over that nicely, though. The RIMJ actually has a large readership, with more than 75,000 page views and 25,000 readers per year.

Writing and reading medical articles are useful endeavors. I think it takes many tries before a writer feels secure in truly believing that the less written the better. I learned that lesson the first time while still a student, trying to meet my attending and residents' expectations by including all the data on my patients as possible. I cared for a pediatric patient. Unfortunately for him, but also for me, he was a hyperactive boy with hemophilia before there was treatment for that, other than a clotting agent. I summarized his 27 or so admissions and thought I'd done an admirable job until the heme fellow pointed out that I should understand before I did this again, that no one would ever read my note because it was too long. That was more than 40 years ago. The next time I learned this was from my chair, the editor of *Neurology*, who reviewed a case report I submitted when a student and asked me to answer several queries while also paring the manuscript by several hundred words.

Two lessons learned that have stood me in good stead both for writing and for editing. Less is almost always better. WH Auden famously noted that writers should always type, as they like their handwriting as much as they like the smell of their flatus.

Why is writing for the journal useful? We print most submissions, not all, but enough so that most articles are published. We try to make an unpublishable manuscript publishable because I think that one publication begets another, developing into an abiding interest in discovering and reporting new things. I think that questions leading to research makes medical life more interesting, and interest spurs creative thinking which leads to better care.

The journal is also important for our community. Now that primary care doctors rarely go to the hospitals to see their patients there is less of a sense of belonging than there used to be. Not all doctors in our state trained here, which means they may rarely attend any meetings at a particular hospital and never get to meet and interact with their colleagues. The journal, at least, allows them to learn what tests, interventions, and expertise, in general, are available, not assuming that "new and better" means "Boston."

Our new editors have worked in RI a long time and have superb credentials. I am confident they will bring the journal to the next level while keeping the focus.

And, by the way, thanks for all the fish. ❖

Author

Joseph H. Friedman, MD, is Editor-in-chief of the *Rhode Island Medical Journal,* Professor and the Chief of the Division of Movement Disorders, Department of Neurology at the Alpert Medical School of Brown University, chief of Butler Hospital's Movement Disorders Program and first recipient of the Stanley Aronson Chair in Neurodegenerative Disorders.

Disclosures on website

Insurance News that's Beneficial for Medical Professionals

Medical professionals now save on their business and personal insurance through the Rhode Island Medical Society's exclusive partnership with Butler & Messier.

Contact Robert A. Anderson, AAI at 401.272.1050 – randerson@rimsibc.com

BMI BUTLER & MESSIER, INC. INSURANCE

RIMS IBC

EXCLUSIVE INSURANCE PARTNERS

Home & Autos | Boats | Umbrella Liability | Flood | Business Insurance

1401 Newport Avenue, Pawtucket | 1085 Park Avenue, Cranston
405 Promenade Street, Suite B, Providence

butlerandmessier.com

'To write in a thoughtful manner…'

A personal tribute to Dr. Joseph H. Friedman

NEWELL E. WARDE, PhD
EXECUTIVE DIRECTOR, RHODE ISLAND MEDICAL SOCIETY

A FAVORITE FANTASY of mine imagines having all the editors-in-chief of the *Rhode Island Medical Journal* (RIMJ) for the past 100 years to dinner at the Brown University Faculty Club. We would easily fit around one table, since there have only been eight of them, and I imagine the conversation would be most entertaining. Five of them would be strangers to me, but the most recent three are old friends, and collectively those three alone have piloted the *Journal* for a remarkable 60 years.

Two years ago, when Joe Friedman informed me that he planned to lay down his pen after RIMJ's December 2018 issue, he remarked, "That will make 20 years, a nice, round number." I thanked him for the early notice and for his "splendid, selfless, worthy work." I added, "Alternatively, you could go for the record: Seebert [Goldowsky] did it for 30 years."

Joe's response: "Those were the days of the giants."

I love that insider trope of the "giants" among medical people, with its play on *Genesis 6:4*. It reflects the fact that no other profession brings forth so many staggeringly magnificent, achingly admirable, astonishingly accomplished exemplars of humanity's capacity for virtue. In my 30 years with the Rhode Island Medical Society (RIMS), I dare say I myself have had the great privilege of knowing a giant or two personally. It's an experience that opens your eyes to the human potential for transcendent brilliance and deeply humane goodness and helps balance the evidence that bombards us daily of our species' capacity for stupidity and depravity.

Joe himself captured the ironies of the medical giants for all time with his characteristically puckish humor: "We all trained in the days of the 'giants.' Though there were few living giants when I was in training, all my mentors trained in the days of the giants. There used to be giants, but they all died out just before you started your training, whenever that was."

Here and elsewhere in his entertaining and provocative monthly commentaries, Joe is speaking to his medical colleagues, and I, as a layperson, am fascinated to eavesdrop on this candid monologue, with its often confessional tone and its recurrent expressions of self-doubt, self-questioning, and self-criticism. "I hopefully know more than I used to. I've developed gray hair and wrinkles, a reputation as another 'graybeard.' I should be more confident, more skilled, perhaps even less sensitive as I am meeting my three thousandth patient with Parkinson's disease." "Would I be a better doctor if…?" "I am not so clean." "I wonder what it means when…" "I constantly berate myself for not knowing more scientific and clinical facts and principles…"

The words "I don't know…" occur frequently in Joe's essays, as do questions and ambiguities. "How does a doctor display humility, or should one?" "What do I say when asked 'What happens next? When will I need a wheelchair? Will I lose my memory? Will I be able to work until my daughter graduates college?' Of course, I don't know the answer to these questions. And, of course, my patients don't think I really do know. But they sort of think I do. And I sort of do."

In musing about sun sneezes and evolution: "Perhaps future scientists may answer these questions. Perhaps not. The answer may not matter. I am content to think about the questions, an endeavor which is always useful."

The thought recurs to me that reading and re-reading Joe 's commentaries can be an antidote for physicians and physicians-in-training who are universally nagged at one time or another by doubts about their own adequacy and who live with secret, unfounded fears of being exposed as an "impostor." Here is a "graybeard" and an authentic giant confessing to his own anxieties and self-doubts.

Here and there Joe also confesses his inward irritation with patients and their family members who waste their

time with him, and with colleagues who waste words and engage in puffery, including "the rat doctors," whose laboratory brilliance translates poorly into clinical usefulness.

As a layperson and as a patient, I appreciate Joe's thoughtful parsing of terms like "chief complaint," "refused," and other staples of the clinical vocabulary that should be used mindfully. Is the patient a complainer? Did the patient "refuse" the test or "decline" it? "Expressions that are value-free to the doctor may not be to the patient." I well remember my own extended conversation with the gentleman who called RIMS to complain that his doctor had been rude in describing him as "obese." Memorable for me too is Joe's "contention that the phrase 'brain dead' should be removed from the medical lexicon, because it introduces a sense of doubt, that 'brain dead' is different than 'dead,' that one might be 'brain dead' today and 'really dead' tomorrow."

Once in a while Joe offers direct advice to his colleagues: "Remember when you write a note that it's permanent and unchangeable and available to your patient. Think of how you'd like to be described by your own doctors."

And once a year Joe lets his delicious sense of irony run rampant and writes an April Fool column. The first of these appeared in April 2000 in the form of a scholarly paper on "Cognitive Sinks: The Black Holes of Neuropsychology," complete with references. A cognitive sink, we learn, is an individual who drains the intelligence of others through social interaction with them. It turns out that some populations are more strongly affected by the presence of a cognitive sink than others. For example, the presence of a hospital administrator will have a powerful sinking effect on medical personnel while having little impact on other hospital administrators.

As Executive Director of the Medical Society, I have appreciated the fact that Joe was always exceedingly low maintenance. He has put up with penury, never complained, and never asked for anything. ("Complaints? I don't have any. My admiration for my courageous patients increases my dedication.") His emails are models of economy. When I let go his long-time managing editor and hired the new team that engineered RIMJ's cold-turkey transition from print to electronic-only in 2013, he was calmly OK with all that disruption.

Joe's aversion to meetings is legendary. In the entire 20 years of his tenure as editor-in-chief, he called exactly one meeting of the Publications Committee, and that reluctantly. It was a short one.

(I have no reason to believe it was Joe, but maybe it could have been, who walked into a committee meeting at The Miriam years ago and, upon being hailed for completing the quorum, turned around and walked back out.)

Joe worked hard as editor-in-chief. His emails reveal that he is editing submissions at midnight, holidays, weekends. All of this, of course, totally unremunerated by the Medical Society or anyone else.

Above all, for me, there will always be the indelible image of Joe wielding his metal shoehorn as he helps his patients get their socks and shoes back on after testing their Babinski reflex; it's a powerful tableau of humility, but Joe deflates any such hagiographics in advance by pointing out that it's a time-saver in the office; "plus," he adds, "one can't have a serious conversation with a patient who is not fully dressed." (The horn is made of sturdy metal because breaking a plastic or wooden one would embarrass the patient.)

As one gesture of recognition and gratitude for Joe's 20 years of outstanding service as editor-in-chief, the Board of Directors of the Medical Society recently voted to establish the **Joseph H. Friedman, MD, Editorial Award for Excellence**. This award will be given annually in recognition of distinguished editing, writing, or research published in RIMJ. One hopes that this new award will help in some small way to address a concern that Joe expressed this way:

"It is an unfortunate aspect of our current medical predicament that we frequently lack the time to sit and think and then to write in a thoughtful manner. I worry that that time will never come back. It did exist though, back in the days of the giants." ❖

'A Goodbye Joe…'

MARY KORR
RIMJ MANAGING EDITOR

With this issue, Dr. Joseph H. Friedman, editor-in-chief of the *Rhode Island Medical Journal* (RIMJ) for 20 years, passes the virtual editorial "pen" to Drs. Ed Feller and Bill Binder.

During the six years that I have been working with Joe, one of my roles has been to edit his commentaries. "You will enjoy working with Joe," the late Stan Aronson told me. He had originally recruited Joe to succeed him as editor-in-chief. "But as for his sense of humor, well, you'll see…"

His humor in all its nuances, as it turned out, is one of the reasons I enjoyed editing Joe's commentaries, or reading his cryptic notes to contributors on how to revise their submissions. I took to writing down titles, phrases or words that I liked, or found amusing, from Joe's work.

THE HEADLINES

Altruism and My Nine Gallons of Blood

When the Doctor is Crazier than the Patient

The Not-So-Near Death of Autopsies in the U.S.

No Autopsy, He's Suffered Enough

Really Dead

The Woman Who Could Spell Backwards

THE LEADS

I also liked many of his leads, which, in journalistic parlance, is the opening sentence or two meant to hook the reader, such as:

> Like the children in Lake Wobegon, all doctors think, I believe, that they are above average. Or, at least average. Yet we are not.

> It is never a good idea for a doctor to get angry with a patient or family.

> " 'That other doctor diagnosed me in 30 seconds. All he did was ask me to stand up and walk. I took three steps and he said, 'You have Parkinson's disease.' "

> "It's complicated," he said.

> "No, it's not," I thought, straining every neural circuit to keep from saying this aloud.

> You can't win a race if you can't find the starting line. Yet that is exactly where we are in the development of drugs to slow down Parkinson's disease (PD).

His signature April Fool's commentaries were faux science par excellence.

> **Voting Aliens, Donald Trump and Me**
>
> I was surprised to learn that a very old study of mine had been cited by President Trump. He used it to support his belief that he had received more votes than Hillary Clinton, and that her seeming majority of the vote count was due to the millions of illegal aliens who voted.
>
> My study, published only in abstract form, was a retrospective examination of alien abductions in southern California as a distinguishing history between people who voted for George HW Bush and Bill Clinton in 1992. (*J Irreproduc Res*. 1993; 13:354-8).

> **Parkinson, Shaking Palsy, ms#1817- 010038. Reviewer comments**
>
> Dear Mr. Parkinson:
>
> I regret having to inform you that your paper: The Shaking Palsy, did not get through our extremely competitive and fastidious review process. We have limited space and have had to limit our acceptance rate, now taking only the best 75% of submitted manuscripts. This is a high hurdle to overcome, given the large number of manuscripts that we receive. We do hope you'll find success in submitting your efforts elsewhere, although you may consider publishing this yourself as a monograph, given its length and narrow focus.

THE LITERARY LINKS

At times, Joe cited literary or scientific luminaries to make a point, which made me think about this or that author whom I hadn't read since college, and adding them to my book list.

> "In Tolstoy's *The Death of Ivan Ilyich,* one of the great novellas of all time, the illness afflicting the main character is never specified. It's not important. His increasing disability and his impending death are the important issues."

> "Oliver Sacks, MD, a trained, albeit non-practicing neurologist…accurately describes what patients look like to others, how they see themselves, and often how they think they appear to others (e.g.: *The Man Who Mistook His Wife For a Hat*). In this he is unsurpassed."

THE LAST WORD

Then there's Joe's endings; some of my favorites are the one-liners; these sound easy to write, but aren't.

> My 65-year-old patient never returned.

> If you want a smarter brain, choose smarter parents.

> How do you fix a life?

> Who knows what we look like to our patients, staff, colleagues or students? Gazing at ourselves in the mirror isn't enough. After all, look what happened to Narcissus.

Finally, from this month's commentary:

> And, by the way, thanks for all the fish.

Speaking of fish, actually shellfish in this instance, I will end my farewell here, with lyrics from *Jambalaya* (Hank Williams):

> *A goodbye Joe, you gotta go, me oh my oh…*
> *He gotta go – pole the pirogue down the bayou…*
> *Son of a gun, hope you'll have big fun on the bayou.*

It has been my honor to work with you. ❖

Feel great about the success your practice.

Consult with our healthcare financing specialists.

At Webster our healthcare financing specialists are always on call to help you stay competitive in our changing healthcare environment. Whether you need to invest in new technologies, expand services, or even merge with another practice, they can customize the financing solution you need to keep your practice successful.

Contact us for a free consultation today

Jordan Arovas, 203.782.4656 | jarovas@websterbank.com

Webster Bank is the affinity banking partner for the members of

RHODE ISLAND MEDICAL SOCIETY

WebsterBank®

All credit products are subject to the normal credit approval process. Some applications may require further consideration and/or supplemental information. Certain terms and conditions may apply. SBA guaranteed products may also be subject to additional terms, conditions and fees. All loans/lines of credit require a Webster business checking account which must be opened prior to loan closing and which must be used for auto-deduct of payment.

Thanks to RIMJ's Guest Editors of 2018

As the *Rhode Island Medical Journal* (RIMJ) ends its 101st year in publication, we would like to thank the Journal's guest editors of 2018. RIMJ's mission, to report on innovations, initiatives and advances in medicine and healthcare in Rhode Island, could not be accomplished without the commitment and hard work of its guest editors and contributors throughout the year.

These sections and past issues of the *Rhode Island Medical Journal* can be viewed in our archives at www.rimed.org/rimedicaljournal-archives.asp.

NEUROTHERAPEUTICS: RECENT DEVELOPMENTS
March 2018
SYED RIZVI, MD, EMHL
Guest Editor

Moving Towards a Cure for MS: Increased Immunosuppression and Striving for No Evidence of Disease Activity (NEDA)
BRIAN WONG, MD; JONATHAN CAHILL, MD; SYED RIZVI MD

Updates in Stroke Treatment
BRIAN MAC GRORY, MBBCH, BAO; SHADI YAGHI, MD

Parkinson's Disease: A Quick Update
ANELYSSA D'ABREU, MD

Fighting Fire with Fire: Surgical Options for Patients with Drug-Resistant Epilepsy
ALINA D. BAYER, MD; ANDREW S. BLUM, MD, PhD; WAEL F. ASSAD MD, PHD; JULIE ROTH, MD; STEVEN A. TOMS, MD; GINA M. DECK, MD

PHYSICIAN ASSISTANTS (PAs)
August 2018
ROBERT B. HACKEY, PhD
Guest Editor

Introduction: Four Decades of PAs in Rhode Island
ROBERT B. HACKEY, PHD

Creating Rhode Island's First PA Program
GEORGE BOTTOMLEY, DVM, PA-C

Becoming a PA: Reflections from Johnson & Wales University Students
ARIANA AFRICO, BS; ALYSSE PAZIENZA, BS; MATTHEW J. DACOSTA, BA; KAYLA DENIS, BS

PAs: From Training to Practice
ASHLEY A. HUGHES, MSPAS, PA-C

ANTIMICROBIAL STEWARDSHIP
June 2018/Double issue
CHESTON B. CUNHA, MD, FACP
Guest Editor

Antibiotic Stewardship Programs (ASP): Perspective on Problems and Potential
CHESTON B. CUNHA, MD, FACP

Overview of Antimicrobial Stewardship Activities in Rhode Island
DANIELA N. QUILLIAM, MPH; KERRY L. LAPLANTE, PharmD, FCCP; REBECCA REECE, MD; UTPALA BANDY, MD, MPH; NICOLE ALEXANDER-SCOTT, MD, MPH

Role of the Pharmacist in Antimicrobial Stewardship
RACHEL FORTIN, PharmD, BCPS

Antimicrobial Stewardship Metrics: Prospective Audit with Intervention and Feedback
MONICA J. DOROBISZ, PharmD; DIANE M. PARENTE, PharmD

Antibiotic Therapy: IV-to-PO Switch
CHESTON B. CUNHA, MD, FACP

Infection Control and Antimicrobial Stewardship
JOHN R. LONKS, MD

Antimicrobial Stewardship in Community Hospitals
FRANCINE TOUZARD ROMO, MD

Antimicrobial Stewardship in Long-Term Care Facilities
REBECCA REECE, MD; PATRICIA CHACE, MD, CMD; STACEY RANUCCI, RPH, CGP, CDE

Communicating with Facility Leadership; Metrics for Successful Antimicrobial Stewardship Programs (ASP) in Acute Care and Long-Term Care Facilities
MAYA BEGANOVIC, PharmD, MPH; KERRY L. LAPLANTE, PharmD, FCCP, FIDS

OB/GYN

October 2018

ROXANNE VREES, MD

Guest Editor

The Obstetrician/Gynecologist (OB/GYN): Revisiting the Past, Exploring the Present and Preparing for the Future
ROXANNE VREES, MD

Prison: Pipeline to Women's Preventative Health
LUWAM GHIDEI, MD; SEBASTIAN Z. RAMOS, MD; E. CHRISTINE BROUSSEAU, MD, MPH; JENNIFER G. CLARKE, MD, MPH

Perspective: Current Threats to Contraceptive Access
LEANNE FREE, MD; KATHLEEN COHEN, MD; REBECCA H. ALLEN, MD, MPH

The Fourth Trimester of Pregnancy: Committing to Maternal Health and Well-Being Postpartum
BRIDGET SPELKE, MD; ERIKA WERNER, MD, MS

On the Future of Maternal Mortality Review in Rhode Island
BRIDGET SPELKE, MD; SEBASTIAN RAMOS, MD; HOPE YU, MD; MICHAEL COHEN, MD; TANYA L. BOOKER, MD

A Melting Pot of Medical Education: Challenges, Solutions, Opportunities for Improving Trainee Feedback, Education in the Emergency Room
DAYNA BURRELL, MD; MERIMA RUHOTINA, MD

PCMH-KIDS

December 2018

PATRICIA FLANAGAN, MD, FAAP

CAROL LEWIS, MD, FAAP

Guest Editors

Patient-Centered Medical Home – Kids (PCMH-Kids): Creating a Statewide Pediatric Care Transformation Initiative
PATRICIA FLANAGAN, MD, FAAP; CAROL LEWIS, MD, FAAP

A Statewide Pediatric Care Transformation Journey
PATRICIA FLANAGAN, MD, FAAP; ELIZABETH LANGE, MD, FAAP

Helping Ambulatory Practices Succeed: Reflections from Practice Transformation Facilitators
PUTNEY PYLES, BSN, RN, PCMH CCE; KIMBERLY PELLAND, MPH; VICKI CROWNINGSHIELD, MPH, PCMH CCE; BRENDA JENKINS, RN, PCMH CCE; LAUREN CAPIZZO, MBA, PCMH CCE

Transformation: Patient-Centered Medical Home-Kids in a Predominantly Medicaid Teaching Site
CAROL LEWIS, MD, FAAP; ALISON RIESE, MD, FAAP; GAIL DAVIS, RN; CHANDAN LAKHIANI, MD, FAAP; ALLISON BRINDLE, MD, FAAP; PATRICIA FLANAGAN, MD, FAAP

Pediatric Primary Care and Integrated Behavioral Health
ALLISON HEINLY, MD; ELIZABETH BOGUS, LCSW; NATALIA GOLOVA, MD; JENNIFER FRIEDMAN MD; ALCINA NICKSON, RN; CAROL LEWIS, MD

Patient-Centered Medical Home-Kids (PCMH-Kids): A Conversation with Anchor Pediatrics
JUDITH B. WESTRICK, MD

Favorite Healthcare Staffing

One Call Does It All!
401-354-7115

Rhode Island's Medical Staffing Experts!

As a Valued Sponsor of the Rhode Island Medical Society, Favorite Healthcare Staffing provides a comprehensive range of staffing services at preferred pricing to RIMS members.

Serving the Rhode Island healthcare community since 1981, Favorite continues to set the standard for quality, service, and integrity in medical staffing. Call today and let us show you why we are The Favorite Choice of Physician Practices and Healthcare Professionals across the US!

Winter Special

10% off any Permanent Placement fee

Offer valid through January 31, 2019

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

Quality Staffing, Exceptional Results!

Phone: 401.354.7115
Email: MedicalStaffing@FavoriteStaffing.com

Joint Commission Health Care Staffing Services Certification

AA / EOE / M / F / V / D

We are read everywhere

RIMJ reaches a worldwide audience. In 2018 so far, readers viewed **27,000** pages of the Journal from **127 countries**; the top 20 readership locales were:

1. US
2. Australia
3. UK
4. Canada
5. India
6. Spain
7. Italy
8. Brazil
9. India
10. China
11. Japan
12. Mexico
13. France
14. Sweden
15. Netherlands
16. Belgium
17. Austria
18. Portugal
19. Colombia
20. Hong Kong

ST. PETERSBURG, RUSSIA
Rita Williams-Bogar, MBA, CPCU, ChFC, President & CEO of Personal Development Solutions, LLC, in Montclair, NJ, discovered she could download the *Rhode Island Medical Journal* from the gardens of the Peterhof Palace.

Wherever you may be, or wherever your travels take you, check the Journal on your mobile device, and send us a photo: **mkorr@rimed.org**.

Patient-Centered Medical Home – Kids (PCMH-Kids): Creating a Statewide Pediatric Care Transformation Initiative

PATRICIA FLANAGAN, MD, FAAP
CAROL LEWIS, MD, FAAP
GUEST EDITORS

Children's health provides the foundation for lifelong physical and mental health, wellness, and prevention of chronic disease in adulthood. Building a strong foundation for the community's health is an investment. Because the consequences of poor health in childhood are most often only manifest in adulthood, it becomes easy to overlook the opportunities inherent in a strong primary care system for children.

Parents, grandparents and other caregivers play a critical role in fostering the health of their children. Likewise, the health of families raising children depends on community and state systems to be healthy – home visiting, child welfare, early intervention programs, preschools and schools, for example. Creating a program to help transform pediatric care to better address these needs and to function in an environment driven by value-based payment has been an exciting challenge.

This issue of the *Rhode Island Medical Journal* (RIMJ) chronicles the development and implementation of a statewide initiative, Patient-Centered Medical Homes for Kids (PCMH-Kids), which now impacts the health care of nearly 100,000, or half of the children living in Rhode Island.

CONTRIBUTIONS

In the first article, **DRS. PATRICIA FLANAGAN** and **ELIZABETH LANGE** describe the development of this statewide initiative and the experience and results of the aggregated practices in cohorts 1 and 2.

The second article by **PUTNEY PYLES, BSN**, and colleagues at Healthcentric Advisors provides an overview of the role of the pediatric practice coaches in facilitating transformation and reflects on the work they led in PCMH-Kids. Strong pediatric-focused facilitation was a critical element of successful transformation.

Article 3 by **DR. CAROL LEWIS** and colleagues describes the transformation of a large, low-income, pediatric teaching practice. The education setting provides both challenges and opportunities, as does the complexity of a primary care clinic in a large urban hospital and a predominantly Medicaid-insured population. Integration of behavioral health (BH) into pediatric primary care was a key focus of PCMH-Kids. BH needs in children present as pre-clinical or subclinical findings, and presents emerging social-emotional challenges for children and parents. Embedding BH supports into each practice was transformational. Integrated Behavioral Health is described by **DR. ALLISON HEINLY**, **ELIZABETH BOGUS, LCSW**, et al in article 4.

Finally, article 5 is a conversation with **DR. JUDITH WESTRICK** and colleagues, providing a window into the PCMH-Kids experience in a private practice pediatric setting.

Acknowledgments

We would like to acknowledge and thank the 20 practices that have joined in this hard but gratifying work. We are also grateful to the unique collaborative nature of Rhode Island's third-party payers (Blue Cross and Blue Shield, United Health, Neighborhood Health Plan of RI, and Tufts Healthcare) and state agencies (Medicaid and The Office of the Health Insurance Commissioner) and primary care practices caring for children for their willingness to embark on this journey.

We also acknowledge the support of the RI Chapter of the American Academy of Pediatrics, The Rhode Island Foundation, and The State Innovative Model (SIM) project. Many thanks also to The RI Care Transformation Collaborative, which took our fledgling program under their strong umbrella. We thank Debra Hurvitz, Dr. Pano Yeracaris, Susanne Campbell and Carolyn Karner for their hard work.

Guest Editors

Patricia Flanagan, MD, FAAP, Professor and Vice Chair of Pediatrics, Alpert Medical School of Brown University; Chief of Clinical Affairs at Hasbro Children's Hospital.

Carol Lewis, MD, FAAP, Medical Director, Hasbro Children's Hospital Primary Care; Director, Refugee Health Program; Professor of Pediatrics, Clinician Educator, Alpert Medical School of Brown University

A Statewide Pediatric Care Transformation Journey

PATRICIA FLANAGAN, MD, FAAP; ELIZABETH LANGE, MD, FAAP

KEYWORDS: pediatric medical home, pediatric learning collaborative, pediatric quality-based payment

INTRODUCTION

United States (US) healthcare payment and delivery reform are rapidly changing the practice of primary care medicine. Population health, quality performance metrics and care coordination accountability can improve health (1) but adult models for care transformation do not fit the needs of children, families and pediatric practices. (2) We developed a process to create a pediatric-relevant care transformation project in Rhode Island. Patient-Centered Medical Homes for Kids (PCMH-Kids) is a multi-practice, multi-payer initiative through which practices share a common contract with all the payers. The contract supports transformation through technical support, collaborative learning and per-member, per-month payments to practices. Since 2015, the PCMH-Kids Initiative has involved a total of 20 pediatric practices in two enrollment cohorts, with one more expansion phase planned for 2019. These 20 pediatric practices include 120 providers and 85 pediatric residents, covering nearly 100,000 lives (about half the children in the state).

The vision of the PCMH-Kids Initiative and its many committed child- and family-focused stakeholders is that all the state's children and youth will grow up healthy and reach their optimal potential. The mission of PCMH-Kids was to engage providers, payers, patients, parents, purchasers and policy makers to develop high quality family and patient-centered medical homes for children and youth that will assure optimal health and development, be committed to quality measurement, accountable for costs and outcomes, focused on population health, and dedicated to data-driven system improvement.

BACKGROUND

Rhode Island is a leader in using multi-practice all-payer contracts for supporting care transformation. The Chronic Care Sustainability Initiative (now The Care Transformation Collaborative or CTC-RI) began in 2008 with five adult practices. (3) By 2015, CTC-RI included 73 adult practices. This adult model of transformation is driven by more effective chronic disease management and fueled by cost savings from decreasing the need for higher levels of care. No pediatric practices were included in the CTC-RI model as the anticipated return on investment for pediatrics was small and children do not fit the adult chronic care medical models. After provider-led advocacy, PCMH-Kids was chartered in 2013 by the Office of the Health Insurance Commissioner (OHIC) and the Executive Office of Health and Human Services (EOHHS) to help pediatric practices garner support for transformation, family-centered care coordination, meaningful performance metrics and value-based payment. In 2015, the PCMH-Kids Initiative came under the auspices of CTC-RI. CTC-RI has provided logistical support, data aggregation and analysis, and convening and collaboration support through grants from the Rhode Island Foundation and the RI State Innovation Model (SIM).

PROCESS AND TIMELINE

Beginning in February 2013, a small steering committee laid the groundwork for the project. The PCMH-Kids stakeholder group gathered in September 2013 and met monthly until June 2015. Convened by RI Medicaid and the RI Office of the Health Insurance Commissioner, the stakeholders included pediatricians, family doctors, payers, child-serving community organizations, the Rhode Island Dept. of Health (RIDOH), the Rhode Island Dept. of Children, Youth and Families (RIDCYF), parent and patient voices and child health advocates from across the state. This richly talented and dedicated group developed PCMH-Kids Guiding Principles, Mission and Vision Statements as well as identified specific areas of need for ideal pediatric care – integrated pediatric behavioral health, pediatric care coordination that included social worker and family-focused support. From the stakeholder members, two committees were formed – the Quality Measures Committee and the Practice Selection committee. The Quality Measures Committee researched local and national standard practice and process measures, ultimately choosing measures for the PCMH-Kids Initiative based on statewide measure alignment and meaningfulness for child health improvement. Three measures were chosen: Healthy Weight and Activity Monitoring; Counseling, Developmental Screening, and Emergency Department Utilization. Additionally, family experience was tracked annually.

The Selection Committee created a pediatric practice-specific application, cultivated interested practices, reviewed applications and finally chose 9 pilot pediatric practices for the first PCMH-Kids cohort. By design, the pilot practices represented a diverse payer mix, with a specific focus on Medicaid-serving practices and a diversity of experience with National Committee for Quality Assurance (NCQA) recognition. Ultimately, the 9 pilot practices served 48,480 children (24.8% of RI's children), 48% of whom were insured by Medicaid. All 9 PCMH-Kids practices signed a 3-year common contract with our state's four commercial and two managed Medicaid insurers. In year one of the contract, practices received a per-member per-month payment to fund practice transformation (work flow changes, quality and data management) and care coordination (nurse, parent consultant or social worker.) In years two and three, a portion of the payment was withheld, to be earned by attaining benchmarked quality metrics. The PCMH-Kids pilot practice cohort started their three-year common contract program on January 1, 2016.

TRANSFORMATION

Each participating practice was paired with a transformation coach who assessed the practice and, with the office team, crafted a work plan to facilitate practice transformation. Plans included clarification of roles/job descriptions, team building, data capturing and reporting systems, behavioral health integration plans and care coordination needs and capabilities. All practices reported their quality metrics quarterly, uploading their data to a shared data repository. Additionally, all practices participated in collaborative learning, sharing best practices and lessons learned in quarterly meetings for care coordination, data reporting, integrated behavioral health and practice transformation.

CARE COORDINATION

One of the most exciting, innovative and rewarding aspects of the PCMH-Kids Initiative involved care coordination. Early in the program-design work of the stakeholders group, we had robust discussions about care coordination in pediatrics. The group felt strongly that the adult model of a nurse care manager who focused on specific disease entities such as hypertension or diabetes was not as helpful to pediatrics. We recognized that many of the care coordination needs were connecting with parenting supports, schools, with DCYF, and with mental health providers. While most practices used some of their care coordination resources to hire nurse care managers, most invested in social workers and family consultants to better match the needs of families. In addition, CEDARs (4), the state's intensive care coordination service for children receiving Medicaid, was a critical resource. We were able to embed these valuable care coordinators in the practices. Each practice site implemented a care coordination team that best reflected their individual practice's needs.

HIGH-RISK LISTS

In the adult CTC model, insurers produce lists of patients who are (or are at risk for becoming) high-resources utilizers for which practice care coordinators are accountable**.** There was agreement among the stakeholders, including the insurers, that most high-risk algorithms did not accurately produce meaningful lists for child populations. The common contract included a commitment to work together to define meaningful high-risk identification for pediatrics. Together we developed a three-domain framework for determining which families would benefit most from intense care coordination. Each practice was able to tailor its parameters according to its patient needs and office resources. The first domain addresses high utilization of health resources. Most practices chose to include children who had two ER visits in 6 months or 1 hospitalization for behavioral health in 6 months. The second domain included poorly controlled or complex conditions – Attention Deficit Hyperactivity Disorder (ADHD) plus another complicating behavioral diagnosis such as anxiety, children with asthma who had required oral steroids in the last 6 months, for example. The third domain included children who are at risk based on social, family, or environmental factors, such as high lead levels, homelessness, or gaps in care. While interventions with patients who fit in this category do not immediately bend the insurance cost curve in the near term, investments in patients who are at risk for social reasons may produce the best cost savings in the longer term. (5) The three-domain PCMH-Kids high-risk screening framework has seen many iterations, piloted in a few diverse practices, informed by their experiences and insurer feedback. We continue to refine this work and it has been a collective effort with clinicians and insurers.

INTEGRATION OF BEHAVIORAL HEALTH

The stakeholders group felt strongly that a fundamental need for pediatric transformation included integrating behavioral health into primary care. Here again, the needs of children dictate a different approach to behavioral health integration (BHI). BHI for children requires including attention to mental health issues in parents and caregivers and also to the developmental emergence of social-emotional challenges in young children, school and learning issues and anxiety, depression, and substance use among adolescents. Because of this framework, many of the PCMH-Kids practices incorporated social workers in their care teams. Additionally, screening for social-emotional competencies and family challenges was an important component of the developmental screening that was a key quality metric

for practices (6). Along with these critical changes to practice-based resources and thanks to a separate dedicated insurer grant, PCMH-Kids has sponsored three year-long learning collaboratives, each dedicated to a pediatric-relevant behavioral health topic. Each learning collaborative starts with a half-day seminar that includes a content expert speaker, group discussion and facilitated group work to write aim statements and goals. In the ADHD collaborative, practices developed and implemented improved office protocols for treatment and management, wrote and implemented medication management contracts and one practice developed an ADHD packet, including documents to interface with the child's school, and resources for parents. Seven practices completed a second learning collaborative which addressed Postpartum Depression and Screening, representing 65 providers and 36,000 patients. This collaborative effected a statewide culture shift to the importance of screening for postpartum depression and referring for treatment; the screening is covered by all Rhode Island health insurers including Medicaid. Screening and referral rates improved from 28% to 77% among the participating practices. Sensitive to the opioid epidemic, eleven practices enrolled in this year's Screening Brief Intervention and Referral to Treatment (SBIRT) learning collaborative, representing 75 providers and 34,000 pediatric patients. To date, the practices are reporting on their baseline screening measure, sharing best practices of screening work flows, with special attention to the teen confidentiality that substance screening requires, and continuing motivational interviewing training via an online resource as well as Rhode Island content experts.

Figure 1. PCMH Kids BMI Screening Rates

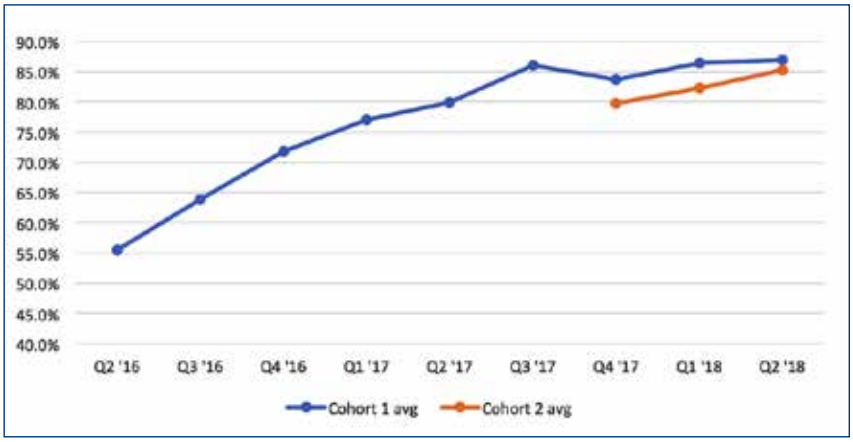
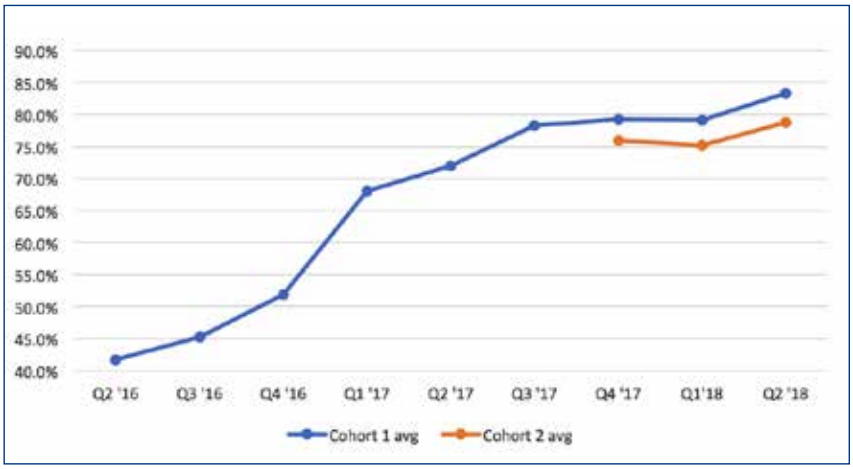


Figure 2. PCMH Kids Developmental Screening Rates



QUALITY METRICS RESULTS

Through shared learning and practice coaching the cohort 1 practices implemented work flows and data and analysis metrics that address the contracted measures. Supported by strong transformation coaching and support, all practices achieved NCQA 3 recognition within the first contract year. In year two, 100% of the cohort 1 practices met both quality metrics for developmental screening and growth monitoring and counseling and posted improvement over time. [**Figures 1 and 2**] Patient and family satisfaction was high at baseline and 67% of the practices met the improvement benchmarks for customer service measure for access, communication and office staff. PCMH-Kids practices successfully decreased Emergency Department (ED) utilization and had a 2.5% reduction in ED usage compared to the peer group (rate for 1,000-member-months, excluding ERISA members).

EXPANSION

In 2017 PCMH-Kids had the opportunity to expand and 11 new practices joined as cohort 2, representing 45 providers and 28,000 attributed patients and we are planning another expansion in 2019. Given the quickly changing healthcare landscape, the second cohort contract is more individualized by practice based on their Accountable Care Organization (ACO) affiliation.

NEXT STEPS

The project has elevated a number of issues that we continue to grapple with, as so much of the adult-focused insurance infrastructure is not relevant to children and families. There is still work to be done on high-risk definition for children and integration of schools and other community resources.

This project has supported our notion that while nurse care managers still have a role in care coordination for children and families, a multidisciplinary team, including parent consultants and social workers, broadens the traditional care coordination to include the social and school determinants that can significantly affect a child's health and to integrate the behavioral needs of families and children.

Perhaps one of the most exciting results of our PCMH-Kids journey has been the successful creation of a pediatric learning community – a group of practices that now share a common language and a skillset that enables workflow analysis, rapid-cycle improvement, and data-driven change. As the healthcare landscape moves more towards systems of care and value-based payments, the challenge will be to keep the child and family voice at each of these tables to ensure that the financial resources remain available for this important work whose societal dividends and medical-cost savings are longer term than the traditional adult chronic care patient-centered medical care home.

References

1. Berwick D, Nolan T, Whittington J. The Triple Aim: Care, Health, and Cost Health Affairs vol 27, #3, May/June 2008.
2. Stille C, Turchi R, Antonelli R et al. The Family-Centered Medical Home: Specific Considerations for Child Health Research and Policy. Academic Pediatrics 2010, 10;211-7.
3. Rosenthal M, Friedberg M, Singer S, Eastman D, Li Z, Schneider E. Effects of a Multipayer Patient-Centered Medical Home on Health Care Utilization and Quality. JAMA Intmed, Sept 9, 2013 E1-E7.
4. CEDARS www.EOHHS.RI.Gov/consumer/familieswith children/childrenwithspecialneeds.aspx accessed 10/18.
5. Chester A, Alker J. Medicaid at 50: A Look at the Long-Term Benefits of Childhood Medicaid. Center for Children and Families, Georgetown.edu July 2015.
6. Perrin E, Sheldrick RC. Survey of Wellbeing in Young Children www.floating hospital.org/The-Survey-Of-Well-being-in -Young -Children/overview accesses 10/2018.

Authors

Patricia Flanagan, MD, FAAP, Professor of Pediatrics, Alpert Medical School of Brown University; Hasbro Children's Hospital, Providence, RI.

Elizabeth Lange, MD, FAAP, Clinical Associate Professor of Pediatrics, Alpert Medical School of Brown University; Waterman Pediatrics, East Providence, RI.

Correspondence

Patricia Flanagan, MD
Hasbro Children's Hospital
593 Eddy Street
Providence, RI 02903
PFlanagan@LIfespan.org

Helping Ambulatory Practices Succeed: Reflections from Practice Transformation Facilitators

PUTNEY PYLES, BSN, RN, PCMH CCE; KIMBERLY PELLAND, MPH; VICKI CROWNINGSHIELD, MPH, PCMH CCE; BRENDA JENKINS, RN, PCMH CCE; LAUREN CAPIZZO, MBA, PCMH CCE

ABSTRACT

Healthcare reform efforts implemented to optimize primary and specialty care delivery require practices to undertake considerable transformation. To support change efforts, many private insurers and federal and state health-reform efforts provide practices and clinicians with access to practice-transformation facilitators. Healthcentric Advisors provides practice-transformation support and technical assistance to practices in Rhode Island and across New England. From this work we know that strategies and approaches to support transformation and achievement of program recognitions differ by practice characteristics, resource access, and patient panels. Understanding practice attitudes and beliefs about change, recognizing that change occurs on a spectrum, acknowledging that program recognition is only the beginning, and aligning quality-improvement initiatives, are domains that support success regardless of practice type. However, working with a facilitator who engages your entire care team to integrate a culture of quality improvement and process ownership, has the greatest impact on overall transformation.

KEYWORDS: patient-centered medical home, practice transformation, quality improvement, pediatrics, residency clinic, Rhode Island

INTRODUCTION: PRACTICE TRANSFORMATION

Healthcare reform efforts implemented to optimize primary- and specialty-care delivery require practices to undertake considerable transformation. Challenges and barriers associated with practice transformation and the shift to models such as the Patient-Centered Medical Home (PCMH), a widely accepted solution to transforming the delivery of primary care,[1,2,3] are well documented.[4,5] To support practice change efforts, many private insurers and federal and state health reform efforts driving adaptation of the PCMH model or the shift to value-based care provide practices and clinicians with access to practice-transformation facilitators.[6]

Healthcentric Advisors provides practice-transformation support and technical assistance to primary care and specialty practices in Rhode Island and across New England, and has for more than 20 years. Our practice-transformation facilitators include licensed clinicians, quality improvement specialists, master's prepared associates, and information technology and reporting experts. Facilitators work with practice implementation and care teams to provide technical assistance, training, and resources to support transformation efforts. Work begins by collecting baseline data from the entire care team to inform work with a smaller implementation team, allowing progress assessment. Our ultimate goal is to foster ownership of the transformation process among practices and care teams.

Strategies and approaches to support transformation and achievement of program recognitions, such as National Committee for Quality Assurance (NCQA) PCMH status, differ by practice characteristics, resource access, and patient panels. Although, through our experience working with practices across the readiness spectrum and across all practice types, we have identified key domains critical to practice transformation success. In sharing our insights and experiences with practices, care teams, and others looking to implement change, we describe four domains: understanding attitudes and beliefs about change, recognizing that change occurs on a spectrum, achieving NCQA PCMH Recognition (or other program achievements) is only the beginning, and aligning quality improvement initiatives to augment success. Each concept is followed by our team's approach and an example from our work with practices in Rhode Island.

UNDERSTAND THE ENTIRE CARE TEAM'S ATTITUDES AND BELIEFS ABOUT CHANGE

Assessing and understanding the entire care team's attitudes, beliefs, and behaviors at the outset of practice transformation is more important to success than evaluating only standard practices characteristics at baseline. Standard baseline characteristics (e.g. patient panel size, staffing and resource allocation, insurance/payer mix) are important considerations, yet culture change is driven by attitudes, beliefs, and behaviors.

Practice Facilitation Approach

We use the Holistic Approach to Transformational Change (HATCh®) model to support this approach (**Figure 1**). HATCh®, designed by Healthcentric Advisors, is used by healthcare organizations to transform their settings and

Figure 1. HATCh® – **H**olistic **A**pproach to **T**ransformational **Ch**ange

practices from institutional to individualized centers of care. The care, delivery systems, and supports originate and revolve around the patient.

When working with a practice, all care team members (not only the implementation team) are assessed prior to embarking on practice transformation, to evaluate their overall readiness for change. Assessment questions map to activities, workflows, and other areas for improvement that align with the highest standards of program recognition. The assessment provides us with a baseline of roles, tasks, attitudes, and more. For example, identifying the most common tasks across all care team roles allows us to recognize opportunity for delegation. Understanding care team members' attitudes about their role and confidence levels if roles evolve, supports the shift to practicing at the top of their license, certification, or education. Lastly, feelings on change provide a starting point for addressing concerns when beginning the transformation process.

Sample Outcome

Our team uses these assessment results to inform our approach to working with the care teams. In our work with a local practice, all care team members were asked prior to implementing change, how confident they are that the following positions (health care assistant, registered nurse, physicians or advance practice providers, and front desk staff) would be successful if their responsibilities were to become more aligned with their license, certification or education. Using a Likert scale to identify level of confidence (ranging from not confident at all to very confident) we observed a positive shift in confidence across all positions when reassessed after completion of work with the practice.

RECOGNIZE THAT CHANGE OCCURS ON A SPECTRUM

Our second concept is helping practices recognize that change is not a onetime event. The most successful practices allow for time and exposure to take transformation from concept to meaningful implementation. We involve care teams in the process, rather than completing work on their behalf; this collaboration over time limits burden, instills confidence, and promotes suitability.

Practice Facilitation Approach

We repeatedly expose practices to concepts and establish a realistic timeline that provides opportunity to process the deeper implications of change and how to reasonably initiate modifications to the workflows in their practice. Using proven quality improvement methodologies, our practice facilitators introduce a broad topic, allow for flexibility, and conduct small tests of change to reduce clinician burden. For example, following the framework of a Plan, Do, Study, Act (PDSA) cycle, data is used to identify areas for improvement (plan), to inform interventions or change (do), to assess and report out on the impact of an intervention or change effort (study), and to make adjustments as needs evolve (act). Using data-driven processes such as PDSA, practices can continually evaluate their own successes and failures, adapting methods to the changing priorities. Most importantly, we incorporate as many care team members as possible when moving a model or transformation effort from concept into workflow redesign, to promote buy-in and facilitate the culture shift over time.

Sample Outcome

Implementing pre-visit planning (huddles), is one strategy we share with practices. Often, the concept is met with resistance due to the upfront time commitment and competing priorities. For example, assessment responses from a practice revealed they were not participating as a team in consistent huddles. Our team responded by recommending implementing huddles using a PDSA process as an initial strategy to meet their needs. After implementation we found that: huddles took place 89% of the week and occurred 55% of the time during both morning and afternoon sessions. Among participants assessed, 84% agreed it was a more efficient session, 55% indicated patient care was enhanced, and 93% indicated the process improved team communications.

Our team continually stresses the different ways to implement and foster care team involvement, as opposed to dictating, allowing practices to drive the iterative process. Once implemented and refined to fit into unique workflows, the majority find it helpful in practice.

ACHIEVEMENT OF NCQA PCMH (OR OTHER PROGRAM): RECOGNITION IS ONLY THE BEGINNING

Practice transformation is not only about initial implementation of a new process or program recognition. Achieving recognition is the first step to transformation. Oversight and continued quality improvement is required to sustain and maintain new models of care and adapt as the environment continues to evolve. The quality improvement foundation of our practice facilitation approach emphasizes not only the results, but most importantly the process.

Practice Facilitation Approach

Introducing the concept of quality improvement into the implementation process provides a foundation for practices to incorporate change and to monitor results over time. Practices that build staffing roles and responsibilities to support practice transformation and quality improvement efforts (e.g. care coordination, prioritizing data, and reporting) have a greater likelihood of sustainability because someone is assigned to the monitoring and maintenance within their day-to-day tasks. We also encourage peer-to-peer sharing and often refer practices to others who are further along the transformation spectrum.

Sample Outcome

Hasbro Primary Care, a 75-doctor Pediatric Residency Program achieved NCQA PCMH recognition within 12 months. Their team maintains recognition and consistently achieves outcome targets by meeting regularly and forming quality improvement workgroups that are topic specific to their patient population. For example, workgroups implemented focus on emergency department utilization, behavioral health initiatives, and referral management. Workgroup teams emphasize quality improvement as their core approach, utilizing data to support their work. The various care team roles are represented on the workgroups, providing the opportunity for different perspectives to be shared to foster collaboration and ownership of the work across the practice.

ALIGN QUALITY IMPROVEMENT INITIATIVES TO AUGMENT SUCCESS

Practice transformation does not occur in isolation. As practices move through the transformation continuum, they are presented with more opportunities and expectations to demonstrate a cohesive quality improvement model. Aligning quality improvement initiatives, by integrating efforts such as PCMH and the transition to value-based payment systems, increases sustainability, streamlines practice priorities, and reduces burden.

Practice Facilitation Approach

Our team works with a practice to identify concurrent and future quality improvement initiatives and how they can be used to satisfy multiple program requirements. Practices can select quality improvement projects or measures that complement the overarching recognition requirements and align with their patient panel.

Sample Outcome

Facilitation teams work with practices to align quality improvement initiatives if possible and where appropriate. For example, NCQA recognition requires practices to administer a patient satisfaction survey. We often recommend identifying patient satisfaction measures in other programs so practices are able to implement a validated survey tool that meets multiple program or contract requirements. We then support practices in analyzing and using the survey results to make decisions on quality improvement projects.

CONCLUSION

Practice transformation is an iterative process that requires an organization-wide commitment to a quality improvement approach. We hope the described domains can support your practice's transformation efforts and achievement of success. Most importantly, work with an experienced facilitator who engages your entire care team to integrate a culture of quality improvement and process ownership.

References

1. Agency for Healthcare Research and Quality Defining the Patient-Centered Medical Home. http://pcmh.ahrq.gov/portal/server.pt/community/pcmh__home/1483/PCMH_Defining%20the%20PCMH_v2
2. McNellis RJ, Genevro JL, Meyers DS. Lessons learned from the study of primary care transformation. Ann Fam Med. 2013;11suppl 1S1–S5.
3. Daniel, Donna M., et al. Assessing Progress toward Becoming a Patient-Centered Medical Home: An Assessment Tool for Practice Transformation. Health Serv Res. 2013;48(6pt1):1879-1897.
4. Hemler, Jennifer R., et al. Practice facilitator strategies for addressing electronic health record data challenges for quality improvement: EvidenceNOW. J Am Board Fam Med. 2018;31.3;398-409.
5. Crabtree BF, Nutting PA, et al. Primary care practice transformation is hard work: Insights from a 15-year developmental program of research. Med Care. 2011;49(Suppl):S28–35.
6. Taylor EF, Machta RM, Meyers DS, Genevro J,Peikes DN. Enhancing the primary care team to provide redesigned care
7. Taylor EF, Machta RM, Meyers DS, Genevro J, Peikes DN. Enhancing the primary care team to provide redesigned care: The roles of practice facilitators and care managers. Ann Fam Med 2013;11:80–3.

Acknowledgment

The authors thank Susan Rohwer, Healthcentric Advisors' Senior Communication Coordinator, for proofreading and editing.

Disclaimer

The content of this publication does not necessarily reflect the views or policies of any of Healthcentric Advisors' funders. The authors assume full responsibility for the accuracy and completeness of the ideas presented.

Authors

Putney Pyles, BA, BSN, RN, PCMH CCE, Senior Program Coordinator, Healthcentric Advisors, Providence, RI.

Kimberly Pelland, MPH, Senior Scientist, Healthcentric Advisors, Providence, RI.

Vicki Crowningshield, MPH, PCMH CCE, Senior Program Coordinator, Healthcentric Advisors, Providence, RI.

Brenda Jenkins, RN, D.Ay, CPEHR, PCMH CCE, CDOE, Senior Program Administrator / HIT Consultant, Healthcentric Advisors, Providence, RI.

Lauren Capizzo, MBA, PCMH CCE, Director, Practice Transformation, Healthcentric Advisors, Providence, RI.

Correspondence

Lauren Capizzo
Director, Practice Transformation
235 Promenade Street, Suite 500
Providence, RI 02908
401-528-3239
Fax 401-528-3214
lcapizzo@healthcentricadvisors.org

Transformation: Patient-Centered Medical Home-Kids in a Predominantly Medicaid Teaching Site

CAROL LEWIS, MD, FAAP; ALISON RIESE, MD, MPH, FAAP; GAIL DAVIS, RN; CHANDAN LAKHIANI, MD, FAAP; ALLISON BRINDLE, MD, FAAP; PATRICIA FLANAGAN, MD, FAAP

KEYWORDS: PCMH, pediatrics, care coordination, high-risk

INTRODUCTION

Hasbro Children's Hospital (HCH) Pediatric Primary Care joined eight other practices in January 2016 to participate in Patient-Centered Medical Home-Kids (PCMH-Kids), a statewide multi-payer, multi-practice pediatric care transformation initiative.[1] Following a well-engaged stakeholder process that defined the unique needs of children in care transformation, nine practices signed common contracts with the state's four insurance plans. Each practice received a *per-member per-month* payment to help support the costs of care coordination and practice transformation. Practices were required to obtain level 3 NCQA recognition as medical homes within the first contract year and to submit quarterly quality metrics on rates of developmental screening, monitoring of Body Mass Index (BMI), counseling on nutrition and physical activity to a data-aggregator website. Emergency Department (ED) utilization and patient satisfaction scores were tracked. Years 2 and 3 of the contract withheld dollars that could be earned back by reaching quality benchmarks. Additionally, each year practices had the opportunity to join a topic-specific learning collaborative focused on integrated behavioral health. This is the final year of our 3-year contract and our experiences reflect both some shared issues with the other eight PCMH-Kids practices but also some unique challenges and strengths.

HCH is the largest practice of the participants, serving approximately 10,000 children and the largest proportion of low-income families. Approximately 90% of our patients are on Medicaid, 26% do not speak English or have limited English proficiency; average income falls approximately 25% below the federal poverty level and 22% of parents have not completed high school. This increases the complexity of services required to help our children grow up healthy.

Organizationally we are complex. The 12 full- and part-time faculty pediatricians are employed by Lifespan Physician Group; one social worker is employed by Rhode Island Hospital; 16 registered nurses and the eight medical assistants are in two different unions. Changes to clinic protocols and adjustments to duty expectations and schedules were particularly challenging.

We are the pediatric primary care training site for Alpert Medical School of Brown University and the pediatric training site for 63 resident trainees and multiple medical students at various levels of training. Under the supervision of attending faculty, the residents function as primary care providers for their assigned panel of patients, yet are onsite only one half-day/week. Being a teaching site has benefits as well as challenges. An advantage of being a teaching site is that many residents choose to be involved with our multidisciplinary practice improvement teams and have QI training requirements. As primary care pediatricians and care-team members, we are dedicated to quality care of our patients and families and to share with residents the value and the joy of primary care. This is a strong motivator to create a high quality well-functioning pediatric medical home in which to teach.

An additional challenge, but also a source of opportunity for us, is that our institution moved its entire Electronic Health Record (EMR) platform only months prior to this initiative. This made it difficult to generate baseline data. However, the new platform includes shared records for inpatient, outpatient, emergency department, laboratory, imaging and many specialty visits.

We also recognize that we have unique strengths. We have long understood that social determinants influence the health of individuals and communities. Poverty contributes to higher risk of poor health. Barriers to health care that are the result of poverty, such as transportation, child care, health literacy, language, mental health, or chemical dependence act as profound obstacles to families with children.[2-3] In the years prior to embarking on our PCMH journey, we were very deliberate in building clinic resources that address the nonmedical needs of our patients affecting their health. We have robust interpreter services. We have Connect-For-Health, a program that recruits, trains and supports undergraduate students to connect families with community resources such as food pantries, day care, summer camps as well as helping with applications for public benefits. We have an established medical-legal partnership that supports our ability to identify problems that could be remedied with legal action and to refer for assistance. We have the Reach Out and Read program to promote literacy. We have worked closely with CEDARs, the state Medicaid care coordination service. These services allow our trainees, staff and faculty to ask the hard questions about food security and housing stability as they feel they have onsite support for families.

NATIONAL COMMITTEE FOR QUALITY ASSURANCE (NCQA) RECOGNITION (4)

NCQA's PCMH Recognition Program is the most widely adopted PCMH evaluation program in the country. Required elements for recognition include demonstrating team-based care, population care management and accountability, patient access and engagement and the skills to do performance measurement and improvement.

We devoted most of our first year to meeting the requirements and documentation needed for NCQA recognition. The strong leadership team met weekly and was facilitated by a skilled practice coach who led the process and kept us on track as our timeline was short. The importance of technical assistance from our practice coach cannot be overstated. Nurse-run morning huddles were a breakthrough in understanding the transformation to team-based care. IT support was essential in helping us to develop an active patient registry and begin to run reports on our practice, an important step for moving to a population health frame.

We were able to achieve Level 3 recognition, the highest level possible. This built a strong foundation for the next 2 years and gave us opportunity to celebrate success, which increased understanding and participation by all levels of staff and learners.

During the NCQA process one of our biggest challenges was communication. We instituted multiple practices of intentional increased communication, including staff and division meetings, noon conferences for trainees, and weekly email messages of the week. Posting reminders and results in clinic spaces, creating informational brochures for families and patients also helped.

By year 2 we were ready to focus on quality metrics. We established quality improvement work groups that included trainees, staff, attending faculty, and others. QI groups included Developmental Screening, and BMI monitoring and counseling, ED utilization, and Patient Experience. This was an opportunity for everyone to learn rapid cycle improvement techniques and to understand the value of data and the excitement of improving our work. It also furthered our understanding and value of team-based care.

PCMH-KIDS MEASURES

Developmental Screening

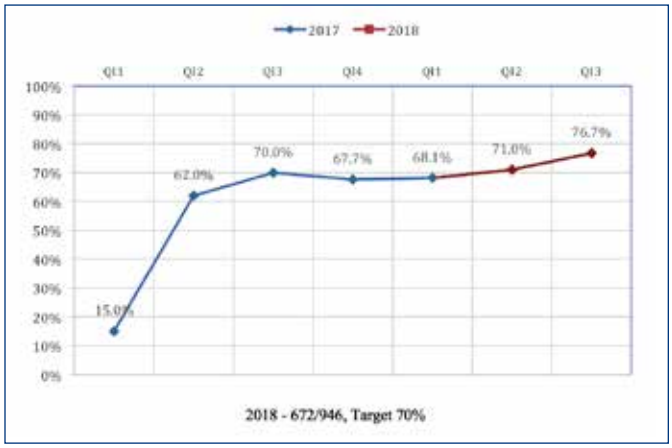
The American Academy of Pediatrics Bright Futures Guidelines as well as Early, Periodic Screening, Diagnosis and Treatment (EPSDT) standards for children enrolled in Medicaid promote developmental screening at 9-, 18-, and 30-month wellness visits utilizing an evidence-based screening tool. Survey of Wellbeing of Young Children (SWYC)[5] was chosen as the standardized tool due to its availability in English and in Spanish, its age-specific surveys, its relative ease of completion, as well as its inclusion of brief questions regarding environmental and social stressors. Screens are administered at time of visit utilizing an online system that delivers and scores the screen.

Our results of improved and sustained screening. (**Figure 1**)

Hurdles include language, literacy skills of parents, workflow, volume of screens, time necessary for completion, and inconsistent connectivity in our workspace. Our families are less likely to have access to computers and servers at home to complete prior to the visit. Communication with over 75 trainees and faculty to communicate changes in work flow slow the process. Incorporating other team members as leaders, such as medical assistants, has been central to facilitate the process.

Figure 1. Developmental Screening

Yearly developmental screening rates of patients at Hasbro Children's Hospital Primary Care ages 9 months to 36 months.



Body Mass Index (BMI) monitoring and Nutrition and Physical Activity Counseling

Obtaining accurate height and weight on all children provided BMI data that was monitored. Our work group created an EMR well-visit template which provides a prompt and guidance to physician trainees as to appropriate nutrition and activity counseling during wellness visits and research projects. (**Figure 2)**

Figure 2. BMI Age 2–17

Percent rate of yearly BMI monitoring, nutrition and activity counseling for children ages 2 through 17 years at Hasbro Children's Hospital Primary Care.

Emergency Department Utilization

Reduction in ED utilization has been a key focus for HCH Primary Care's practice improvement initiatives. A quality improvement work group including faculty, nurses, support staff and trainees examined 1-week snapshots of our patients' ED utilization and found almost half of visits did not meet level of emergency care, with 30–40% of these occurring during clinic hours, as well as very low utilization of our after-hours phone call services. We have focused on addressing these findings. Nurses contact all families who have visited the ED in the preceding day to provide support, offer follow-up appointments, evaluate why ED care was sought and remind families that we have an after-hours MD/RN advice line as well as access to same day sick visits. We have developed signage, brochures, and a waiting room video with the message: "Call us first!" We partner with the Hasbro ED to convey the consistent message to our families that we are available if their child is ill or injured and are developing a protocol for bi-directional transfer of care between the two settings.

Care Coordination and High-Risk Registry

One of the most exciting aspects of PCMH-Kids was the opportunity to work with other practices and payers to identify families who could benefit most from intensive care-coordinated services. After a practice- and payer-engaged process that included reviewing high-risk algorithms used nationally and processes used locally and piloting several tools, we developed our own PCMH-Kids framework for identifying high-risk children. PCMH practices chose different criteria from 3 domains: high cost or utilization, poorly controlled or complex conditions, and at-risk based on gap in care or environmental concerns. HCH Primary Care elected the following criteria from the stated domains: 1) 2 emergency room visits in 6 months 2) Children with asthma on oral steroid in the last 6 months 3) Infants 9 months-of age with less than 3 Prevnar immunizations or 2-year-olds without documented DTaP #4.

This provides us with a registry that is of manageable size (roughly 5% of our practice) and with maximum potential for impact on the health of the child with more focused care coordination.

Our high-risk framework has also identified asthma as a common condition and an area of focus for process and quality improvement.

Asthma

Poorly controlled asthma causes significant morbidity and mortality and imposes a tremendous burden on families and society6. It presents greater disease burden in low social economic groups.7 We developed a registry of higher-risk asthma patients based on prescription medication, ER utilization, and hospitalization data. Improving management of this group requires communication, coordination, patient/family education, and team-based care. We administer the validated Asthma Control Test (ACT) during clinic visits to assess their child's current level of asthma control to guide clinicians in developing an evidence-based asthma action plan. Families are central in the development of the plan. The ACT is a teaching tool for our residents and its use reinforces national standards to guide the deliverance of quality asthma care. Residents are active in the asthma quality improvement process in our clinic, which encourages ownership of both the patients and the processes that govern our daily operations.

INTEGRATED BEHAVIORAL HEALTH (IBH)

Among the foundational principles identified in our original stakeholder's meetings was the imperative of integrating behavioral health into primary care. Because we were able to have social workers be part of our care coordination team, we greatly expanded our ability to address behavioral health issues that arise daily in our practice. Also, through the improvement in screening toddlers and young children for social-emotional challenges, we are able to intervene with families before there is a mental health diagnosis. Screening efforts are effective because we have the expertise of our social worker to further evaluate and, when necessary, help provide a warm hand-off to community referrals.

CONCLUSION

The unique needs of our families, including the social determinants that accompany poverty, and our responsibility as the primary teaching site for future pediatricians, presents challenges. However, these factors also provide us with great incentives: to assure optimal health and development for our high-risk population and provide trainees with solid training in patient-centered, team-based care, quality measurement, accountability for costs and outcomes, a focus on population health and dedication to data-driven system improvement.

References

1. Care Transformation Collaborative (CTC) https://www.ctc-ri.org/about-us/pcmh-kids (Accessed October 2018)
2. Marmot M, Allen J. Social Determinants of Health Equity. *Am J of Public Health*. 2014;104(suple4) S517-S519. Doi:10.2105/AJPH.2014.302200.
3. Mermot M, Friel S, Bell R, Houweling T, Taylor S. Closing the Gap in a Generation: Health Equity through Action on the Social Determinants of Health. *Lancet*. Volume 372, Issue 9650, 8-14 Nov 2008, pages 1661-1669.
4. National Committee of Quality Assurance https://www.ncqa.org/programs/recognition/practices/patient-centered-medical-home-pcmh (Accessed October 2018)
5. Survey of Wellbeing of Young Children https://www.floatinghospital.org/The-Survey-of-Wellbeing-of-Young-Children/Overview (Accessed October 2018

6. Vital Signs: Asthma in Children – United States, 2001–2016; February 9, 2018 / 67(5);149–155.
7. Chipps B, Bacharier L, Farrar J, Jackson D, Murphy K, Phipatanakul W, Szefler S, Teague G, Zeiger, R. The Pediatric Asthma Yardstick. Practical recommendations for a sustained, step-up in asthma therapy for children with inadequately controlled asthma. An*n Allergy Asthma Immunol*. Volume. 120, Issue 6, Jun 2018 pages 559-579.

Authors

Carol Lewis, MD, FAAP, Medical Director, Hasbro Children's Hospital Pediatric Primary Care; Professor of Pediatrics, Alpert Medical School of Brown University, Providence, RI.

Alison Riese, MD, MPH, FAAP, Hasbro Children's Hospital (HCH) Pediatric Primary Care, Providence, RI.

Gail Davis, RN, Hasbro Children's Hospital (HCH) Pediatric Primary Care, Providence, RI.

Chandan Lakhiani, MD, FAAP, Hasbro Children's Hospital (HCH) Pediatric Primary Care, Providence, RI.

Allison Brindle, MD, FAAP, Hasbro Children's Hospital (HCH) Pediatric Primary Care, Providence, RI.

Patricia Flanagan, MD, FAAP, Professor and Vice Chair of Pediatrics, Alpert Medical School of Brown University and Chief of Clinical Affairs at Hasbro Children's Hospital, Providence, RI.

Correspondence

Carol Lewis, MD
Hasbro Children's Hospital
593 Eddy Street
Providence RI 02903
CLewis2@Lifespan.org
Carol_Lewis@Brown.edu

Pediatric Primary Care and Integrated Behavioral Health

ALLISON HEINLY, MD, FAAP; ELIZABETH BOGUS, LCSW; NATALIA GOLOVA, MD, FAAP; JENNIFER FRIEDMAN, MD, PhD, FAAP; ALCINA NICKSON, RN; CAROL LEWIS, MD, FAAP

KEYWORDS: Integrated Behavioral Health, pediatrics, ADHD, post-partum depression, substance use

INTRODUCTION

Pediatric primary care has been undergoing a significant transformation into the patient-centered medical home (PCMH) model of healthcare delivery. This transformation presents an opportunity to integrate services that help optimize children's health. Chief among these is the integration of behavioral health.

Approximately 18% of adults and 13–20% of children are reported to have a mental health disorder.[1,2] This leads to adverse health behaviors, contributing to an increase in chronic medical conditions.[3] Many of these behaviors are established in childhood, emphasizing the importance of addressing mental health needs early.[4] Identification of behavioral problems early, prior to the development of more severe mental disease, is a preventive strategy utilized in pediatrics. Children and adolescents are seen regularly for routine exams, providing opportunity for the primary care provider to address both medical and behavioral health concerns.[5] Emerging research suggests that integration of mental and behavioral health into pediatric primary care settings improves outcomes.[3,4] Understanding differences between adult and pediatric behavioral health care has been important, with a primary difference being one of prevention as opposed to a focus on diagnosis. Younger children, in particular, may have social-emotional challenges that do not rise to the level of diagnosable mental illness. Emphasis is placed on recognition of the patient within the context of family, school and community. Strengthening and supporting patient and family engagement, improving communication and coordination among the primary care medical home, patient, family, schools, mental health and addiction disorder providers has been emphasized.

Pediatricians are often the first professionals to recognize behavioral or mental health problems in children. However, given time constraints in the primary care office and pediatricians' lack of mental health training, they often feel unable to effectively intervene or adequately diagnose and treat identified patients.[6] As part of moving to team-based care in pediatric medical homes, many primary care offices now incorporate behavioral health professionals into their practices. At Hasbro Children's Hospital (HCH) Pediatric Primary Care, a licensed Clinical Social Worker (CSW) collaborates with the pediatric providers to provide behavioral and mental health support. Often this is when the provider or screening tool has identified a behavioral health concern. The CSW meets to assess the child and family to identify needs, provide brief interventions or, when needed, refer for appropriate treatment. The goal is to identify mental and behavioral concerns early, provide support for the patient and family, identify strengths and promote a healthy trajectory.

A series of Integrated Behavioral Health (IBH) Learning Collaboratives were undertaken as part of PCMH-Kids, a statewide multi-payer multi-practice pediatric care transformation initiative. The collaboratives supported the integration of behavioral health into the pediatric primary care setting. Topics included improving attention-deficit hyperactivity disorder (ADHD) care, improving screening and referral for post-partum depression screening, and screening and referral for adolescent substance use. Each collaborative engaged 7–11 practices (pediatric and family medicine) and lasted 12 months. Each was structured with an initial half-day learning session which included didactic learning and team-based creation of practice-specific aims' statements. This was followed with each practice working with a facilitator and content experts to achieve their aims through a series of improvement cycles. Practices shared their learning and data at quarterly progress meetings. Each collaborative wrapped up with a final half-day report, with storyboards and robust discussion of lessons learned. Below, we describe our experience with the IBH Learning Collaboratives at HCH Pediatric Primary Care, a large hospital-based teaching site serving about 10,000 children, 90% of whom receive Medicaid.

ATTENTION-DEFICIT/HYPERACTIVITY DISORDER-YEAR ONE

ADHD is one of the most common behavioral health disorders in children, occurring in about 8% of children ages 12–17 years.[7] It is often associated with one or more comorbidities including learning disabilities, conduct disorder, anxiety, depression, and speech problems.[7] The American Academy of Pediatrics (AAP) Clinical Practice Guidelines

offers clear recommendations for diagnosis, evaluation and treatment of ADHD.[8] Most pediatricians are familiar with these guidelines; however, only about half report routine follow-up visits 3-4 times a year for children with ADHD who are taking medications.[9]

At HCH Primary Care, we sought to increase adherence to the 2–3 month recommended follow-up visits. Three barriers were identified: patient and parental lack of knowledge regarding prescribing and using controlled substances, limited access to appointments, and impaired communication with the school, resulting in delays in diagnosing, treating and managing patients with ADHD. To address these barriers, an "ADHD Care Plan Agreement" packet was created. The packet was provided to all families diagnosed with ADHD who were currently on or starting medication. The Care Plan Agreement outlines the prescription of controlled substances and required follow-up care and is signed by the patient and family. Also included in the packet is a release of information for the school, appointment and treatment log, Vanderbilt Follow-Up Parent/Teacher Scales, a template letter to request an IEP, school medication authorization forms, a list of RI resources for families of children with ADHD and a tip sheet for handling daily problems at home. Additionally, all patients with ADHD requiring follow-up appointments were notified. Increased access to appointments was made available, particularly Saturday mornings. Encounter templates were updated to improve documentation and data collection and to provide an educational tool for trainees. Following these interventions, scheduled follow-up visits within 2–3 months increased from 60 to 92%. Additionally, communication with schools has improved and parental feedback has been extremely positive.

POST-PARTUM DEPRESSION SCREENING

The AAP mental health task force recommends that pediatricians identify mothers suffering from PPD in the perinatal period, using a standardized screening tool at 1-, 2-, 4- and 6-month well-child visits.[10] Although there has been an increase in screening rates over the past 10 years, pediatricians are still only screening mothers less than 50% of the time.[11] Given the high prevalence of PPD, 15% in the general population and as high as 20% in low socioeconomic status populations, screening mothers systematically for PPD and connecting them to services is needed.[12,13] Additionally, there is a robust body of literature confirming that maternal depression negatively affects infant growth and development. Early identification and treatment are critical to ensure optimal development.[14] Pediatricians are in a unique position to identify mothers suffering from PPD and alter the course of their disease, as well as improve their child's physical and emotional wellbeing.

At HCH Primary Care, we implemented routine screening utilizing the Edinburgh Postpartum Depression Scale – an easy, short, well-validated tool. The screen is self-administered and results are available to the providers who review the results, discuss them with the mother and refer to services if needed. Through chart review, we found that we were initially screening only 55% of mothers at least twice during the first 6 months postpartum. With the support of the IBH Learning Collaborative, we implemented a series of changes in our workflow, training all of our providers on the importance of screening for PPD and utilizing an online system that delivers and scores the screen. By the end of the first year, screening rates increased to 82%. Additionally, we found that approximately 20% of mothers we serve suffer from PPD. Of these, about a third require mental health support, either through in-office social work consultation or a referral to outpatient or partial day program behavioral health services.

ADOLESCENT SUBSTANCE USE

According to the Monitoring the Future Study National Survey Results in 2017, 62% of high school seniors and 23% of 8th graders have consumed alcohol.[15] Marijuana use continues to rise, with 37% of seniors reporting use within the past year.[15] Substance use disorders often co-occur with mental illness in both adults and adolescents.[1] Drug and alcohol usage in adolescents is particularly concerning due to the lack of development of the adolescent brain.[16] For these reasons, it is imperative to talk with adolescents about the use and misuse of drugs and alcohol.

The current learning collaborative has chosen to use the Screening, Brief Intervention, and Referral to Treatment (SBIRT) model to address substance use. SBIRT is an evidence-based practice beginning with universal screening to identify users, the brief negotiated interview which uses motivational interviewing to discuss substance use and misuse, followed by referral for individuals with substance use disorders. At HCH Primary Care, we instituted screening for all adolescents (ages 12–18 years) at well child visits using the CRAFFT, a short, validated screening tool. The CRAFFT is given to teens on a confidential electronic tablet as part of the "check-in" process, allowing the provider to view results before entering the room. Chart review in June 2018 showed a screening rate of 50% for adolescent well child visits. To increase screening rates, we focused on provider awareness. With increased provider education and prioritizing the CRAFFT, we were able to increase screening rates to 70% by September 2018. With increased momentum, we are working towards training all providers in SBIRT, particularly motivational interviewing. Thus far, we have held 2 hour-long conferences to capture faculty and residents, in addition to offering on-line training modules. As an integral part of our team, our CSW provides intervention and follow-up of positive screens as needed. While we have only had a small number of positive screens (1–4%), our group has found the

impact of negative screens to be extremely important. The negative screens serve to open the door to an interactive discussion about drugs and alcohol, allowing for both the child to ask questions and for the physician to positively reinforce the patient's motivations for abstaining. Moving forward, we hope to continue to increase our rates of screening and by year-end, have all providers trained in SBIRT.

The work with the IBH learning collaborative provided impetus to expand other behavioral and mental health initiatives. In 2017 we initiated universal depression screening for all 12- to 18- year-olds at well visits. We utilize confidential on-line screening at time of visit using the PHQ9-Modified for Adolescents Tool. Within 6 months, 86.9% of adolescents were screened at the time of a well visit with 20% screening positive for depression, thoughts of suicide, or history of suicide attempt. All patients with positive screens had further evaluation.

Our future goals include expansion of behavioral health care for the many identified mothers, children, and adolescents within primary care. Ideally, patients who screen positive would benefit from assessments for safety, together with brief interventions and referral for ongoing care within the medical home. We have had great success with this through the support of a licensed CSW embedded in our clinic. The mental health burden, however, remains high and calls for expansion of these services. Other innovative approaches we are piloting to address this need include having psychiatry residents in our clinic. Senior residents trained in psychiatry, pediatrics and child psychiatry spend time each week in primary care to provide support in diagnosis and brief interventions. This model has the added benefit of educating our pediatric residents with resident peers supported by a child psychiatry attending. With continued effort to increase access to CSW and child psychiatry providers, in addition to the IBH Collaborative support in evidence-based improvement initiatives, we hope to strengthen and expand the integration of behavioral health into our primary care office to provide optimal and comprehensive care for our patients and their families.

References

1. Hedden SL. *Behavioral health trends in the United States: results from the 2014 National Survey on Drug Use and Health.* Substance Abuse and Mental Health Services Administration, Department of Heath & Human Services; 2015.
2. Perou R, Bitsko RH, Blumberg SJ, et al. Mental health surveillance among children—United States, 2005–2011. *MMWR Surveill Summ.* 2013;62(Suppl 2):1-35.
3. Gerrity M. Evolving models of behavioral health integration: Evidence update 2010–2015. In: Millbank Memorial Fund. Retrieved from https://www. milbank. org/wp-content/uploads/2016/05/Evolving-Models-of-BHI. pdf; 2016.
4. Asarnow JR, Rozenman M, Wiblin J, Zeltzer L. Integrated medical-behavioral care compared with usual primary care for child and adolescent behavioral health: a meta-analysis. *JAMA pediatrics.* 2015;169(10):929-937.
5. Ader J, Stille CJ, Keller D, Miller BF, Barr MS, Perrin JM. The medical home and integrated behavioral health: advancing the policy agenda. *Pediatrics.* 2015:peds. 2014-3941.
6. Martini R, Hilt R, Marx L, et al. Best principles for integration of child psychiatry into the pediatric health home. *Approved by the American Academy of Child and Adolescent Psychiatry Council.* 2012.
7. Larson K, Russ SA, Kahn RS, Halfon N. Patterns of comorbidity, functioning, and service use for US children with ADHD, 2007. *Pediatrics.* 2011:peds. 2010-0165.
8. ATTENTION-DEFICIT SO. ADHD: clinical practice guideline for the diagnosis, evaluation, and treatment of attention-deficit/hyperactivity disorder in children and adolescents. *Pediatrics.* 2011:peds. 2011-2654.
9. Rushton JL, Fant KE, Clark SJ. Use of practice guidelines in the primary care of children with attention-deficit/hyperactivity disorder. *Pediatrics.* 2004;114(1):e23-e28.
10. Earls MF, Child CoPAo, Health F. Clinical report—Incorporating recognition and management of perinatal and postpartum depression into pediatric practice. *Pediatrics.* 2010:peds. 2010-2348.
11. Kerker BD, Storfer-Isser A, Stein RE, et al. Identifying maternal depression in pediatric primary care: changes over a decade. *Journal of developmental and behavioral pediatrics: JDBP.* 2016;37(2):113.
12. Guintivano J, Manuck T, Meltzer-Brody S. Predictors of Postpartum Depression: A Comprehensive Review of the Last Decade of Evidence. *Clinical obstetrics and gynecology.* 2018;61(3):591-603.
13. Pooler J, Perry DF, Ghandour RM. Prevalence and risk factors for postpartum depressive symptoms among women enrolled in WIC. *Maternal and child health journal.* 2013;17(10):1969-1980.
14. Hoffman C, Dunn DM, Njoroge WF. Impact of postpartum mental illness upon infant development. *Current psychiatry reports.* 2017;19(12):100.
15. Johnston LD, Miech RA, O'Malley PM, Bachman JG, Schulenberg JE, Patrick ME. Monitoring the Future national survey results on drug use, 1975-2017: Overview, key findings on adolescent drug use. 2018.
16. Nora D, Volkow M. Principles of Adolescent Substance Use Disorder Treatment: A Research-Based Guide. *PNAS.* 2004;101:8174-8179.

Authors

Allison Heinly, MD, FAAP, Hasbro Children's Hospital (HCH) Pediatric Primary Care, Providence, RI.

Elizabeth Bogus, LCSW; Hasbro Children's Hospital (HCH) Pediatric Primary Care, Providence, RI.

Natalia Golova, MD, FAAP, Hasbro Children's Hospital (HCH) Pediatric Primary Care, Providence, RI.

Jennifer Friedman, MD, PhD, FAAP, Hasbro Children's Hospital (HCH) Pediatric Primary Care, Providence, RI.

Alcina Nickson, RN, Hasbro Children's Hospital (HCH) Pediatric Primary Care, Providence, RI.

Carol Lewis, MD, FAAP, Hasbro Children's Hospital (HCH) Pediatric Primary Care, Providence, RI.

Correspondence

Allison Heinly, MD

allison_heinly@brown.edu

Patient-Centered Medical Home-Kids (PCMH-Kids): A Conversation with Anchor Pediatrics

JUDITH B. WESTRICK, MD

In the following Q&A, pediatrician **JUDITH B. WESTRICK, MD,** a member of Anchor Pediatrics, a group of six pediatricians, one of whom is also a pediatric cardiologist, and four nurse practitioners, describes the group's experiences with PCMH-Kids.

The Lincoln, RI, practice is part of the multispecialty Anchor Medical Associates, which grew from the former Harvard Pilgrim staff model HMO beginning in the year 2000. It is associated with two groups of internists in Providence and Lincoln and a medicine and pediatrics group in Warwick.

1. Why did your group decide to join PCMH-Kids?

Anchor Pediatrics was a National Committee for Quality Assurance (NCQA)-recognized medical home prior to joining the initiative. We joined PCMH-Kids to implement quality improvement (QI) methods to improve patient and family-centered care. In addition, the financial support that we received has enabled us to finance and hire staff to facilitate the QI efforts within our practice.

2. What were the biggest challenges and successes?

The biggest challenge was implementing developmental screening. Most of the other practices participating in PCMH-Kids began using Survey of Wellbeing of Young Children (SWYC) available through Chadis.com and their online questionnaires for the purpose of screening the development of young patients during their well childcare visits. This did not work in our office.

We tried to use tablets provided by PCMH-Kids for children's caregivers to use to complete surveys with little success. They never seemed to be able to complete the surveys properly or promptly. Frequently, passwords were forgotten, toddlers tried to take the tablets away from caregivers to play with them, and young children's need for supervision all impeded timely completion of surveys. Only rarely did caregivers complete the surveys before our visits, and even then the caregiver commonly completed the wrong survey for the child's age.

Working with our QI team, we tried using a different, paper-based validated screen. We now consider developmental screening as a big success of the project since we have switched to the Parents' Evaluation of Developmental Status (PEDS) and continued doing the Modified Checklist for Autism in Toddlers (MCHAT) screens. The caregivers of our patients have been much more successful and efficient at completing paper survey screening tools. The two screens complement each other as the MCHAT asks very specific questions and the PEDS screen asks open-ended questions. The answers to the MCHAT are useful for screening for developmental disorders such as autism and that facilitates our developmental evaluation enormously. The PEDS is useful both for the straightforward answers, e.g., "I am concerned my child is not able to talk as well as he/she should" and also encourages and asks for other concerns from caregivers, e.g., "I am concerned about how my child will react when he/she learns Daddy is moving out" or "I am concerned we will need assistance to pay our rent or electric bill". Certainly, both kinds of responses are extremely helpful when trying to understand how a particular patient and family are doing.

3. How has your practice changed?

Through the PCMH-Kids project we have implemented multiple screenings in our office. This process is largely accomplished by the medical assistant (MA), who presents the questionnaire to the patient or caregiver and then enters the results into our EMR. In so doing, the MAs in our office have been asked to assume much more clinical responsibility and they have done so with attentiveness and compassion for our patients. They are responsible for finding ways to give teens and infant caregivers privacy to complete the CRAFFT substance use screen and the EPDS postpartum depression screen. Since this transition, the MAs in the office are more likely to comment on changes they notice in patient or family attitudes. The help of our MAs was consistent before PCMH-Kids, but as their clinical roles have changed, the MAs are even more involved and helpful.

Also, the availability of a nurse case manager (NCM) in the office has been extremely helpful. Having a clinically trained person who is not busy seeing patients but available to follow up on and guide families of patients with special needs is invaluable. The NCM in our office can check in with families of medically fragile patients and ensure they understand and are able to accomplish and access needed care for their children. She has become the point person for families to communicate with when trouble arises, and who ensures families have the follow-ups, supplies, and support they need.

4. What did you learn from other practices?

It has been extremely helpful to meet as a PCMH-Kids group to discuss how to implement the changes required of our practices. While we all agreed from the start that teens need privacy to complete substance use screenings in an accurate and helpful way, in practice this can be a serious challenge. Initially, our office wanted to screen all teens for substance use. After one of these sessions, we realized that we were more likely to be successful if we started with a smaller group. We chose 16–18 year-olds and developed a specific protocol for them.

Alternatively, when we started screening caregivers for postpartum depression, we realized that we wanted to screen all caregivers, not just biological mothers. Discussion within the group was enormously helpful in deciding how to proceed. We were particularly concerned to include all caregivers, as the incidence of depression is high in many caregivers – including fathers, adoptive and foster parents.

The sessions where we discussed how each office had implemented strategies for accomplishing these tasks were very helpful in the implementation of the project.

5. Has your office used integrated behavioral health and how has that been?

Behavioral health for pediatric patients in Rhode Island remains a very serious challenge. Despite the increased number of pediatric psychiatric beds in Rhode Island, they are almost always full. There is significant overflow of children with psychiatric diagnoses almost all the time to the medical beds at Hasbro Children's Hospital.

At the same time, it is getting harder and harder to find behavioral healthcare for pediatric patients who do not require inpatient level of care. Waitlists are often long and even when a suitable provider of behavioral healthcare can be found, the out- of-pocket costs for families can be prohibitive. In this situation, most pediatricians, including those of us at Anchor Pediatrics, are providing more mental health care to our patients.

Pedi-prn is a program that provides us with a way to speak with a child psychiatrist at a scheduled time later in the day. While this has been very helpful for crisis or co-management of conditions, we still lack the access to counseling resources, in-person psychiatry resources and family supports that our families need.

At Anchor, we have not yet been able to incorporate a behavioral health provider directly into our practice, although we feel this would be of great benefit to our patients. We have tried some other strategies with only modest success. We did come to an agreement with a behavioral health group located about a block from our office, which was very convenient for all. When we mentioned the various types of patients we wanted to refer they agreed wholeheartedly. Shortly thereafter they closed the office near us and moved. With less availability the wait times have increased and our patients are having some difficulty getting to their other offices which are farther away.

For short time, we had the help of a CEDARR (Comprehensive Evaluation Diagnosis Referral and Reevaluation) worker from Rhode Island Parent Information Network (RIPIN) in our office. While not a clinician, she was very helpful in locating behavioral health resources for patents and families. She was able to help patients and families connect with services more quickly and even arranged transportation when possible. As of this writing, RIPIN has a seasoned CEDARR worker who is scheduled to start in our office soon. In addition, Bradley Hospital has announced a training program for pediatric providers interested in learning more about providing more mental health services to our patients. At present they allow one provider per practice to be trained; two of our providers have asked to be included.

We plan to try to network with the practices in PCMH-Kids who have integrated behavioral health and learn how they are financing their behavioral health support.

Utility of Inspiratory Volume in Incentive Spirometry

ADAM E. M. ELTORAI, PhD; THOMAS J. MARTIN, BA; ASHLEY SZABO ELTORAI, MD; GRAYSON L. BAIRD, PhD; TERRANCE T. HEALEY, MD; ALAN H. DANIELS, MD

ABSTRACT

Incentive spirometers (IS) were developed to reproduce sustained maximal inspiration. Most providers believe that achieving target inspiratory volume (ISV) is the most important factor for successful IS use. ISV has been used as a surrogate for deep breathing effort and has been correlated with various clinical outcomes, but the scientific validity of these correlations has yet to be demonstrated. Currently, the greatest utility of targeted ISV may be as a method of monitoring global patient progress and as a psychosocial instrument for patient engagement in care.

KEYWORDS: incentive spirometry, inspiratory volume, review of evidence, respiratory care, postoperative care, atelectasis, hospital-acquired pneumonia

HISTORY

The incentive spirometer was first developed in 1970 by Bartlett et al. after observations that yawning may generate pulmonary benefits for postoperative patients.[1] The device was constructed to coach patients to repeatedly generate a sustained maximal inspiration in an effort to prevent regional ventilation reduction and atelectasis. In 1972, Van de Water et al. reported clinical usage of IS.[2] In 1973, the Bartlett-Edward IS was developed to further incentivize patient usage by providing visual light feedback when patients achieved their inspiratory target volume.[3] In 1975, Marion Laboratories, Inc. (Kansas City, MO) further enhanced the electronic IS's visual feedback by putting the display lights on a scale indicating increasingly larger achieved inspiratory volumes.[4] Used for many years, the electronic IS devices were eventually replaced by less expensive, single-use, non-electronic units.[5]

DEVICE TYPES AND CLINICAL GUIDELINES

IS devices fall into two categories: flow-oriented (FIS) and volume-oriented (VIS). The FIS has a chamber with three interconnected columns wherein light plastic balls sit. The patient inhales through a tube connected to the chamber, attempting to raise the balls through the creation of negative intrathoracic pressure.[6] The non-linear connections create turbulence of flow in order to increase the inspiratory effort needed to raise the balls to various heights.[7] In comparison, the VIS is composed of a tube connected to a chamber with displayed volume measurements. The patient inhales and the maximum volume of air displacement is indicated by the elevation of a float in the chamber.[6]

The FIS and VIS devices have different effects. Demanding greater respiratory effort, the FIS has been shown to increase chest muscle demands.[8] Despite imposing less work of breathing,[9] the VIS device has shown better improvement of diaphragmatic activity,[8,10] along with earlier[10] and greater[11,12] pulmonary functional recovery. The American Association for Respiratory Care suggests use of VIS.[13]

PROVIDER PERSPECTIVES ON ISV

In a large national survey of nurses and respiratory therapists, the majority (51.1%) believed that achieving target inspiratory volume (**Figure 1**) is the most important factor for successful IS use, rather than achieving target inspiratory flow or breath hold. A higher percentage of nurse respondents held this belief than respiratory therapists. The study also demonstrated providers' perspectives on target initial ISV (1288.5 mL; 95%CI: 1253.8–1323.2) and daily ISV improvement (525.6 mL; 95%CI: 489.8–561.4).[14]

ISV AS AN OUTCOME

Multiple studies have utilized ISV as an objective measure of deep breathing effort. ISV was used by Edelen and Perlow to demonstrate that relaxation techniques could have comparable effects to opioid analgesia in deep breathing performance.[15] Pieracci et al. argued that severe rib fracture patients had improved acute outcomes, such as higher daily ISV values, when surgical stabilization was utilized vs. medical management.[16] Similar to Baker et al.'s study[17] of surgery, trauma, and critical care patients, Dias et al. made the case that the respiratory therapy technique of breath stacking (preventing exhalation with a one-way valve) improved ISV vs. standard IS protocols in postoperative cardiac surgery patients.[18] In a study of bariatric surgery patients, Cattano et al. demonstrated that preoperative use of IS did not improve postoperative ISV.[19] Harton et al. determined that number of coronary bypass grafts and age were predictors of individual patients returned to preoperative ISV after cardiac surgery.[20]

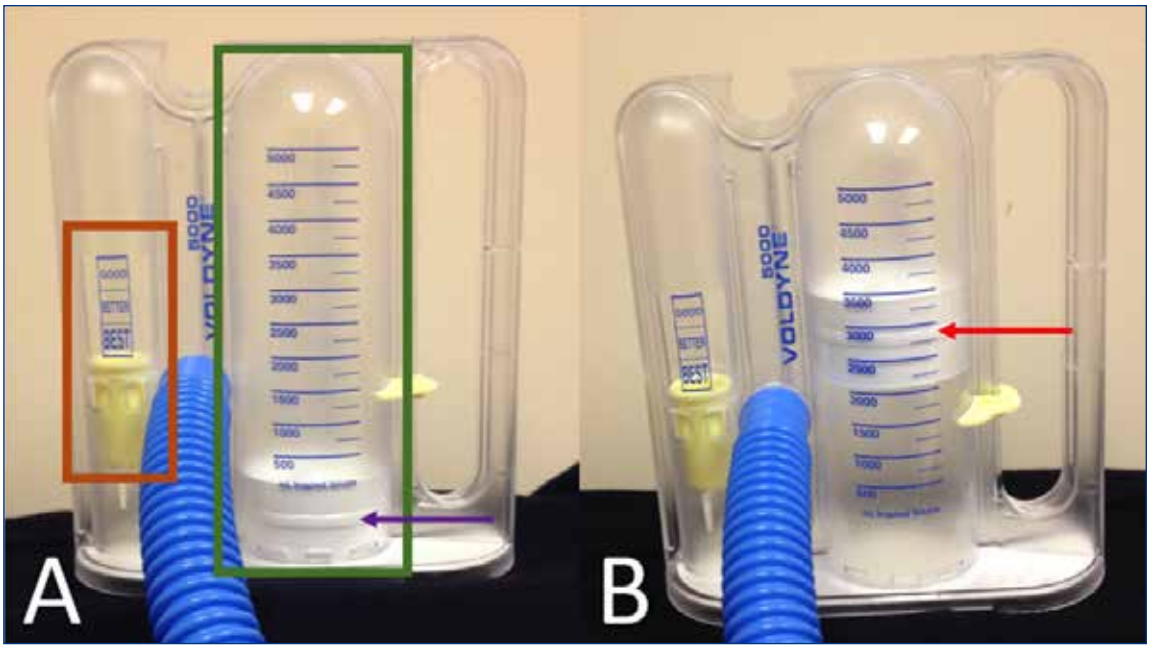


Figure 1.
A) Components of the incentive spirometer: flow meter (orange box), volume chamber (green box), volume float (purple arrow).
B) Displaced volume float (red arrow).

ISV CORRELATION WITH CLINICAL OUTCOMES

ISV has been used as a surrogate for deep breathing effort and correlated with various clinical outcomes. In a study of rib fracture patients, Butts et al. demonstrated that lower ISV on admission predicted acute respiratory failure – defined as need for positive pressure ventilation.[21] In a study of thoracic epidural analgesia, Harris et al. demonstrated that pain with maximal ISV had a greater predictive value than pain at rest with respect to indicating the effectiveness of thoracic epidurals.[22] In a cohort of lobectomy patients, Bastin et al. demonstrated postoperative ISV to be a reliable indicator of vital capacity and inspiratory reserve volume.[23]

Despite its *correlation* with certain clinical outcomes, IS has yet to demonstrate *causal* improvement in outcomes.[24] Well-designed clinical trials are needed to demonstrate evidence of benefit from IS use.

NEEDED STUDIES

In order to demonstrate evidence of IS benefit, the following areas[13,14] need to be addressed:

- Patient education and reminder procedures
- Use settings and frequency
- Indications and contraindications
- Defining the clinically significant outcome measures
- Device and equipment design
- Adherence monitoring[25]
- Outcomes in comparison to, and in combination with, other therapies
- When it should be used during the course of care
- Number of breaths per session and breath hold duration
- Target ISV/ ISV improvement goals and rate
- Impact of patient height and ideal body weight on target ISV
- Inspiratory flow targets
- Protocol advancement
- Parameter graduation and interaction effects
- Patient-specific use protocols
- Cost effectiveness in comparison to other therapies
- Specific patient groups affected
- Whether volume follows a linear dose-response curve with clinical outcomes or an absolute target volume threshold exists

CURRENT UTILITY

At present, the utility of ISV may be that of a global indicator of pulmonary function or patient status. For example, Brown and Walters described how tracking of ISV could be used to promptly detect decline in respiratory function and facilitate earlier intervention.[26] Loh et al. described how measurements of ISV in rapid succession could be used to score dyspnea severity.[27]

The psychosocial implications of patient engagement and targeted ISV may represent the greatest benefit of IS in its current form. Patients who are engaged demonstrate self-efficacy, which has been shown to improve outcomes in pulmonary patients.[28] Cassidy et al. used IS as a focal point for patient engagement in a multidisciplinary approach to reducing hospital-acquired pneumonia.[29] Targeted ISV may help to internalize a patient's locus of control, which may

affect perceptions of their health status.[30] Engaging patients through IS may help to increase their sense of agency and responsibility for their own health and improvement.[31]

SUMMARY

IS was developed to reproduce a patient's sustained maximal ISV. Clinical guidelines suggest selection of volume-oriented devices, as most providers believe achieving target ISV to be the most important factor in successful IS use. ISV has been used as a surrogate for deep breathing effort and correlated with various clinical outcomes, but whether causal relationships exist remains to be determined. Currently, the greatest utility of targeted ISV may be as a method of monitoring global patient progress and promoting patient engagement in their care.

References

1. Bartlett RH, Krop P, Hanson EL, Moore FD. Physiology of yawning and its application to postoperative care. Surg Forum. 1970;21:222-224.
2. Van de Water JM, Watring WG, Linton LA, Murphy M, Byron RL. Prevention of postoperative pulmonary complications. Surg Gynecol Obstet. 1972;135(2):229-233.
3. Bartlett RH, Gazzaniga AB, Geraghty TR. Respiratory maneuvers to prevent postoperative pulmonary complications. A critical review. JAMA. 1973;224(7):1017-1021.
4. Marion Laboratories I, Inventor. Electronic incentive breathing exerciser to measure and assist a patient's breathing exercises. US patent 10434171975.
5. Overend TJ AC, Lucy SD, Bhatia C, Jonsson BI, Timmermans C. The effect of incentive spirometry on postoperative pulmonary complications. Chest. 2001;120(3):971-978.
6. Cairo JM. Mosby's respiratory care equipment. Elsevier Health Sciences; 2013.
7. do Nascimento Junior P, Modolo NS, Andrade S, Guimaraes MM, Braz LG, El Dib R. Incentive spirometry for prevention of postoperative pulmonary complications in upper abdominal surgery. Cochrane Database Syst Rev. 2014(2):CD006058.
8. Agostini P, Singh S. Incentive spirometry following thoracic surgery: what should we be doing? Physiotherapy. 2009;95(2):76-82.
9. Paisani Dde M, Lunardi AC, da Silva CC, Porras DC, Tanaka C, Carvalho CR. Volume rather than flow incentive spirometry is effective in improving chest wall expansion and abdominal displacement using optoelectronic plethysmography. Respir Care. 2013;58(8):1360-1366.
10. Alaparthi GK AA, Anand R, Mahale A. Comparison of flow and volume oriented incentive spirometry on lung function and diaphragm movement after laparoscopic abdominal surgery: A randomized clinical pilot trial. Int J Physiother Respir Care. 2013;1(5):274-278.
11. Kumar AS, Alaparthi GK, Augustine AJ, Pazhyaottayil ZC, Ramakrishna A, Krishnakumar SK. Comparison of Flow and Volume Incentive Spirometry on Pulmonary Function and Exercise Tolerance in Open Abdominal Surgery: A Randomized Clinical Trial. J Clin Diagn Res. 2016;10(1):KC01-06.
12. Lunardi AC, Porras DC, Barbosa RC, et al. Effect of volume-oriented versus flow-oriented incentive spirometry on chest wall volumes, inspiratory muscle activity, and thoracoabdominal synchrony in the elderly. Respir Care. 2014;59(3):420-426.
13. Restrepo RD1, Wettstein R, Wittnebel L, Tracy M. Incentive spirometry: 2011. Respir Care. 2011;56(10):1600-4.
14. Eltorai AEM, Baird GL, Eltorai ALS, Pangborn J, Antoci V, Cullen AH, Paquette K, Connors K, Barbaria J, Smeals KJ, Agarwal S, Healey TT, Ventetuolo CE, Sellke FW, Daniels AH. Perspectives on incentive spirometry utility and patient protocols. Respir Care. 2018 Jan 23. pii: respcare.05872. doi: 10.4187/respcare.05872. [Epub ahead of print]
15. Edelen C, Perlow M. A comparison of the effectiveness of an opioid analgesic and a nonpharmacologic intervention to improve incentive spirometry volumes. Pain Manag Nurs. 2002;3(1):36-42.
16. Pieracci FM, Lin Y, Rodil M, Synder M, Herbert B, Tran DK, Stoval RT, Johnson JL, Biffl WL, Barnett CC, Cothren-Burlew C, Fox C, Jurkovich GJ, Moore EE. A prospective, controlled clinical evaluation of surgical stabilization of severe rib fractures. J Trauma Acute Care Surg. 2016;80(2):187-94.
17. Baker WL, Lamb VJ, Marini JJ. Breath-stacking increases the depth and duration of chest expansion by incentive spirometry. Am Rev Respir Dis. 1990;141(2):343-6.
18. Dias CM, Vieira Rde O, Oliveira JF, Lopes AJ, Menezes SL, Guimarães FS. Three physiotherapy protocols: effects on pulmonary volumes after cardiac surgery. J Bras Pneumol. 2011;37(1):54-60.
19. Cattano D, Altamirano A, Vannucci A, Melnikov V, Cone C, Hagberg CA. Preoperative use of incentive spirometry does not affect postoperative lung function in bariatric surgery. Transl Res. 2010;156(5):265-72.
20. Harton SC, Grap MJ, Savage L, Elswick RK. Frequency and predictors of return to incentive spirometry volume baseline after cardiac surgery. Prog Cardiovasc Nurs. 2007 Winter;22(1):7-12.
21. Butts CA, Brady JJ 3rd, Wilhelm S, Castor L, Sherwood A, McCall A, Patch J, Jones P, Cortes V, Ong AW. Do simple beside lung function tests predict morbidity after rib fractures? Am J Surg. 2017 Mar;213(3):473-477.
22. Harris DJ, Hilliard PE, Jewell ES, Brummett CM. The association between incentive spirometry performance and pain in postoperative thoracic epidural analgesia. Reg Anesth Pain Med. 2015 May-Jun;40(3):232-8
23. Bastin R, Moraine JJ, Bardocsky G, Kahn RJ, Mélot C. Incentive spirometry performance. A reliable indicator of pulmonary function in the early postoperative period after lobectomy? Chest. 1997 Mar;111(3):559-63.
24. Eltorai AEM, Szabo AL, Antoci V Jr, Ventetuolo CE, Elias JA, Daniels AH, Hess DR. Clinical Effectiveness of Incentive Spirometry for the Prevention of Postoperative Pulmonary Complications. Respir Care. 2018 Mar;63(3):347-352.
25. Eltorai AEM, Baird GL, Eltorai AS, Pangborn J, Antoci V Jr, Cullen HA, Paquette K, Connors K, Barbaria J, Smeals KJ, Agarwal S, Healey TT, Ventetuolo CE, Sellke FW, Daniels AH. Incentive spirometry adherence: a national survey of provider perspectives. Respir Care. 2018 Jan 23. pii: respcare.05882. doi: 10.4187/respcare.05882. [Epub ahead of print]
26. Brown SD, Walters MR. Patients with rib fractures: use of incentive spirometry volumes to guide care. J Trauma Nurs. 2012 Apr-Jun;19(2):89-91; quiz 92-3.
27. Loh LC, Teh PN, Raman S, Vijayasingham P, Thayaparan T. Incentive spirometry as a means to score breathlessness. Malays J Med Sci. 2005 Jan;12(1):39-50.
28. Grammatopoulou E, Skordilis EK, Haniotou A, John Z, Athanasopoulos S. The effect of a holistic self-management plan on asthma control. Physiother Theory Pract. 2017 Aug;33(8):622-633.
29. Cassidy MR, Rosenkranz P, McCabe K, Rosen JE, McAneny D. I COUGH: reducing postoperative pulmonary complications with a multidisciplinary patient care program. JAMA Surg. 2013 Aug;148(8):740-5.
30. Burker EJ1, Phillips KM, Giza M. Factors related to health locus of control among lung transplant candidates. Clin Transplant. 2012 Sep-Oct;26(5):748-54.
31. Berger Z, Flickinger TE, Pfoh E, Martinez KA, Dy SM. Promoting engagement by patients and families to reduce adverse events in acute care settings: a systematic review. BMJ Qual Saf. 2014 Jul;23(7):548-55.

Authors

Adam E. M. Eltorai, PhD; Warren Alpert Medical School of Brown University, Providence, RI.

Thomas J. Martin, BA, NRP; Warren Alpert Medical School of Brown University, Providence, RI.

Ashley Szabo Eltorai, MD; Yale University School of Medicine, New Haven, CT.

Grayson L. Baird, PhD; Warren Alpert Medical School of Brown University, Providence, RI.

Terrance T. Healey, MD; Warren Alpert Medical School of Brown University, Providence, RI.

Alan H. Daniels, MD; Warren Alpert Medical School of Brown University, Providence, RI.

Disclosure

No funding was received for this work. Mr. Eltorai has disclosed a relationship with Springer and Lippincott Williams & Wilkins. Dr. Daniels has disclosed relationships with DePuy, Globus Medical, Orthofix, Springer, and Stryker. The other authors have disclosed no conflicts of interest.

Correspondence

Adam E. M. Eltorai, PhD
Warren Alpert Medical School of Brown University
70 Ship Street
Providence, RI 02906
401-330-1420
Fax 401-330-1495
adam_eltorai@brown.edu

Project ESCUCHE: A Spanish-language Radio-based Intervention to Increase Science Literacy

MAUREEN G. PHIPPS, MD, MPH; KARTIK K. VENKATESH, MD, PhD; CRYSTAL WARE, RN, BSN, CCRP; MICHELLE LIGHTFOOT, MD, MPH; CHRISTINA RAKER, ScD; PABLO RODRIGUEZ, MD

ABSTRACT

Project ESCUCHE was developed to evaluate the potential to increase science literacy among Spanish-language radio listeners. In collaboration with community partners, we developed a 10-week culturally applicable science and health curriculum delivered through Spanish-language radio. Science literacy was assessed before and after the intervention.

Among the 51 participants, 70% were female, 76% were > 35 years old, 60% reported some college education, and 90% preferred speaking in Spanish versus English. The majority of participants (>94%) demonstrated adequate baseline functional health literacy, and 70% reported listening to all ten of the radio programs. Participants demonstrated significant increases in science knowledge post intervention (mean score before intervention 68.4% and after intervention 77%). This improvement was consistent across gender, education level, age, and baseline functional health literacy.

Radio has the potential to be an effective method of engaging the Spanish-speaking community to improve science literacy. The results from the ESCUCHE program add to the groundwork for further exploration of how radio programming and other media platforms can be used to impact health.

KEYWORDS: Latino, Spanish, radio, intervention, health literacy, science literacy

INTRODUCTION

Healthy People 2020 identifies limited health literacy as a public health concern, and includes health communication as a focus area for intervention with the goal of using communication to strategically improve health.[1,2] The Institute of Medicine noted that nearly half of all American adults, or 90 million individuals, may have difficulty understanding and acting upon health information, and that the problem of health literacy is greater amongst minority populations.[3] Low health and science literacy is linked to poor health outcomes in the United States[4] and improving health and science literacy is a national health priority.

Spanish-speaking adults also have disproportionately low health literacy, with 65% having basic or below basic health literacy compared with 28% of white adults.[5] While health and well-being can be negatively impacted by multiple factors, literacy and language barriers may contribute to or exacerbate health disparities by deterring patients from seeking health care, and/or making it difficult to follow through on clinical recommendations.[6]

Providing culturally competent health communication and placing health education materials in public venues may help meet the health education needs of the Spanish-speaking community.[7,8] Prior research suggests that Latinos prefer to receive health information via Latino social environments and Spanish-language programming rather than through English programming.[7,9] Media-based interventions have proven effective in changing Latino populations' knowledge, attitudes, and behaviors on cancer screening,[11] diabetes care,[9] and condom use.[7] A recent national-representative survey found that Spanish-speaking adults may particularly favor health messages delivered from the radio relative to other forms of media.[10]

Recognizing the importance of improving health and science literacy in the Spanish-speaking community, and the potential for radio to be an effective venue for our intervention, we developed a partnership with Latino Public Radio (LPR) as well as collaborations with local leaders in the Latino community to develop a radio-based educational intervention. Our study objective was to develop and evaluate a Spanish-language radio program targeted at increasing health and science literacy. Our hypothesis was that delivering a health and science curriculum in Spanish over a 10-week period to a Spanish-speaking radio audience could increase science literacy and health knowledge among program listeners.

METHODS

"Evaluating the Spanish radio Community's Understanding of Clinical research and Health topics" (ESCUCHE, or "listen" in Spanish) was designed to develop a science literacy program for a Spanish-language radio audience. ESCUCHE, conducted between January 2009 and March 2010, was implemented in two phases: a formative qualitative component conducted through community forums and surveys (ESCUCHE I), and a 10-week Spanish radio-based intervention aimed at increasing science and health literacy (ESCUCHE

II). This study was an academic-community partnership between Latino Public Radio (LPR) and Brown University/ Women & Infants Hospital. This academic-community partnership was guided by the principles of Community Based Participatory Research (CBPR) in which community members were closely involved in the intervention design. This study was approved by the Institutional Review Board at Women & Infants Hospital (IRB NET ID# 792315).

In ESCUCHE I, the community's interest in program participation and the clinical subject areas for the intervention were assessed through community-based forums held with leadership from prominent Latino organizations, discussions on the radio with call-in listeners, and anonymous surveys. The surveys and forums assessed what types of technology are accessible to community members, their health concerns and topics of interest, optimal program length and frequency, how community members might access programs that they are not able to listen to live, and overall interest in such a program.

ESCUCHE II incorporated the findings from the initial qualitative assessment which informed the following ten primary health issues addressed in ESCUCHE II: health screenings, immunizations for HPV and cervical cancer, risk of cardiovascular disease (cholesterol and hypertension), diet and exercise (obesity), diabetes, breast cancer, contraception, HIV/AIDS, smoking, and asthma. This ten-week curriculum was delivered via the radio from January 27 to March 31, 2010.

Fifty-one participants were recruited to participate in ESCUCHE II. Eligibility criteria included listening to LPR, 18 years of age or older, and Spanish-speaking. Participants in ESCUCHE I were not eligible for ESCUCHE II. Participants were recruited via LPR broadcasts, and radio callers interested in participating in the program were then contacted by research study staff. Informed consent was obtained from all participants.

The LPR Network (www.lprri.org) was launched in 2005 as a non-profit organization. Ninety percent of listeners live in Rhode Island and approximately one third of Latinos in the state listened to LPR daily.[4]

Each of the ten primary health topics were covered in a thirty-minute pre-recorded structured radio broadcast, followed by a live, thirty-minute, phone-in question and answer session. Both parts of this program were led by a study investigator (Dr. Pablo Rodriguez). The programs were developed using principles from the National Research Council's National Science Education Standards and the American Association for the Advancement of Science's Benchmarks for Science Literacy.[12, 13]

Study assessments were offered to participants in either English or Spanish. Baseline survey included socio-demographic information, usage of LPR, and sources of health-related information. The pre-test assessment included functional heath literacy and science literacy using validated scales including the Short Assessment of Health Literacy for Spanish Adults (SAHLSA-50),[14] the Rapid Estimates of Adult Literacy in Medicine–Short Form (REALM-SF),[15] and the Newest Vital Signs (NVS) Health Literacy Assessment.[16] To measure science and health knowledge, participants completed a survey adapted from the Program for International Student Assessment (PISA).[17] Following each radio program, participants completed an evaluation that provided information about interest in and feedback about the show.

Within 6 weeks of the final radio program, participants completed a post-test survey, which included the same science and health questions assessed at the pre-test survey. In addition, participants evaluated each element of the program and interest in the health and science content of the intervention.

Changes in science and health knowledge were calculated overall and stratified by gender (male vs. female), functional health literacy level, age >50 years, and education. Scores were presented as the percentage of correct items. Mean science and health knowledge scores were compared between the pre- and post-test time points by paired T-tests. To compare proportions, chi-square ($\chi 2$) statistics were used. All data analyses were conducted using STATA (STATACORP, version 10.0, College Station, TX) software. A p-value <0.05 was considered statistically significant.

RESULTS

Of the 51 enrolled ESCUCHE II participants, 35 were female (**Table 1**). One participant did not provide demographic information and was excluded from subsequent analysis. Forty percent of participants were between 36–50 years of age and 34% were >50 years of age. Almost two-thirds (60%)

Table 1. Baseline socio-demographic characteristics

Participant characteristics at baseline	Overall, % (N=50)	Men, % (N=15)	Women, % (N=35)
Socio-demographic variables:			
Gender			
Male	30.0	--	--
Female	70.0		
Age, years			
18-35	24.5	13.3	29.4
36-50	40.8	53.3	35.3
>50	34.7	33.3	35.3
Education			
Some formal education	18.0	33.3	11.4
High school graduate	22.0	20.0	22.9
Some college education	42.0	26.7	48.6
College graduate	18.0	20.0	17.1
Language preference			
Spanish	90.0	86.7	91.4
English	10.0	13.3	8.6
Employed in health care or a science-related field	28.0	20.0	31.4

of participants reported some college education. Ninety percent of participants preferred speaking in Spanish compared with English.

Seventy-one percent of participants reported listening to all ten of the radio programs, and 22% reported listening to between seven and nine of the radio programs. Only three participants reported listening to fewer than six radio programs.

Baseline functional health literacy scores and the proportion of participants with access to health information and media were high (**Table 2**); this did not vary when stratified by gender. The majority of participants (>94%) had adequate health literacy per the SAHLSA-50 and REALM-SF assessments, while only 66% achieved adequate health literacy per the NVS assessment. The REALM-SF was a reliable measure of functional health literacy relative to the SAHLSA-50 (Kuder-Richardson coefficient of reliability of 0.91); in contrast, the NVS was not as reliable relative to the SAHLSA-50 (Kuder-Richardson coefficient of 0.13).

Sources of health and science information included physician (76%) and the internet (58%). (**Table 2**) Participants reported a high interest in LPR with 90.9% listening to "Nuestra Salud" program. Socio-demographic characteristics, baseline functional health literacy, and access to health information and media were similar between men and women.

After participating in the ESCUCHE II Program, the 41 participants who completed the post-test showed significant increases in health and science knowledge compared to their performance on the pre-intervention assessment (mean score 68.4% pre-intervention, 95% CI: 63.7 to 73.0 versus mean score 77.0% post-test, 95% CI: 73.6 to 80.5) (**Figure 1**). The eight participants who did not complete the post-test had significantly lower science and health knowledge scores at baseline compared with participants who completed the post-intervention assessment (mean score 55.6% vs. 68.4%, p=0.003).

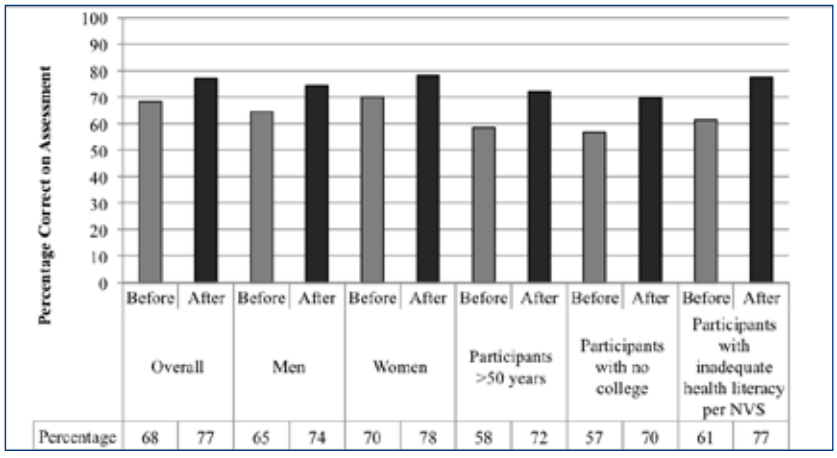
Men and women demonstrated significant increases in health and science knowledge after the intervention. (**Figure 1**) Participants over 50 years old demonstrated higher health and science knowledge following the radio intervention (mean increase in score of 13.7% (95% CI 7.8 to 19.5; p-value<0.01)). Those with less than a college education and those

Table 2. Baseline functional health literacy and access to health information and media

Participant characteristics at baseline	Overall, % (N=50)	Men, % (N=15)	Women, % (N=35)
Adequate functional health literacy:			
SAHLSA-50 (score of ≥38 out of 50 points)	96.0	93.3	97.1
REALM-SF (score of 7 out of 7 points)	94.0	93.3	94.3
NVS (score of ≥4 out of 6 points)	66.0	66.7	65.7
Access to health information and media:			
I would advise a family member to pursue a career in health care or science	100.0	100.0	100.0
I understand my physician's health instructions			
All of the time	50.0	53.3	48.6
Most of the time	38.0	40.0	37.1
Some of the time	10.0	0.0	14.3
Never	2.0	6.7	0.0
I understand current health issues in the news			
All of the time	34.0	26.7	37.1
Most of the time	42.0	53.3	37.1
Some of the time	24.0	20.0	25.7
Never	0.0	0.0	0.0
I am in interested in being able to better understand health and science topics in the news	94.0	100.0	91.4
Source of health and science information			
Internet	58.0	60.0	57.1
Library	16.0	20.0	14.3
Traditional healer	10.0	6.7	11.4
Community organization	10.0	6.7	11.4
Medical reference book	32.0	26.7	34.3
Physician	76.0	73.3	77.1
Children	56.0	0.0	8.6
Family	28.0	13.3	34.3
Friends	16.0	0.0	22.9
Natural food store	18.0	26.7	14.3
I have access to:			
Radio	94.0	93.3	94.3
Podcasts	26.0	40.0	20.0
Cell phone	80.0	73.3	82.9
Home phone	70.0	93.3	60.0
Internet	74.0	86.7	68.6

SAHLSA-50 (Short Assessment of Health literacy for Spanish Adults); REALM-SF (Rapid Estimates of Adult Literacy in Medicine—Short Form); NVS (Newest Vital Signs); LPR (Latino Public Radio)

Figure 1. Changes in science and health knowledge after the radio intervention



with inadequate health literacy per the NVS scale demonstrated significant, albeit lower, knowledge gains following the radio intervention.

Following the radio intervention, participants (97.6%) reported their willingness to participate again in a similar program and would recommend the radio intervention to a friend.

DISCUSSION

The aim of this intervention was to improve science literacy in a Spanish-speaking community through a novel and culturally appropriate radio-based curriculum. The ESCUCHE Program demonstrated that the radio can be an effective method of engaging the Spanish-speaking community on health and science topics. Participants who completed the post-test demonstrated significant gains in health and science knowledge following the 10-week radio program. While the study itself took placing 2009-2010, these findings suggest that the radio or other media may useful in improving health and science literacy.

This study involved developing evaluation tools for health knowledge and science literacy, as well as the science and health curriculum. Although this program was not directly linked to health outcomes, the distribution of an evidence-based science literacy program to a Spanish-speaking audience has the potential to increase access to health information and knowledge, which could in turn have an impact on overall health.

The limitations to this study include potential selection bias as participants were radio listeners. A high level of satisfaction and participation in the current study may reflect that participants were utilizing the radio as a primary mode of accessing information. Participants had a high level of baseline health literacy; therefore, it is difficult to extrapolate these findings to a group with lower health literacy. Given the limited sample size, inclusion criteria, and convenience sample (Rhode Island residents), the findings of the current study may not be generalizable to the greater Spanish-speaking population. Future studies utilizing the radio and other media platforms to deliver an evidence-based curriculum to improve health and science literacy among a larger population-base are warranted.

The current study demonstrated that the radio is a feasible and efficacious media outlet to reach this community. A unique strength of this study was the collaborative development of an empiric culturally suitable science and health curriculum that could be delivered via the radio. Important health topics that emerged from this community-based collaboration were used to develop the radio program. Furthermore, this study involved a structured approach to assessing baseline functional health literacy among a sample of the target population and systematically assessed changes in science and health knowledge to determine the impact of the radio intervention.

Acknowledgments

This study was funded by the Eunice Kennedy Shriver National Institute of Child Health and Human Development, NICHD at the National Institutes of Health (Grant # 1R03HD059500-01).

References

1. Healthy People 2020. Washington, DC: U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Retrieved July 11, 2016 from: https://www.healthypeople.gov/2020/topics-objectives/topic/health-communication-and-health-information-technology
2. U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. (2010). National Action Plan to Improve Health Literacy. Washington, DC: DHHS. Retrieved October 12, 2012, from: https://health.gov/communication/hlactionplan/pdf/Health_Literacy_Action_Plan.pdf.
3. Nielsen-Bohlman L, Panzer AM, Kindig DA. 2004. Health Literacy: A Prescription to End Confusion. Washington, DC: The National Academies Press. Available from: http://www.ihi.org/knowledge/Pages/Publications/HealthLiteracyAPrescriptiontoEndConfusion.aspx
4. United States Census Bureau. 2016. QuickFacts. Available from: http://www.census.gov/quickfacts/table/PST045215/44007.
5. Services USDoHaH. America's Health Literacy: Why We Need Accessible Health Information. 2008; http://www.health.gov/communication/literacy/issuebrief/. Accessed October 10, 2012.
6. Victorson, D., Banas, J., Smith, J., Languido, L., Shen, E., Gutierrez, S., Cordero, E., Flores, L. (2014). eSalud: Designing and Implementing Culturally Competent eHealth Research With Latino Patient Populations. American Journal of Public Health, 104(12), 2259–2265. http://doi.org/10.2105/AJPH.2014.302187
7. Elder JP, Ayala GX, Parra-Medina D, Talavera GA. Health communication in the Latino community: issues and approaches. Annu Rev Public Health. 2009;30:227-251.
8. Flores G, Fuentes-Afflick E, Barbot O, Carter-Pokras O, Claudio L, Lara M, McLaurin JA, Pachter L, Ramos-Gomez FJ, Mendoza F, Valdez RB, Villarruel AM, Zambrana RE, Greenberg R, Weitzman M. The health of Latino children: urgent priorities, unanswered questions, and a research agenda. JAMA. Jul 3 2002;288(1):82-90.
9. Cortés D. Diabetes Health Education for Latinos through Innovative Informational Materials. 2003. Retrieved October 12, 2012 from: http://www.hsph.harvard.edu/healthliteracy/practice/diabetes-health-education-for-latinos-through-innovative-informational-materials/index.html.
10. Viswanath K, Ackerson LK. Race, ethnicity, language, social class, and health communication inequalities: a nationally-representative cross-sectional study. PLos ONE. 2011;6(1):e14550.
11. Yancey AK, Tanjasiri SP, Klein M, Tunder J. Increased cancer screening behavior in women of color by culturally sensitive video exposure. Preventive medicine. Mar 1995;24(2):142-148.
12. National Committee on Science Education Standards and Assessment NRC. National Science Education Standards. Washington, DC: The National Academies Press; 1996.
13. American Association for the Advancement of Science. Benchmarks for Science Literacy. New York: Oxford University Press; 1993.
14. Lee SY, Bender DE, Ruiz RE, Cho YI. Development of an easy-to-use Spanish Health Literacy test. Health services research. Aug 2006;41(4 Pt 1):1392-1412.
15. Davis TC, Long SW, Jackson RH, et al. Rapid estimate of adult literacy in medicine: a shortened screening instrument. Family medicine. Jun 1993;25(6):391-395.
16. Weiss BD, Mays MZ, Martz W, et al. Quick assessment of literacy in primary care: the newest vital sign. Annals of family medicine. Nov-Dec 2005;3(6):514-522.
17. Organization for Economic Co-operation and Development Organization for Economic Co-operation and Development. PISA 2009 Assessment Framework: Key competencies in reading, mathematics, and science 2009; http://www.oecd.org/pisa/pisaproducts/44455820.pdf.

Authors

Maureen G. Phipps, MD, MPH, Women & Infants Hospital of Rhode Island, Providence, RI; Department of Obstetrics and Gynecology, Department of Epidemiology, Warren Alpert Medical School of Brown University, Providence, RI

Kartik K. Venkatesh, MD, PhD, Division of Maternal Fetal Medicine, Department of Obstetrics and Gynecology, University of North Carolina, Chapel Hill, NC

Crystal Ware, RN, BSN, CCRP, Women & Infants Hospital of Rhode Island, Providence, RI

Michelle Lightfoot, MD, MPH, Deparment of Obstetrics and Gynecology, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA

Christina Raker, ScD, Women & Infants Hospital of Rhode Island, Providence, RI; Department of Obstetrics and Gynecology, Warren Alpert Medical School of Brown University, Providence, RI

Pablo Rodriguez, MD, Women & Infants Hospital of Rhode Island, Providence, RI; Department of Obstetrics and Gynecology, Warren Alpert Medical School of Brown University, Providence, RI; Latino Public Radio, Providence, RI

Correspondence

Maureen G. Phipps, MD, MPH
Department of Obstetrics and Gynecology
Women & Infants Hospital of Rhode Island
101 Dudley Street
Providence, RI 02905
401-274-1122 x41575
Fax 401-453-7696
mphipps@wihri.org

Diagnosis and Management of Hip Abductor Insufficiency

STEPHEN E. MARCACCIO, MD; JACOB M. BABU, MD, MHA; KALPIT SHAH, MD;
ROSS BUDACKI, MD; RAMIN R. TABADDOR, MD

ABSTRACT

Greater Trochanteric Pain Syndrome (GTPS) is a common cause of lateral hip pain, with an incidence of 1.8 per 1000 patients, most commonly occurring between the fourth and sixth decades of life. When GTPS fails to improve with conservative management, hip abductor insufficiency should be suspected. The diagnosis of hip abductor insufficiency is made by a combination of physical exam findings and imaging studies, with Magnetic Resonance Imaging (MRI) being the diagnostic study of choice. Initial conservative management consists of activity modification, physical therapy, non-steroidal anti-inflammatories and corticosteroid injections. If conservative management fails, this may be suggestive of a hip abductor tear. Surgical intervention has been shown to provide excellent outcomes, and may be necessary if a tear is present. The purpose of this paper is to review and raise awareness of hip abductor insufficiency as an under-diagnosed and under-treated condition that can limit patient mobility and quality of life.

INTRODUCTION

Hip pain is among the most common orthopaedic complaints and represents a wide range of etiologies including osteoarthritis, inflammatory arthropathies, referred neurologic pain, and muscular or ligament injury or degeneration.[1] A common cause of lateral hip pain is Greater Trochanteric Pain Syndrome (GTPS), with an incidence of 1.8 per 1000 patients, most commonly occurring between the fourth and sixth decades of life. It is more common in females and can cause significant morbidity and chronic functional limitations.[1] This type of lateral hip pain has often been described by the blanket phrase "greater trochanteric bursitis".[1]

Tears of the hip abductor tendons, the gluteus medius and gluteus minimus, were first described in the 1990s by Bunker *et al*. and Kagan, referring to the presentation and associated symptoms as "the rotator cuff tear of the hip".[2,3] It has recently been recognized that greater trochanteric pain syndrome that is recalcitrant to conservative management is commonly caused by hip abductor tendon tears.[4,5] MRI is the study of choice for diagnosing hip abductor tears, with initial management consisting of conservative measures (activity modification, physical therapy, or steroid injections)[6]. When conservative measures no longer provide adequate symptom relief, surgical intervention has been shown to improve clinical outcomes.[7] Hip abductor insufficiency is an under-diagnosed and under-treated condition that can limit patient mobility and quality of life.

ANATOMY

The gluteus medius muscle is a fan-shaped structure with a broad origin between the anterior superior iliac spine to the posterior edge of the iliac crest and inserts along the superior and lateral aspect of the greater trochanter (**Figure 1**). It contains fibers that are vertically oriented (thus aiding in initiation of hip abduction) and horizontally oriented (aiding in gait stabilization).[8] The anterior portion of the muscle also contributes to pelvic rotation and the entire muscle is innervated by the superior gluteal nerve. The gluteus minimus originates from the outer surface of the ilium and inserts on the anterior aspect of the greater trochanter, also aiding in hip abduction[8,9] (**Figure 2**).

Figure 1. Hip abductor musculature
(Reprinted with permission from Lachiewicz – Citation 11)

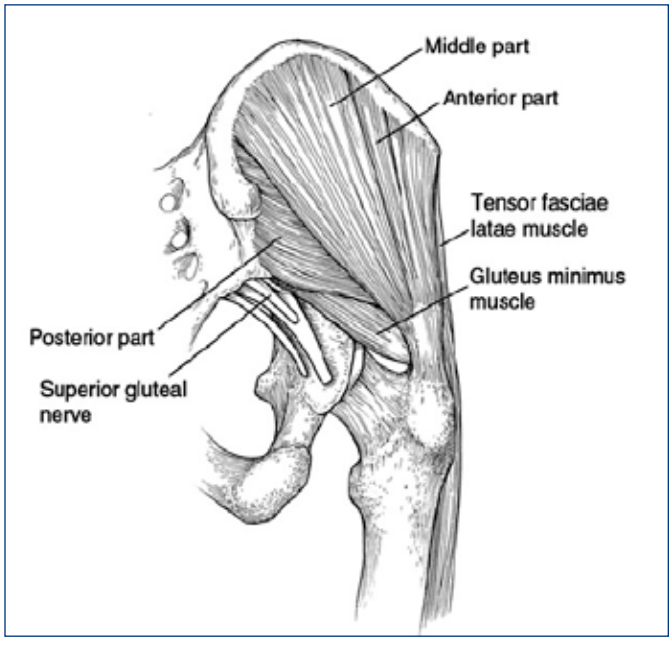


Figure 2. Hip abductor musculature insertion on the greater trochanter (*Reprinted with permission from Lachiewicz – Citation 11*)

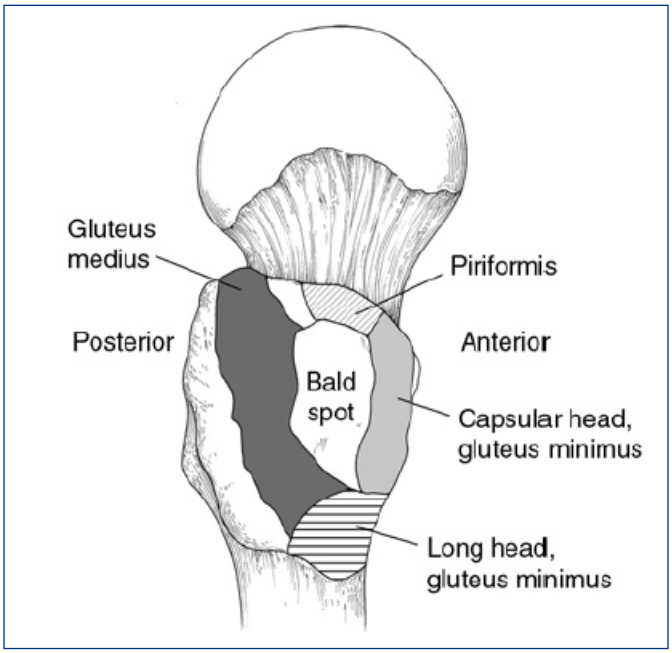
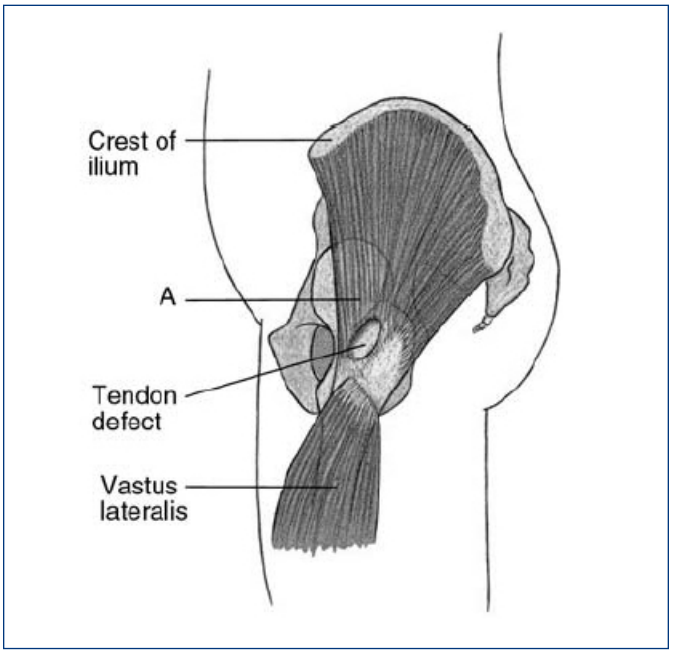


Figure 3. Defect in hip abductor musculature (*Reprinted with permission from Lachiewicz – Citation 11*)



CLINICAL PRESENTATION

Abductor tears can be classified into three categories: chronic degenerative tears (the most common – **Figure 3**), traumatic tears, and iatrogenic tears that can occur from disruption of the abductors during total hip arthroplasty and fracture fixation of the hip. Gluteus medius tears typically present as GTPS; patients describe an atraumatic and insidious onset of aching and dull pain on the lateral aspect of the hip that is worsened with weight-bearing, palpation of the lateral hip, and laying on the affected side.[10]

Physical exam often involves point tenderness at the posterolateral portion of the greater trochanter. Pain can typically be reproduced with resisted hip abduction or external rotation.[1] Of note, pain with flexion and extension of the hip, which is often found in patients with intra-articular disease, is rarely present in patients with GTPS.[1] Patients may also present with gait abnormalities such as a Trendelenburg gait. Patients with GTPS often walk with an "abductor lurch", this type of gait pattern is a compensatory mechanism for weak or damaged hip abductors and is characterized by tilting of the pelvis towards the unaffected side during the stance phase of gait. Further, the trunk then "lurches" towards the affected side in attempt to keep the pelvis level during the gait cycle.[1] This gait pattern as well as abductor weakness can also be the result of a lumbar compressive radiculopathy, specifically of the L5 nerve root which innervates the hip abductor musculature. To differentiate this patient from the patient with GTPS, the motor/sensory exam as well as the remainder of the neurologic exam should be normal for the latter. Leg length asymmetry has been historically suggested as a risk factor for GTPS; however, this has recently been dispelled by a large cross-sectional analysis.[11]

While GTPS is often responsive to physical therapy, non-steroidal anti-inflammatory drugs (NSAIDs), and occasionally steroid injections, gluteus medius tears can prove refractory to conservative management.[10] Studies have shown that gluteus medius tears are far more common than gluteus minimus tears and are most often found to be partial thickness rather than full thickness or interstitial (occurring in line with tendon fibers).[6]

The differential diagnosis for these symptoms is diverse and includes osteoarthritis of the hip, trochanteric bursitis, spinal pathology including lumbar spinal stenosis, neurologic injury to the superior gluteal nerve, or occult fractures involving the proximal femur, greater trochanter or occasionally the pubic ramus.[12]

IMAGING

Imaging of the hip should typically be pursued for patients with GTPS. Though often unremarkable, plain radiographs of the pelvis or the affected hip should be obtained first to rule out osteoarthritis, nondisplaced fractures, or other bony abnormalities.[10] For patients with GTPS that has been refractory to conservative management, ultrasound is a cost-effective and easily performed tool for diagnosis of hip abductor insufficiency. However, it has significant limitations as it is difficult to characterize the size, location, and orientation of the tear within the muscle and has variable accessibility.[13]

Figure 4. A T2 fat-saturated coronal MRI cut of the patient's left hip with the patient supine with bilateral legs internally rotated 15 degrees. This shows a large high-grade undersurface tear of the gluteus medius tendon off of the lateral facet of the greater trochanter with retraction (yellow asterisk).

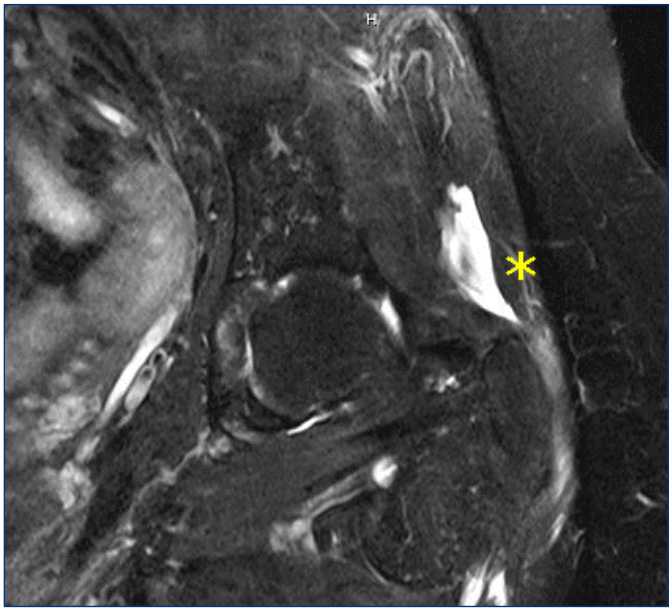
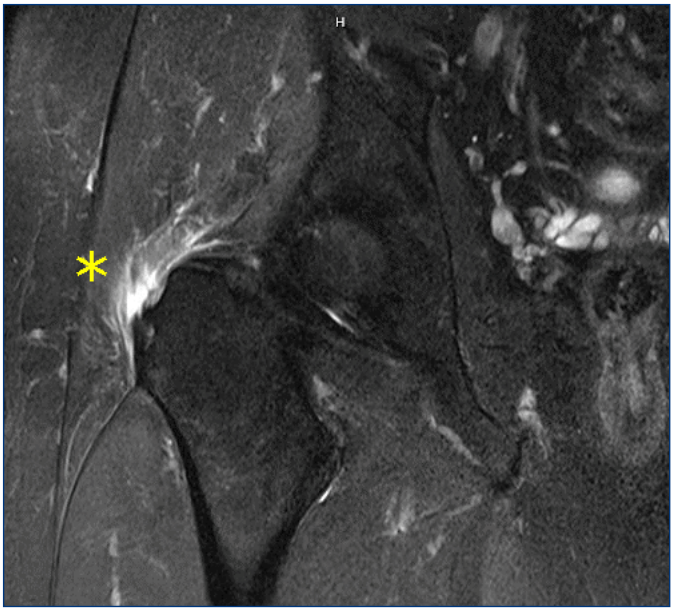


Figure 5. A T2 fat-saturated coronal MRI cut of the patient's right hip with the patient supine with bilateral legs internally rotated 15 degrees. This shows a full thickness partial width tear of the gluteus medius tendon off of the lateral facet of the greater trochanter with retraction (yellow asterisk)



MRI without contrast of the affected hip is the gold standard for the diagnosis and characterization of hip abductor tears and typically provides the greatest visualization of soft tissue structures. T2-weighted images with fat saturation can reliably identify tendon tears or insertional detachment (**Figures 4 and 5**). Notably, MRI of the pelvis is much less sensitive for diagnosing hip abductor tears due to the reduced visualization of the abductors.[14]

Hartigan *et al*. proposed an algorithmic approach to evaluate the gluteus medius on MRI with a goal of guiding surgical management (open versus endoscopic techniques).[14] The authors utilized this protocol to identify the type of tear that is present, size of the tear, and overall health of the tissue, such as fatty atrophy of the muscles or muscle retraction from its insertion on the greater trochanter. It was also noted that a hypertrophied tensor fascia lata (TFL) muscle is often found on MRI of chronic abductor tears, which has been further identified in recent literature.[15] This hypertrophy is due to the compensation the TFL provides in the absence of a functional abductor. In addition to providing a noninvasive method to diagnose hip abductor insufficiency, MRI can also guide surgical management based on the assessment of associated tissues that influence repair strength and technique.[14]

MANAGEMENT

The management of gluteus medius or minimus tears ranges from conservative measures to surgical intervention depending on the severity of the symptoms, overall patient functional level and health status, and response to conservative management. Conservative management for acute symptoms typically begins with a short course of rest, activity modification, physical therapy and NSAIDs.[16] Activity modification should emphasize avoiding actions that would potentiate pain including laying on the affected hip and repetitive hip motions. Further, correction of hip abduction weakness through home exercise programs or formal physical therapy programs can help improve gait and reduce pain.[16] A typical exercise regimen includes piriformis and TFL stretching, straight leg raises, and wall squats multiple times a day.[10] Other treatment strategies focus on correcting other "kinetic chain abnormalities" such as knee or ankle pathology that may have resulted from a compensatory gait to reduce hip pain.

If these initial measures are ineffective, administration of a corticosteroid injection into the region of muscular insertion on the greater trochanter (using ultrasound for optimal accuracy) is warranted.[10] The location of this injection is anatomically different than that of the trochanteric bursa which is administered to the center of the greater trochanter. Extra-corporeal shock wave therapy (ESWT) is another treatment modality that has been shown to be safe and effective; it uses pressure waves to deliver a mechanical force to the abductor tissues[17]. Newer medical therapies have been proposed including injections of high volumes of saline, platelet-rich plasma, and autologous blood, but there has been little evidence to support consistent success.[16] Torres *et al.* conducted a review of 76 studies that compared

different types of conservative management of hip abductor insufficiency and found that while all techniques led to clinical improvement, corticosteroid injections and ESWT were the most effective in improving functional outcomes.[18]

Surgical intervention for a confirmed gluteus medius tear by MRI is indicated when there is failure with 6 months of conservative management (consisting of physical therapy, corticosteroid injections, activity modifications, NSAIDs) with ongoing pain, abductor dysfunction manifesting as a Trendelenburg gait, and compromised quality of life and daily function. Fatty degeneration of the gluteus medius muscle suggests a chronic tear and is a poor prognostic indicator of surgical outcome.[14] Each patient's functional goals should be taken into consideration on a case-by-case basis when considering surgical intervention. Surgical repair techniques include open and endoscopic procedures.[19]

To compare techniques, Alpaugh *et al*. conducted a systemic review of eight studies that assessed outcomes following open and endoscopic repair of gluteus medius tears.[20] The authors evaluated over 130 patients undergoing either open or endoscopic repair of gluteus medius tears and compared postoperative functional outcomes and complication rates between the two techniques. This study found that while both techniques produced excellent functional results post-operatively (all outcome scores ranged from good to excellent, with no difference between techniques), the open repair technique showed a significantly higher rate of re-tear (9% open vs 0% endoscopically). While this study presented the first comparison between open and endoscopic techniques for repair of the gluteus medius, it is clear that higher level, randomized studies would benefit the surgical decision-making process.

RECOMMENDATIONS

The following is our recommended treatment algorithm for patients with hip abductor insufficiency. When history and physical exam are suggestive of hip abductor insufficiency, a trial of conservative management consisting of activity modification, NSAID therapy, and physical therapy targeting core and pelvic stabilizers should be initiated. If an 8- to 10-week trial fails, MRI of the affected hip should be obtained. Pending imaging results, orthopaedic consultation and corticosteroid injection can be pursued. We recommend a maximum of two injections (spaced a minimum of 3 months apart) to provide relief. Frequent injections impart the risk of further tendon degeneration. Finally, if conservative management continues to be inadequate in the setting of a confirmed tear by MRI, surgical intervention should be considered for primary repair. These authors prefer a "mini-open" surgical technique to allow for optimal visualization of the affected structures, better mobilization of the surrounding tissues, and a more secure repair. If found to be irreparable, gluteus maximus muscle transfer can be pursued.

CONCLUSION

Hip abductor insufficiency should be suspected in cases of chronic greater trochanteric pain syndrome that is refractory to dedicated conservative management. MRI of the hip is most effective in diagnosing and guiding surgical management if appropriate. Patients and providers should be aware that there are a variety of conservative options that are clinically proven to improve outcomes. Operative intervention has also been shown to improve pain and functionality when conservative measures are inadequate. A greater understanding and awareness of this clinical entity will ensure patients are provided with appropriate treatment and optimal outcomes.

References

1. Williams BS, Cohen SP. Greater Trochanteric Pain Syndrome: A Review of Anatomy, Diagnosis and Treatment. Anesth Analg. 2009;108(5):1662-1670. doi:10.1213/ane.0b013e31819d6562
2. Bunker TD, Esler CN, Leach WJ. Rotator-cuff tear of the hip. J Bone Joint Surg Br. 1997;79(4):618-620. http://www.ncbi.nlm.nih.gov/pubmed/9250749. Accessed June 10, 2018.
3. Kagan A. Rotator cuff tears of the hip. Clin Orthop Relat Res. 1999;(368):135-140. http://www.ncbi.nlm.nih.gov/pubmed/10613161. Accessed June 10, 2018.
4. Ozçakar L, Erol O, Kaymak B, Aydemir N. An underdiagnosed hip pathology: apropos of two cases with gluteus medius tendon tears. Clin Rheumatol. 2004;23(5):464-466. doi:10.1007/s10067-004-0917-4
5. Bewyer D, Chen J. Gluteus medius tendon rupture as a source for back, buttock and leg pain: case report. Iowa Orthop J. 2005;25:187-189. http://www.ncbi.nlm.nih.gov/pubmed/16089095. Accessed June 10, 2018.
6. Lindner D, Shohat N, Botser I, Agar G, Domb BG. Clinical presentation and imaging results of patients with symptomatic gluteus medius tears. J Hip Preserv Surg. 2015;2(3):310-315. doi:10.1093/jhps/hnv035
7. Davies JF, Stiehl JB, Davies JA, Geiger PB. Surgical Treatment of Hip Abductor Tendon Tears. J Bone Jt Surgery-American Vol. 2013;95(15):1420-1425. doi:10.2106/JBJS.L.00709
8. Gottschalk F, Kourosh S, Leveau B. The functional anatomy of tensor fasciae latae and gluteus medius and minimus. J Anat. 1989;166:179-189. http://www.ncbi.nlm.nih.gov/pubmed/2621137. Accessed June 10, 2018.
9. Robertson WJ, Gardner MJ, Barker JU, Boraiah S, Lorich DG, Kelly BT. Anatomy and Dimensions of the Gluteus Medius Tendon Insertion. Arthrosc J Arthrosc Relat Surg. 2008;24(2):130-136. doi:10.1016/j.arthro.2007.11.015
10. Lachiewicz PF. Abductor tendon tears of the hip: evaluation and management. J Am Acad Orthop Surg. 2011;19(7):385-391. http://www.ncbi.nlm.nih.gov/pubmed/21724917. Accessed June 7, 2018.
11. Segal NA, Harvey W, Felson DT, Yang M, Torner JC, Curtis JR, Nevitt MC. Leg-length inequality is not associated with greater trochanteric pain syndrome. Arthritis Research and Therapy. 2008;10(3):62.
12. LaBan MM, Weir SK, Taylor RS. "Bald trochanter" spontaneous rupture of the conjoined tendons of the gluteus medius and minimus presenting as a trochanteric bursitis. Am J Phys Med Rehabil. 2004;83(10):806-809. http://www.ncbi.nlm.nih.gov/pubmed/15385792. Accessed June 10, 2018.
13. Thaunat M, Noël E, Nové-Josserand L, Murphy CG, Sbiyaa M, Sonnery-Cottet B. Endoscopic Management of Gluteus Medius Tendon Tears. Sports Med Arthrosc. 2016;24(1):11-18. doi:10.1097/JSA.0000000000000082

14. Hartigan DE, Perets I, Walsh JP, Domb BG. Imaging of Abductor Tears: Stepwise Technique for Accurate Diagnosis. Arthrosc Tech. 2017;6(5):e1523-e1527. doi:10.1016/j.eats.2017.06.032
15. Sutter R, Kalberer F, Binkert CA, Graf N, Pfirrmann CWA, Gutzeit A. Abductor tendon tears are associated with hypertrophy of the tensor fasciae latae muscle. Skeletal Radiol. 2013;42(5):627-633. doi:10.1007/s00256-012-1514-2
16. Mallow M, Nazarian LN. Greater trochanteric pain syndrome diagnosis and treatment. Phys Med Rehabil Clin N Am. 2014;25(2):279-289. doi:10.1016/j.pmr.2014.01.009
17. Furia JP, Rompe JD, Maffulli N. Low-Energy Extracorporeal Shock Wave Therapy as a Treatment for Greater Trochanteric Pain Syndrome. Am J Sports Med. 2009;37(9):1806-1813. doi:10.1177/0363546509333014
18. Torres A, Fernández-Fairen M, Sueiro-Fernández J. Greater trochanteric pain syndrome and gluteus medius and minimus tendinosis: nonsurgical treatment. Pain Manag. 2018;8(1):45-55. doi:10.2217/pmt-2017-0033
19. Voos JE, Shindle MK, Pruett A, Asnis PD, Kelly BT. Endoscopic Repair of Gluteus Medius Tendon Tears of the Hip. Am J Sports Med. 2009;37(4):743-747. doi:10.1177/0363546508328412
20. Alpaugh K, Chilelli BJ, Xu S, Martin SD. Outcomes After Primary Open or Endoscopic Abductor Tendon Repair in the Hip: A Systematic Review of the Literature. Arthrosc J Arthrosc Relat Surg. 2015;31(3):530-540. doi:10.1016/j.arthro.2014.09.001

Authors

Stephen E. Marcaccio, MD, Division of Sports Medicine, Department of Orthopaedic Surgery, Warren Alpert Medical School, Brown University

Jacob M. Babu, MD, MHA, Division of Sports Medicine, Department of Orthopaedic Surgery, Warren Alpert Medical School, Brown University

Kalpit Shah, MD, Division of Sports Medicine, Department of Orthopaedic Surgery, Warren Alpert Medical School, Brown University

Ross Budacki, MD, Division of Sports Medicine, Department of Orthopaedic Surgery, Warren Alpert Medical School, Brown University

Ramin R. Tabaddor, MD, Division of Sports Medicine, Department of Orthopaedic Surgery, Warren Alpert Medical School, Brown University

Correspondence

Stephen E. Marcaccio, MD
Department of Orthopaedics
Warren Alpert Medical School of Brown University
593 Eddy Street
Providence, RI 02903
smarcaccio01@gmail.com

Shaping the Rhode Island Duals Demonstration: The Power of Partnerships between Advocates and Geriatrics Experts

MAUREEN E. MAIGRET, BS, MPA, RN; RICHARD W. BESDINE, MD; MARTHA ROUNDS-WATSON, MS, APRN, GCNS-BC

ABSTRACT

This paper describes a unique collaboration between consumer health care advocates, experts in geriatrics, a state, and a health plan to improve care for adults with both Medicare and Medicaid. Ineffective care coordination between the Medicare and Medicaid programs has led to poor care and high costs. As part of the Affordable Care Act (ACA), CMS initiated state demonstrations to align financing and care delivery. In 2016, Rhode Island launched an integrated care model. Geriatrics experts teamed up with an aging services advocate to work on the Rhode Island project. The team's objective was to bring a geriatrics lens to policy development and clinical care. The team made critical recommendations to the state and CMS during the planning stage, and geriatrics experts presented trainings to health plan care providers. The project demonstrated the potential for geriatrics experts partnering with consumer advocates to influence policy development and implementation.

KEYWORDS: dually eligible, advocacy, policy, care integration, geriatrics care

BACKGROUND

Persons eligible for both Medicare and Medicaid are referred to as dual-eligible enrollees. In 2016, there were 11.7 million dual-eligible enrollees. They comprised 20% of Medicare beneficiaries, accounting for one-third of all Medicare spending and one-third of Medicaid spending (total $306 billion in 2012).[1,2] Although diverse in need and diagnoses, they share many important characteristics. Two-thirds have three or more chronic conditions, 41% have a mental illness, about half use long-term supports and services, and nearly 20% report poor health (compared to 6% among non-dually eligible Medicare beneficiaries).[3] A way to think about these vulnerable citizens is as two distinct populations: one is older (age 65 and over) and sicker than traditional Medicare beneficiaries; the other is younger with severe disabilities (physical, behavioral, or intellectual/developmental).

Financial Alignment Initiative Demonstrations

Differences between Medicare and Medicaid benefits and payment policies present an ongoing barrier to coordinating care for dual-eligible persons. These beneficiaries desperately need care integration and coordination. To overcome this, in 2012 the Centers for Medicare and Medicaid Services (CMS), under new provisions in the ACA, began approving State Financial Alignment Initiative (FAI) demonstrations to better align the financing and integration of service delivery of the two programs. At the end of 2016, there were demonstrations in thirteen states. Eleven were testing capitated models serving approximately 380,000 beneficiaries as of May 2018.[4]

The Rhode Island FAI, called the *Integrated Care Initiative* (ICI), was developed in two phases. In Phase 1, dually eligible beneficiaries could enroll in the Neighborhood Health Plan of Rhode Island (NHP-RI, also "the Plan") *UNITY* product to manage their Medicaid long-term care services and receive some care coordination. In April 2016, a three-way contract with CMS, the State, and NHP-RI (the only health plan that applied to participate in the program) was signed.[5] With the signing of the 3-way contract, voluntary enrollment in Phase 2, the fully integrated Medicare and Medicaid managed care program, began. This program is called *INTEGRITY* (See **Table 1** for enrollment numbers).

Since many elderly dually-eligible beneficiaries have multiple chronic conditions, the principles of geriatrics medicine are an essential foundation for their care. These include the knowledge and skills of an interdisciplinary care team to conduct comprehensive geriatrics assessment of the major domains of function – physical, cognitive, emotional and social; and to construct a care plan based on findings. In Rhode Island, the introduction of the FAI provided an opportunity for a unique partnership between advocacy organizations and geriatrics experts to shape the state's demonstration so that it better serves older adults. This partnership, accomplished through the Voices for Better Health (VBH) program, represents a promising approach to improving care for older adults that could serve as a national model.

METHODS

Voices for Better Health

With funding from the Atlantic Philanthropies, Community Catalyst, a national non-profit advocacy organization working to build the consumer and community leadership required to transform the American health system, started

Table 1. Enrollment in UNITY and INTEGRITY as of June 2018

Enrollee Status	PROGRAM				Total Eligible
	Neighborhood UNITY (Medicaid only managed by Plan)	Neighborhood INTEGRITY (Medicaid and Medicare managed by Plan	PACE	Fee-for-Service Duals not in ICI	
In Nursing Home	2,422	429	261	1,599	4,450
In Community with Long-Term Services & Supports	1,093	1,298		1,255	3,646
Intellectual & Developmental Disabilities	887	1,218		474	2,579
Severe and Persistent Mental Illness	540	1,347		481	2,368
In Community without Long-Term Services & Supports	7,497	9,131		4,197	20,825
Medicaid Only	710	-	24	317	1,051
Total	**13,149**	**13,423**	**285**	**8,323**	**35,180**

Reference: Long Term Care Coordinated Council: Minutes of the meeting held Wednesday, June 13, 2018. https://opengov.sos.ri.gov/Common/DownloadMeetingFiles?FilePath=/minutes/223/2018/67529.pdf

the Voices for Better Health (VBH) program in 2013. Its goal was to promote person-centered, integrated care for older adults eligible for both Medicare and Medicaid in the FAI demonstrations. It would accomplish this by strengthening the voices of consumers, caregivers, and provider groups in program design and implementation.[6] Organizations from five states participating in the demonstration (Michigan, New York, Rhode Island, Washington, and Ohio) were funded to participate in VBH.

Geriatrics Provider Advocates

Recognizing the importance of the FAI in caring for older adults, The John A. Hartford Foundation of New York City provided additional support to the VBH program to ensure the demonstrations made use of geriatrics expertise and best practices to improve care and quality of life for older adults enrolled in the demonstrations. Geriatrics experts in the five VBH states were recruited from medicine, nursing, social work, and other professions. Referred to as Geriatrics Provider Advocates (GPAs), two GPAs were selected for each state. Their role was to collaborate with the consumer advocates in that state to recommend policy and practice changes in support of a high quality "best practice" delivery system to serve dual-eligible older adults.

Rhode Island Voices for Better Health Program

The Rhode Island VBH program is a partnership between the Senior Agenda Coalition of Rhode Island (an advocacy organization working to promote aging in the community), the Rhode Island Organizing Project, and the Economic Progress Institute of Rhode Island. Rhode Island has a critical need for education in geriatrics best practices. The state has the highest percentage of persons age 85 and over in the country.[7] People age 65 and older are projected to make up 23% of the state population by 2030.[8]

Two geriatrics clinical experts were recruited in 2014: a geriatrician (RB) and an advanced practice geriatrics clinical nurse specialist (MW); along with an experienced health and aging policy advocate (MM) to promote geriatrics-competent care in its FAI demonstration.

As NHP-RI had previously focused much of its effort on providing quality care for children and families, the Rhode Island GPAs wanted to ensure the Plan's workforce was trained to meet the needs of dually eligible older adults. They also wanted to make sure that program design considered the special needs of this population.

Intervention

Initially, the GPAs worked to raise awareness about the need for the ICI and to support its potential to provide better coordination and integration of care for these older adults. They wrote guest editorials published in state newspapers[9,10] and reached out to the medical community through insertions in physician and nurse newsletters published by the Rhode Island Department of Health.

The GPAs' objective was to bring a geriatrics lens to policy development and clinical care as the state developed its contract with the federal government and the Plan. Using "*Quality Care through a Quality Workforce: A Toolkit for Advocates of Older Adults Who are Dually Eligible for Medicare and Medicaid*"[11] as a framework, the GPAs developed a set of recommendations (see **Table 2**) for the ICI development and promoted their recommendations with state, federal and NHP-RI management.

The partnership provided input on editing the content of ICI enrollment letters and outreach materials to ensure the language was "consumer friendly" and helped develop the governance structure for the state's consumer-led ICI Implementation Council.

The geriatrics clinical nurse specialist played a key role in

promoting quality clinical care in the context of the ICI. She designed and provided a six-session geriatrics-focused curriculum for the nurse case managers and other clinical staff working in the ICI. Topics, based on a staff survey done to identify interest and educational needs, included: Pain Management in Elders; Delirium, Depression, and Dementia; Communication; Falls; Frailty; and Care Transitions.

Table 2. GPA Recommendations for ICI Development

Recommendations Related To Workforce
20% of Plan's primary care provider network trained in geriatrics or gerontology in year one. Increase annually by 10%.
Require plan medical providers obtain 50% of state-required CME credits in geriatrics or gerontology-related topics.
Plan case managers receive training in both geriatrics or gerontology and team-based care.
Plan offers training for providers and internal clinical staff aligned with the *Partnership for Health in Aging's Multidisciplinary Competencies for Caring for Older Adults* and/or address geriatric conditions, such as: dementia care, multiple chronic conditions, and mental and behavioral health issues including substance abuse.
Allocate a percentage of plan premium dollars for training for geriatrics/gerontology and team-based training to include cultural competency.
Plan to report annually on training of providers in geriatrics, gerontology, and team-based care.
Recommendations Related To Care Delivery
Provide ICI enrollees and family caregivers (when appropriate) with materials that describe the role of team members and identify appropriate persons to contact for help; Provide contact information for care mangers to client, family caregiver (as appropriate) and providers of record.
Require consumer surveys include additional questions on consumer satisfaction to address matters relating to team care and support, and process of care; require results of survey be made public.
Require that, when appropriate, the Vulnerable Elders Survey (VES-13) be included in care planning for older adults and falls screening.
Require primary care providers offer Medicare's Annual Wellness Visit.
Require, when appropriate, plans evaluate family caregivers' needs using a uniform assessment.
Require plan provide the dually eligible older adult and family caregiver, when appropriate, information about community resources, supports and training opportunities.
Include ICI ombudsman contact information in enrollee welcome packets and information on other opportunities to provide feedback or address concerns; require ICI ombudsman to provide annual report.
Require plan to employ specially trained dementia care managers.
Require plan to provide primary care home visits for the elder chronically ill and homebound.
Encourage plan to make use of telehealth and remote technologies as appropriate.

In addition to the educational sessions for NHP-RI staff, the GPA team reached out to the RI Care Transformation Collaborative (CTC),[12] the state's robust Patient-Centered Medical Home program, to offer trainings for their nurse case managers working in primary and specialty practices. This resulted in several educational sessions conducted for 44 CTC nurse case managers and staff. A session was added that focused on the social determinants of health, and included a panel providing information on community-based resources available to meet social needs. Participant evaluations of the trainings showed agreement that the trainings were relevant and would be helpful to their work.

In outreach to the state's Community Health Centers, the project's geriatrician identified falls and fall-risk assessment as an area of interest for clinical staff and developed a web-based presentation shared with clinicians working in the Centers. The geriatrician is also disseminating a co-management program for older hospitalized patients combining geriatrics expertise with multiple specialties.

RESULTS

The Rhode Island GPA team achieved some successes in bringing a geriatrics lens to the state's ICI three-way contract.[13] The qualifications for lead case managers now include having a clinical background in and knowledge of aging and loss and other geriatrics-related issues. NHP-RI also must establish policies for appropriate training of care coordinators. The three-way contract also requires lead case managers to receive training on interdisciplinary care coordination and for the Plan to offer training programs in a number of areas. These include the special needs of enrollees that may affect access to and delivery of services; identification and coordination of long-term supports and services and behavioral health services for primary care providers; and cultural competency.[14] In addition, the Plan must train its providers on disability literacy, including various types of chronic conditions prevalent within the target population, use of evidence-based practices, and specific requirements for dementia care training as recommended by the GPAs. To meet this latter requirement, the Plan employs a certified dementia trainer and collaborated with the University of Rhode Island Geriatrics Education Program to offer a mandatory three-session dementia-training curriculum for all its care managers.

The GPAs recommended the Plan provide enrollees and family caregivers with information about community resources, supports and training opportunities. For family caregivers, with the enrollee's consent, the Plan must share a copy of the Individual Care Plan with the family caregiver and offer information about supports and resources. The Plan has also provided a small grant to a non-profit entity to bring the evidence-based *Powerful Tools for Caregivers* program to the community.[15]

In addition to work within the state, the GPAs shared their experiences through participation in several nationally available webinars and conference presentations, including those sponsored by Community Catalyst, The Hartford Foundation, the American Geriatrics Society, and the Gerontological Society of America. Additionally, special sessions for GPAs from all the participating states were offered at Community Catalyst's annual VBH convening. These sessions resulted in robust exchanges amongst the GPAs about what was working in their states and sharing of the geriatrics training presentations developed by the geriatrics clinical nurse specialist with GPAs in several other states.

DISCUSSION

Partnering geriatrics experts with advocates for improving healthcare for older adults in the ICI achieved some success in incorporating geriatrics principles of care into the demonstration's policy framework and three-way contract provisions. The policy advocate had worked for many years with advocacy groups and aging service and long-term care providers. Her standing and reputation helped facilitate discussions with key state officials about the need to promote geriatrics-competent care in the project. Likewise, the high regard held for the geriatrician lent enormous credibility to the GPA work, as did having one of the state's few geriatrics clinical nurse specialists on the GPA team.

The vast majority of the state's seniors are on Medicare, but not Medicaid; with most receiving care from primary care practices that do not necessarily have geriatrics training beyond what may have been offered in medical school or residency programs. Many of these practices are engaged in the state's robust Patient-Centered Medical Home (PCMH) initiative. Nurse care managers are a critical component of PCMH practices – monitoring care outcomes, helping with care transitions, providing detailed patient assessments of social needs, making referrals to needed services, and supporting family caregivers. Offering geriatrics-focused trainings to these nurse care managers was an excellent way to expand the work of the GPAs and was positively received.

The Rhode Island VBH program demonstrated the effectiveness of geriatrics providers and state consumer advocacy groups partnering to bring policy and practice closer together. Consumer advocates know the policy and political realm well and offered GPAs an opportunity to become involved in a project they may not have otherwise engaged in, given their busy practices. Additionally, GPAs brought care expertise and credibility in care of older adults that consumer advocates do not usually have. The GPA partners elevated the voices of the consumer advocates in promoting key policy developments. As front-line staff are crucial in getting persons to the right care at the right time, the geriatrics clinical nurse specialist trainings were important for a health insurer with little prior experience in caring for elders. Replicating partnerships between consumer advocates and providers, as done in the GPA project, could be of enormous benefit as we work to engage consumer voices in shaping reform efforts and to create more age-friendly health systems for our older population.

References

1. Medicare-Medicaid Coordination Office. *Medicare-Medicaid Enrollee Information National,* 2012. https://www.cms.gov/Medicare-Medicaid-Coordination/Medicare-and-Medicaid-Coordination/Medicare-Medicaid-Coordination-Office/Downloads/NationalProfile_2012.pdf.
2. Office of Medicare-Medicaid Coordination. *Data Analysis Brief: Medicare-Medicaid Dual Enrollment from 2006 through 2015*. 2016. https://www.cms.gov/Medicare-Medicaid-Coordination/Medicare-and-Medicaid-Coordination/Medicare-Medicaid-Coordination-Office/Downloads/DualEnrollment_2006-2015.pdf.
3. Centers for Medicare & Medicaid Services. *People Enrolled in Medicare and Medicaid*. 2018. http://www.cms.gov/Medicare-Medicaid-Coordination/Medicare-and-Medicaid-Coordination/Medicare-Medicaid-Coordination-Office/Downloads/MMCO_Factsheet.pdf.
4. Integrated Care Resource Center. *Monthly Enrollment in Medicare-Medicaid Plans by Plan and by State, May 2017 to May 2018*. 2018. http://www.integratedcareresourcecenter.com/PDFs/MMP_Enroll_by_State_May_2018.pdf.
5. Rhode Island Executive Office of Health & Human Services. Rhode Island Earns Federal Support for Innovative New Program to Improve Care for Elders and Adults with Disabilities [press release]. 2016:3. http://www.eohhs.ri.gov/Portals/0/Uploads/Documents/PressReleases/FederalSupportForInnovativeProgramToImproveCare.pdf.
6. Community Catalyst. Geriatrics Provider Collaboration. https://www.communitycatalyst.org/initiatives-and-issues/initiatives/voices-for-better-health/full-description. Accessed April 15, 2018.
7. AARP Public Policy Institute. Across the States 2018: Profile of Long-Term Services and Supports. https://www.aarp.org/content/dam/aarp/ppi/2018/08/rhode-island-LTSS-profile.pdf. Accessed August 2, 2018.
8. Rhode Island Statewide Planning Program. *Technical Paper 162: Rhode Island Population Projections 2010-2040*. Providence, RI. 2013. http://www.planning.ri.gov/documents/census/tp162.pdf
9. Besdine RW, Maigret M, Watson M. R.I. patients, providers need Obamacare. Providence Journal. http://www.providencejournal.com/opinion/20170228/richard-w-besdine-maureen-maigret-and-martha-watson-ri-patients-providers-need-obamacare. Published February 28, 2017. Accessed June 20, 2018.
10. Besdine RW, Watson M, Maigret M. Improving Care for Older Rhode Islanders. Providence Journal. http://www.providencejournal.com/article/20150817/OPINION/150819450. Published August 17, 2015. Accessed June 20, 2018.
11. *Quality Care through a Quality Workforce: A Toolkit for Advocates of Older Adults Who Are Dually Eligible for Medicare and Medicaid*.2014.https://www.communitycatalyst.org/resources/publications/document/EWA-Duals-Tookit-FINAL-v1-October-2014.pdf. Published October 2014.
12. Rhode Island Care Transformation Collaborative. https://www.ctc-ri.org/. Accessed May 12, 2018.
13. United States Department of Health and Human Services. *Contract Between United States Department of Health and Human Services Centers for Medicare & Medicaid Services in Partnership with The State of Rhode Island and Providence Plantations Executive Office of Health and Human Servicesa And <Name of Health Plan*. 2016. https://www.cms.gov/Medicare-Medicaid-

Coordination/Medicare-and-Medicaid-Coordination/Medicare-Medicaid-Coordination-Office/FinancialAlignmentInitiative/Downloads/RhodeIslandContract.pdf.

14. United States Department of Health and Human Services. *Contract Between United States Department of Health and Human Services Centers for Medicare & Medicaid Services In Partnership With The State of Rhode Island and Providence Plantations Executive Office of Health and Human Services And <Contractor>*. 2018. https://www.cms.gov/Medicare-Medicaid-Coordination/Medicare-and-Medicaid-Coordination/Medicare-Medicaid-Coordination-Office/FinancialAlignmentInitiative/Downloads/RIContract01012018.pdf.
15. Powerful Tools for Caregivers. https://www.powerfultoolsforcaregivers.org/. Accessed May 10, 2018.

Authors

Maureen E. Maigret, BS, MPA, RN, Long-Term Care Policy Consultant to Senior Agenda Coalition of Rhode Island.

Richard W. Besdine, MD, Professor of Medicine, Director of the Division of Geriatrics and Palliative Medicine in the Department of Medicine; Chief of Geriatrics for Lifespan, Greer Professor of Geriatric Medicine at Alpert Medical School of Brown University; Professor of Health Services Policy and Practice, and Director of the Center for Gerontology and Health Care Research at the Brown School of Public Health.

Martha Rounds-Watson, MS, APRN, GCNS-BC, Magnet Program Coordinator/Clinical Innovation Specialist at Newport Hospital.

Correspondence

Maureen E. Maigret, BS, MPA, RN
maureenmaigret@gmail.com

A Case Report of Impaired Driving Performance after a Concussion

NEHA RAUKAR, MD, MS; DANIELLE PALMS, MPH; MADALENE BOYLE, MD; JANETTE BAIRD, PhD

INTRODUCTION

The effects of a concussion on executive function, including attention, reaction time, and memory as well as saccadic eye movement are well documented.[1-4] Successful driving relies on the coordination of cognitive and visual functions.[5] This is the basis of the recommendation from the CDC that concussed patients refrain from driving. However, studies that qualify the deficits that occur as a result of a concussion or quantify the magnitude or timeliness of these deficits have not been done. Here we present a case of a collegiate female athlete whose driving performance after a concussion was demonstrated objectively and use this information to underscore the importance of studying the effects of concussion on driving safety.

CASE REPORT

An 18-year old collegiate athlete was playing hockey with her team when she struck her head against the ice while wearing a helmet. There was no loss of consciousness. She was removed from the game, due to immediate onset of headache, nausea, and a sensation of dizziness. On physical exam, she had no external signs of trauma and had no midline C-spine tenderness or neck movement limitations. She had normal mental status, was oriented and could easily recall three-objects immediately and when subsequently asked five minutes later. She had no focal neurologic deficits. She stumbled and opened her eyes during balance testing. She was diagnosed with a concussion using the Sports Concussion Assessment Tool Edition 3 (SCAT-3). The athlete was an otherwise healthy patient with no prior concussions.

Prior to the start of the hockey season, the patient had completed both a test of baseline cognitive ability and executive function (Trail Making Test, Part B)[6] as well as a driving simulator evaluation (Virtual Driver Interactive, dVT29® simulator utilizing StreetReady® software). This baseline driving testing included a 10-minute practice course in the driving simulator, followed by a 10-minute simulated driving course that was scored. Each driving infraction, classified as minor or severe, affected the overall score. Minor infractions included failure to stop at a stop sign, not using turn signals, and not obeying posted speed limits. More serious infractions included colliding with another motor vehicle or pedestrian and resulted in an instant failure. The number and types of infractions and a computer generated pass/fail grade was recorded for the patient.

To assess the correlation between symptom and cognitive recovery and driving ability, both the TMT-B and the simulated driving were repeated every 48 hours until the patient was cleared to return to sport.

The preseason tests (neuropsychological and driving simulator) served as her baseline. Within 48 hours of the injury the subject was found to have changes in gross driving performance (e.g., lane change errors, errors in speed and vigilance) and a significant decline in Trails B performance relative to her baseline. Specifically, the number of her driving infractions increased from 7 at the baseline test to 15 post-injury and her scores on the TMT-B went from 32.8 seconds at baseline to 41 seconds at 48 hours (a 25% increase in time to complete). The tests were repeated at the end of the season and at this time, her TMT-B score was 34.1 seconds. The TMT-B and the driving simulator were completed by 23 other hockey players pre-season and post season. The mean number of driving infractions at baseline was 2.4 (SD = 3.1), and 2.7 (SD = 3.9) at the post season test while the mean preseason TMT-B times were 52.6s (SD =22.5) and the post-season mean was 39.9 (SD = 13.01). It was noted that our patient had a higher number of driving infractions at baseline, the relevance of which is not clear.

DISCUSSION

Sports-related concussion (SRC) is the most common injury reported in athletes, representing 11.6% of all high school athletic injuries[7] and 5.8% of all collegiate athletic injuries.[8] A concussion results in decreased reaction time, attention,[2] verbal and visual memory,[3] as well as alterations in impulse control, processing speed, and executive function, including task switching behavior.[4] Driving is a complex cognitive and behavioral activity that relies on the coordination of all of these processes and is therefore affected by this injury.

The confluence of impaired neurocognitive and visual ability following a concussion and the increased risks of accidents by young drivers[9] is an important public safety concern. Currently, there are no evidence-based clinical guidelines informing restrictions in driving behaviors that should be initiated following a concussion.

Two studies in Australia[10,11] suggested that driving should

be restricted in those suffering from a concussion. The first focused on the ability of concussed patients to recognize road hazards. Within the first 24 hours of sustaining a concussion, patients were not able to identify road hazards in a video sequence when compared to age-matched controls. In a separate survey study, the same authors found that patients who had sustained a concussion did not intend to change their driving frequency as a result of the head injury. Schmidt and colleagues used a driving simulator to investigate the driving abilities in recently concussed patients compared to age and driving-experience matched controls.[12] Recently concussed patients were defined as those patients having met the definition for concussion, but were asymptomatic 48 hours later. Using a driving simulation test they evaluated accidents, minor infractions that would normally result in a ticket (such as speeding), lane excursions, velocity, and lane position and found that recently concussed patients were less likely to center the vehicle in the lane and entered the shoulder more frequently. The conclusion from these studies was that concussed patients should be counseled to refrain from driving and that the effects of a concussion may impair driving abilities even beyond the symptomatic phase.

However, to date, research regarding driving while concussed has lacked the research paradigm necessary to identify specific changes in driving performance that occur after a concussion when compared to a patient's own baseline driving performance.

Our case, although involving only one patient, compared simulated driving ability in an acutely concussed patient to her own baseline simulated driving ability and demonstrated an objective change. We propose that larger-scale studies are needed to investigate the effect of concussion on driving abilities. This is a necessary step to develop clinical guidelines regarding the effects of concussion on driving and expected time to return to baseline driving skill ability. This will ultimately inform recommendations provided to concussed patients by health care providers in an effort to improve the health and safety of the population.

References

1. Galetta M, Galetta K, McCrossin J, et al. Saccades and memory: baseline associations of the king-Devick and SCAT2 SAC tests in professional ice hockey players. *J Neurol Sci*. 2013;328:28-31.
2. Howell D, Osternig L, Van Donkelaar P. Effects of concussion on attention and executive function in adolescents. *Med Sci Sports Exerc*. 2013;45:1030-1037.
3. Killam C, Cautin R, Santucci A. Assessing the enduring residual neuropsychological effects of head trauma in college athletes who participate in contact sports. *Arch Clin Neuropsycho*l. 2005;20:599-611.
4. Mayr U, LaRoux C, Rolheiser T, et al. Executive dysfunction assessed with a task-switching task following concussion. PLoS One. 2014;9:e91379.
5. Spiers J, Maguire E. Neural substrates of driving behavior. *Neuroimage*. 2007;36:245-255.
6. Salthouse T. What cognitive abilities are involved in trail-making performance? Intelligence. July-Aug 2011;39(4):222-232.
7. Swenson D, Yard E, Fields S, et al. Patterns of recurrent injuries among US high school athletes, 2005-2008. *Am J Sports Med*. 2009;37:1586-1593.
8. Gessel L, Fields S, Colleins C, et al. Concussions among United States high school and collegiate athletes. *J of Athletic Training*. 2007;42:495-503.
9. NHTSA. Traffic Safety Facts: 2012 Data. Washington, DC: In: Transportation UDo, ed.; 2014.
10. Preece M, et al. Driving after concussion: the acute effect of mild traumatic brain injury on drivers' hazard perception. *Neuropsychology*. 2010;24(4):493-503.
11. Preece M, et al. Assessment of drivers' ability to anticipate traffic hazards after traumatic brain injury. *J Neurol Neurosurg and Psych*. 2011;82(4):447-451.
12. Schmidt J, Devos H, Hoffman N, et al. Driving after concussion: is it safe to drive after symptions resolve? *Br J Sports Med*. 2017;51:A51.

Authors

Neha Raukar, MD, MS, Senior Associate Consultant, Mayo Clinic, Department of Emergency Medicine.

Danielle Palms, MPH, Centers for Disease Control and Prevention.

Madalene Boyle, MD, Brown University, Department of Emergency Medicine.

Janette Baird, PhD, Brown University, Department of Emergency Medicine.

Correspondence

Neha Raukar, MD, MS

Mayo Clinic, 200 First Street SW, Rochester, MN 55905

507-255-6501 (admn asst)

Fax 507-255-6592

Raukar.Neha@Mayo.edu

Characteristics of Victims and Suspects in Domestic Violence-Related Homicide – Rhode Island Violent Death Reporting System, 2004–2015

YONGWEN JIANG, PhD; DEBORAH DEBARE, MMHS; IAN COLOMER, BA; JOHN WESLEY, JD; JORDAN SEABERRY, BFA; SAMARA VINER-BROWN, MS

Domestic violence is a critical public health issue.[1] It displays a pattern of abusive behavior in any relationship that is perpetrated by one intimate person to gain or maintain power and control against another person.[2] Domestic violence includes physical, sexual, emotional, economic, or psychological actions or threats of actions that intimidate the other.[2] Rhode Island's criminal definition of domestic violence (§12-29-2) includes homicides when committed by one family or household member against another.[3] In Rhode Island, child abuse (parent/guardian vs. child) cases are not considered domestic violence, unless some sort of intimate partner relationship appears evident. However, many elder abuse cases would be considered domestic violence cases because they involve adult parties related by blood or marriage, or adult parties that live together (or resided together within the past three years).

Domestic violence arrest statistics collected by the Rhode Island Supreme Court Domestic Violence Training and Monitoring Unit shows over 5,000 domestic violence arrests annually in Rhode Island, and that domestic violence occurs in every city/town.[4] Analyzing domestic violence data is key for the practice of domestic violence prevention, and for assisting practitioners in focusing on the highest risk factors. Data from the Rhode Island Violent Death Reporting System (RIVDRS) can better understand the vulnerabilities of victims, the characteristics of suspects, and the multiple types of motivations related to those domestic violence homicide deaths. We utilized RIVDRS data to investigate the characteristics of victims and suspects to provide insight into the nature of these domestic violent homicides.

METHODS

The National Violent Death Reporting System is an incident-based active surveillance system funded by the Centers for Disease Control and Prevention and implemented by states and territorial health departments.[5-7] A total of 40 states, the District of Columbia, and Puerto Rico currently participate in the NVDRS.[5] The system is unique and gathers information from multiple sources including coroner/medical examiner records, death certificates, law enforcement reports, and crime laboratories.[5-7] It can provide states with a comprehensive picture of who, when, where, and factors that contribute to violent deaths.[5-7]

RIVDRS data collection began in 2004. Assembling all occurrent fatal injuries is useful to design and evaluate prevention efforts.[7] RIVDRS collects occurrent violent deaths, which means the initial injury must have occurred in Rhode Island.[7] Domestic violence-related deaths were defined as those involving family or household member homicides, other deaths associated with domestic violence or jealousy, including decedents who were not the family or household member. We manually reviewed the medical examiner and law enforcement narratives of 354 homicides during 2004-2015 to determine true cases. This study includes 2004–2015 RIVDRS data (all available years). All analyses were performed using the SAS (Version 9.4, SAS Institute Inc., Cary, NC).

RESULTS

From 2004 through 2015, a total of 90 homicides were captured by RIVDRS. Among the 83 incidents, 77 involved one homicide death, 5 had double homicide victims, 1 had three homicide decedents, and 14 were homicide(s)-suicide incidents (data not shown).

Homicide victims ranged in age from 18 to 93 years and almost half of the victims were 25–44 years old. The majority were females. Over half (58%) were non-Hispanic white, 15.9% were non-Hispanic black, and 22.7% were Hispanic. It should be noted that blacks only account for 4.7% of the RI adult population and those of Hispanic ethnicity represent 12.1% of the state adult population based on 2015 BRFSS data. About 43% were never married or single. Most of the victims were injured at their home. Firearms were used in 32.2% of cases, followed by sharp instruments (28.7%) (**Table 1**). Over one-third of decedents tested positive for alcohol, 14.1% for opiates, and 12.9% for antidepressants (**Table 2**). Approximately six in ten victims experienced intimate partner violence; over a quarter had an argument which preceded the victim's death; and over 18% were associated with jealousy (**Table 3**).

Homicide suspects ranged in age from 18 to 90 years (data not shown). Among the homicide suspects, over half were aged 25–44 years; the majority were males, and 58.4% were non-Hispanic white, 20.8% non-Hispanic black, and 16.9% Hispanic. The victim's relationship to the suspect was most often that of wife/ex-wife/girlfriend/ex-girlfriend, and parent/in-law. Over one-third of the suspects had attempted suicide (**Table 4**).

Table 1. Characteristics of domestic violence homicide victims in Rhode Island, 2004-2015 (N=90)

CHARACTERISTIC	n	%
Age group (mean: 43.7 years)		
18-24 years	15	16.7
25-44 years	39	43.3
45-64 years	23	25.6
65 years and older	13	14.4
Sex		
Male	27	30.0
Female	63	70.0
Race/Ethnicity		
White, non-Hispanic	51	58.0
Black, non-Hispanic	14	15.9
Hispanic	20	22.7
Other	N/A	N/A
Marital status		
Never married/Single, not otherwise specified	39	43.3
Married/Civil union/Domestic partnership	31	34.4
Divorced/Married, but separated	14	15.6
Widowed	6	6.7
City/Town of residence		
Urban (core-cities)[a]	40	44.4
Sub-urban regions	41	45.6
Non-metro/Rural areas	6	6.7
Out of state	N/A	N/A
Injury location		
House or apartment	83	92.2
Other	7	7.8
Injured at victim home		
Yes	68	76.4
No	21	23.6
Means/Weapon Used		
Firearm	28	32.2
Handgun	21	—
Shotgun and rifle	5	—
Sharp instrument	25	28.7
Blunt instrument	11	12.6
Hanging, strangulation, suffocation	10	11.5
Personal weapons (hands, feet, fists)	10	11.5
Other	N/A	N/A

Data are not presented for cells containing fewer than five cases. N/A, not available.

[a] Core-cities: Central Falls, Pawtucket, Providence and Woonsocket.

Table 2. Positive toxicology tests of domestic violence homicide victims, Rhode Island 2004-2015 (N=90)[a]

Toxicology test	n	%
Tested	87	96.7
Toxicology test positive		
Any toxicology[b]	52	59.8
Alcohol or any illicit substance[c]	47	54.0
Alcohol	31	36.1
BAC>=0.08 g/dl	19	—
BAC<0.08 g/dl	12	—
Opiate	12	14.1
Antidepressant	11	12.9
Marijuana	10	11.9
Cocaine	7	8.1

Data are not presented for cells containing fewer than five cases.

BAC: blood alcohol concentration, BAC>=0.08 g/dl used as the standard for intoxication.

[a] Subcategories do not sum to 100% because test results of victims can be positive for alcohol or multi-drugs.

[b] The toxicology module collects information about 12 drug classes including alcohol, amphetamines, anticonvulsants, antidepressants, antipsychotics, barbiturates, benzodiazepines, carbon monoxide, cocaine, marijuana, muscle relaxants, and opiates.

[c] Alcohol or any illicit substance includes alcohol, cocaine, marijuana, or opiate.

Table 3. Circumstances of domestic violence homicide victims, Rhode Island 2004-2015 (N=90)[a]

Precipitating circumstance	n	%
Total homicides with precipitating circumstances	80	90.9
Interpersonal		
Intimate partner violence	53	60.2
Jealousy	16	18.2
Other relationship problem (nonintimate)	6	6.8
Victim of interpersonal violence within past month	5	5.7
Life stressor		
Argument or conflict between the decedent and suspect	25	28.4
Physical fight (two people, not a brawl)	5	5.7
Homicide event		
Caretaker abuse/neglect led to death	5	5.7

Data are not presented for cells containing fewer than five cases.

[a] Sums of percentages in columns exceed 100% because a homicide could have had more than one precipitating circumstance.

Table 4. Characteristics of domestic violence homicide suspects in Rhode Island, 2004-2015 (N=81)

CHARACTERISTIC	n	%
Age group (mean: 38.4 years)		
18-24 years	12	15.4
25-44 years	42	53.9
45-64 years	20	25.6
65+ years	4	5.1
Sex		
Male	68	85.0
Female	12	15.0
Race/Ethnicity		
White, non-Hispanic	45	58.4
Black, non-Hispanic	16	20.8
Hispanic	13	16.9
Other	3	3.9
Relationship of victim to suspect		
Wife/ex-wife/girlfriend/ex-girlfriend	46	51.1
Husband/boyfriend/ex-boyfriend	11	12.2
Parent/in-law	14	15.6
Roommate	6	6.7
Bystander[a]	9	10.0
Other related by blood	N/A	N/A
Abuse history		
Yes	11	19.0
No	47	81.0
Care giver		
Yes	7	11.9
No	52	88.1
Suspect is also victim		
Yes	13	16.1
No	68	84.0
Suspect is mentally ill		
Yes	5	16.7
No	25	83.3
Attempted suicide		
Yes	19	33.9
No	37	66.1

Data are not presented for cells containing fewer than five cases. N/A, not available.

[a] "Bystander" includes "boyfriend of suspect's ex-girlfriend", "boyfriend of suspect's wife", "ex-boyfriend of suspect's girlfriend", "boyfriend of suspect's aunt", "friend of suspect's ex-girlfriend", "friend of suspect's girlfriend", and "landlord of suspect's ex-roommate".

DISCUSSION

Our findings show that domestic violence-related homicides disproportionately affect women (70%), and intimate partner violence accounts for over 60% of domestic violence homicides. In 2015, women in Alaska had the highest rate of dying by intimate partner homicide (2.86 per 100,000 women), followed by Nevada (2.29), Louisiana (2.22), Tennessee (2.10), and South Carolina (1.83).[8] The intimate partner homicide rate was 1.47 per 100,000 women in RI and ranked 12th.[8] By race/ethnicity, the age-adjusted homicide rate among non-Hispanic white was 1.5 per 100,000 women; non-Hispanic black women had the highest rate (4.4 per 100,000), and Hispanic was 1.8.[6]

It is critical to increase supervision and services among high-risk domestic violence incidents.[4] To identify and intervene with battered women at risk is a major strategy to decrease intimate partner homicide.[9] The Rhode Island Coalition Against Domestic Violence (RICADV) seeks to engage men through its Ten Men Project, as an additional strategy to prevent intimate partner violence.[1] In order to better protect victims in domestic violence cases, programs such as the Critical Case Review Team specialized Domestic Violence Probation, the Domestic Violence Court Advocacy program and the Law Enforcement Advocate program should be strengthened. The RI Supreme Court Domestic Violence Training and Monitoring Unit collects domestic violence reports and arrests.[3] RICADV has an agreement with the Unit and has access to those data. The RICADV database has more information about restraining orders and the sentences of suspects since they track each case. These are important relationships to evaluate and improve statewide prevention services. We plan to abstract more information from the RICADV database in the future.

Firearms have been found to be associated with an increased risk of domestic violence.[4] A national analysis of mass shootings in the U.S. between 2009 and 2016 found that 54% were related to domestic or family violence.[10] Access to firearms make domestic violence incidents escalate faster, and turn more dangerous and more lethal.[9] Our results identified that almost 66.7% of the incidents with multiple homicide victims involved guns, and 78% of the bystanders died due to firearms. A new state statute enacted in September 2017 limits persons with domestic violence restraining orders, or defendants who have been convicted of misdemeanor domestic violence cases, to have access to firearms.[11]

There were several challenges: (1) Not all homicide incidents include suspects (i.e., three incidents had no suspect; and one had two suspects). (2) Suspect information is underreported, such as "is suspect mentally ill" (51 missing of 81). (3) The law defines domestic violence as including "cohabitants" (roommates). However, homicides among roommates have very different types of motives than those that occur among boyfriend/girlfriends. (4) Domestic violence homicides were underestimated since RIVDRS staff do not have

access to incidents that occurred in Rhode Island, but died in other states. (5) Domestic violence can have fatal outcomes like homicide or suicide. Over one-third of suspects had an attempted suicide. We did not include suicide. (6) Substance abuse and alcohol use are related to greater domestic violence risk. We do not have toxicology test results for suspects. In homicide(s)-suicide incidents, since suspects committed suicides, we have more information for suspects. However, only 14 were homicide(s)-suicide incidents among 83 incidents.

Although there are some limitations, RIVDRS is statewide database, combines multiple sources, and can provide accurate and comprehensive surveillance data. The majority of domestic violent homicides (91%) have circumstance information. The RIVDRS data include not only victim, but also suspect information. While the majority of domestic violence studies only include intimate partner violence, this study also includes 17 family member homicide incidents. RIVDRS data can be utilized to inform interventions and guide violence prevention. Targeting at-risk populations and restricting abusers' access to guns can potentially reduce domestic violence homicide deaths.[9]

References

1. Rhode Island Coalition Against Domestic Violence. Addressing the Violence Before It Starts - Domestic Violence Primary Prevention Plan. http://www.ncdsv.org/images/RICADV_DELTA_PreventionPlan_Feb2011.pdf
2. U.S. Department of Justice. Domestic Violence. https://www.justice.gov/ovw/domestic-violence
3. Rhode Island Judiciary. Domestic Violence Prevention Act. Domestic Violence Training and Monitoring Unit https://www.courts.ri.gov/PublicResources/domesticviolenceunit/Pages/default.aspx
4. Rhode Island Coalition Against Domestic Violence. Domestic Violence Homicides in Rhode Island 2006-2015. 2017 http://www.ricadv.org/images/Policy/RICADV_HomicideReport_final_forweb.pdf
5. National Center for Injury Prevention and Control. National Violent Death Reporting System. Violence Prevention https://www.cdc.gov/violenceprevention/nvdrs/
6. Petrosky E, Blair JM, Betz CJ, Fowler KA, Jack SPD, Lyons BH. Racial and Ethnic Differences in Homicides of Adult Women and the Role of Intimate Partner Violence - United States, 2003-2014. MMWR Morb Mortal Wkly Rep 2017;66(28):741-746.
7. Centers for Disease Control and Prevention. National Violent Death Reporting System Web Coding Manual Version 5.1. https://www.cdc.gov/violenceprevention/nvdrs/coding_manual.html
8. Ngo S. States Where Women Are Most Likely to Be Killed by Their Partners. The Cheat Sheet. 2017. https://www.cheatsheet.com/culture/states-women-likely-killed-partners.html/
9. Campbell JC, Webster D, Koziol-McLain J, Block C, Campbell D, Curry MA, et al. Risk factors for femicide in abusive relationships: results from a multisite case control study. Am J Public Health 2003;93(7):1089-97.
10. Everytown for Gun Safety. Mass Shootings in the United States: 2009–2016. https://everytownresearch.org/wp-content/uploads/2017/03/Analysis_of_Mass_Shooting_033117.pdf
11. State of Rhode Island in General Assembly. An Act Relating to Courts and Civil Procedure–Courts–Domestic Assault – Protect Rhode Island Families Act. 2017 – H 5510 Substitute B as Amended http://webserver.rilin.state.ri.us/BillText/BillText17/HouseText17/H5510Baa.pdf

Acknowledgments

This brief was funded by CDC grant (5U17CE002615) awarded to the Rhode Island Department of Health.

Authors

Yongwen Jiang, PhD, is Senior Public Health Epidemiologist in the Center for Health Data and Analysis at the Rhode Island Department of Health, and Assistant Professor of the Practice of Epidemiology, School of Public Health, Brown University.

Deborah DeBare, MMHS, is the Executive Director of the Rhode Island Coalition Against Domestic Violence.

Ian Colomer, BA, is Policy Associate of the Rhode Island Coalition Against Domestic Violence.

John Wesley, JD, is the Director of Policy and Advocacy at the Rhode Island Coalition Against Domestic Violence.

Jordan Seaberry, BFA, is the Director of Public Policy and Advocacy at the Institute for the Study and Practice of Nonviolence.

Samara Viner-Brown, MS, is the Chief of the Center for Health Data and Analysis at the Rhode Island Department of Health.

Correspondence

Yongwen Jiang
Yongwen_Jiang@brown.edu

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

VITAL EVENTS	REPORTING PERIOD		
	APRIL 2018	12 MONTHS ENDING WITH APRIL 2018	
	Number	Number	Rates
Live Births	967	11,693	11.0*
Deaths	919	10,326	9.7*
Infant Deaths	5	69	5.9#
Neonatal Deaths	5	51	4.4#
Marriages	390	6,946	6.6*
Divorces	220	3,155	3.0*
Induced Terminations	164	1,771	151.5#
Spontaneous Fetal Deaths	71	867	74.1#
Under 20 weeks gestation	65	802	68.6#
20+ weeks gestation	6	65	5.6#

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

Underlying Cause of Death Category	REPORTING PERIOD			
	OCTOBER 2017	12 MONTHS ENDING WITH OCTOBER 2017		
	Number (a)	Number (a)	Rates (b)	YPLL (c)
Diseases of the Heart	171	2,877	271.5	3,831.5
Malignant Neoplasms	176	2,786	262.9	7,019.5
Cerebrovascular Disease	40	574	54.2	737.5
Injuries (Accident/Suicide/Homicide)	92	1,137	107.3	17,191.0
COPD	30	628	59.3	495.0.

(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 1,056,298 (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.

Some things have changed in the past 29 years.

Some things have not.

Since 1988, physicians have trusted us to meet their professional and personal insurance needs. Working with multiple insurers allows us to offer choice, competitive rates, and the benefit of one-stop shopping. Call us.

401-272-1050

RIMS IBC

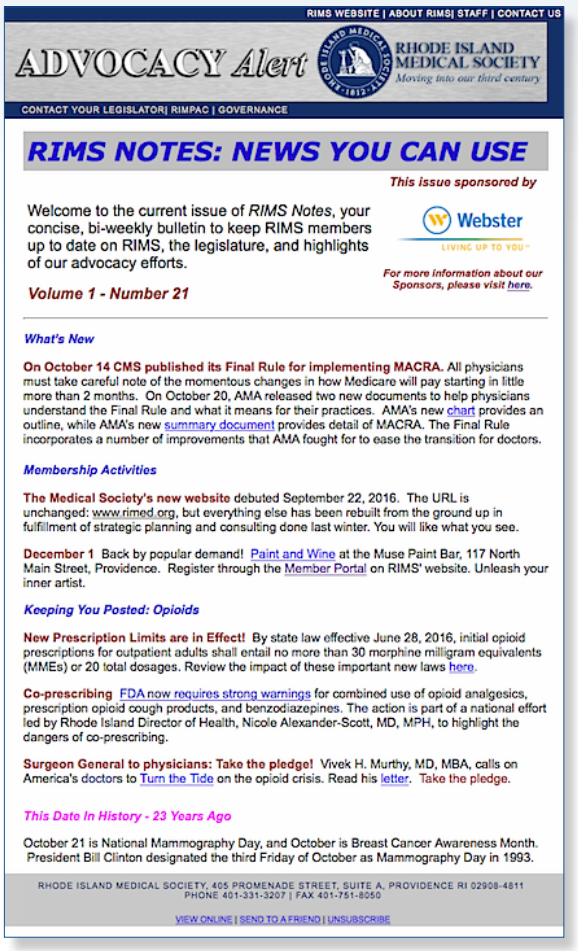
RIMS INSURANCE BROKERAGE CORPORATION

RIMS IBC 405 PROMENADE STREET, SUITE B, PROVIDENCE RI 02908-4811

MEDICAL PROFESSIONAL/CYBER LIABILITY PROPERTY/CASUALTY LIFE/HEALTH/DISABILITY

Are *you* e-reading

RIMS NOTES: *News You Can Use*



RIMS WEBSITE | ABOUT RIMS| STAFF | CONTACT US

ADVOCACY Alert — RHODE ISLAND MEDICAL SOCIETY — Moving into our third century

CONTACT YOUR LEGISLATOR| RIMPAC | GOVERNANCE

RIMS NOTES: NEWS YOU CAN USE

This issue sponsored by Webster LIVING UP TO YOU™

Welcome to the current issue of *RIMS Notes*, your concise, bi-weekly bulletin to keep RIMS members up to date on RIMS, the legislature, and highlights of our advocacy efforts.

For more information about our Sponsors, please visit here.

Volume 1 - Number 21

What's New

On October 14 CMS published its Final Rule for implementing MACRA. All physicians must take careful note of the momentous changes in how Medicare will pay starting in little more than 2 months. On October 20, AMA released two new documents to help physicians understand the Final Rule and what it means for their practices. AMA's new chart provides an outline, while AMA's new summary document provides detail of MACRA. The Final Rule incorporates a number of improvements that AMA fought for to ease the transition for doctors.

Membership Activities

The Medical Society's new website debuted September 22, 2016. The URL is unchanged: www.rimed.org, but everything else has been rebuilt from the ground up in fulfillment of strategic planning and consulting done last winter. You will like what you see.

December 1 Back by popular demand! Paint and Wine at the Muse Paint Bar, 117 North Main Street, Providence. Register through the Member Portal on RIMS' website. Unleash your inner artist.

Keeping You Posted: Opioids

New Prescription Limits are in Effect! By state law effective June 28, 2016, initial opioid prescriptions for outpatient adults shall entail no more than 30 morphine milligram equivalents (MMEs) or 20 total dosages. Review the impact of these important new laws here.

Co-prescribing FDA now requires strong warnings for combined use of opioid analgesics, prescription opioid cough products, and benzodiazepines. The action is part of a national effort led by Rhode Island Director of Health, Nicole Alexander-Scott, MD, MPH, to highlight the dangers of co-prescribing.

Surgeon General to physicians: Take the pledge! Vivek H. Murthy, MD, MBA, calls on America's doctors to Turn the Tide on the opioid crisis. Read his letter. Take the pledge.

This Date In History - 23 Years Ago

October 21 is National Mammography Day, and October is Breast Cancer Awareness Month. President Bill Clinton designated the third Friday of October as Mammography Day in 1993.

RHODE ISLAND MEDICAL SOCIETY, 405 PROMENADE STREET, SUITE A, PROVIDENCE RI 02908-4811
PHONE 401-331-3207 | FAX 401-751-8050

VIEW ONLINE | SEND TO A FRIEND | UNSUBSCRIBE

The biweekly e-newsletter exclusively for RIMS members.

Clear.

Concise.

Informative.

Respectful of your time.

RIMS NOTES
is published electronically on alternate Fridays.

Contact Sarah if you've missed an issue, sstevens@rimed.org.

Working for You: RIMS advocacy activities

Rhode Island's Delegate **Alyn Adrain, MD**, (left), Alternate Delegate **Sarah Fessler, MD**, and Delegate and RIMS President **Peter A. Hollmann, MD**, (not shown), participated in the AMA Interim Meeting of the House of Delegates, November 10–13, in National Harbor, Maryland.

November 1, Thursday

OHIC Admin Simplification Workgroup

AMA Foundation event at RI Historical Society

November 2, Friday

Meeting with the Rhode Island League of Cities and Towns

Meeting with RI American College of Emergency Physicians (ACEP) regarding proposed Emergency Medicine Services regulation

November 5, Monday

OHIC Cost Trends Analysis Group: Peter A. Hollmann, MD, President

Conference call with CMS Region I Administrator, John McGough

RIMS Board of Directors Meeting: Peter A. Hollmann, MD, President

November 6, Tuesday

Election Day

RIMS Physician Health Committee: Herbert Rakatansky, MD, Chair; celebration of the Committee's 40th year

November 7, Wednesday

Meeting with Chief Administrative Officer of the Board of Licensure and Discipline: Peter A. Hollmann, MD, President

November 8, Thursday

Meeting with RI Foundation regarding Physician Health Program: Herbert Rakatansky, MD

State Innovation Model (SIM) Grant Steering Committee: Peter A. Hollmann, MD, President

Joint Underwriting Association of RI Board of Directors: Newell Warde, PhD, CEO

November 9

Conference call with Department of Health and RI Primary Care Physician Corporation regarding National Diabetes Prevention Program

November 10–13, Friday–Tuesday

AMA Interim Meeting, National Harbor, Maryland. Delegate and RIMS President Peter A. Hollmann, MD, Delegate Alyn Adrain, MD, and Alternate Delegate Sarah Fessler, MD

November 14, Wednesday

Board of Medical Licensure and Discipline

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

OHIC Cost Trends Analysis Group: Peter A. Hollmann, MD, President

Mental Health Parity Initiative

Meeting with the Rhode Island Food Policy Council and Harvard Law School regarding sugar-sweetened beverage legislation

Meeting of the Civil Commitment Task Force

November 16, Friday

RIMS' Harm Reduction Committee Meeting

November 19, Monday

Governor's Overdose Harm Reduction Workgroup

November 20, Tuesday

OHIC Health Insurance Advisory Committee

November 21, Wednesday

Primary Care Physicians Advisory Committee

Meeting with Brown Physicians, Inc. regarding advocacy

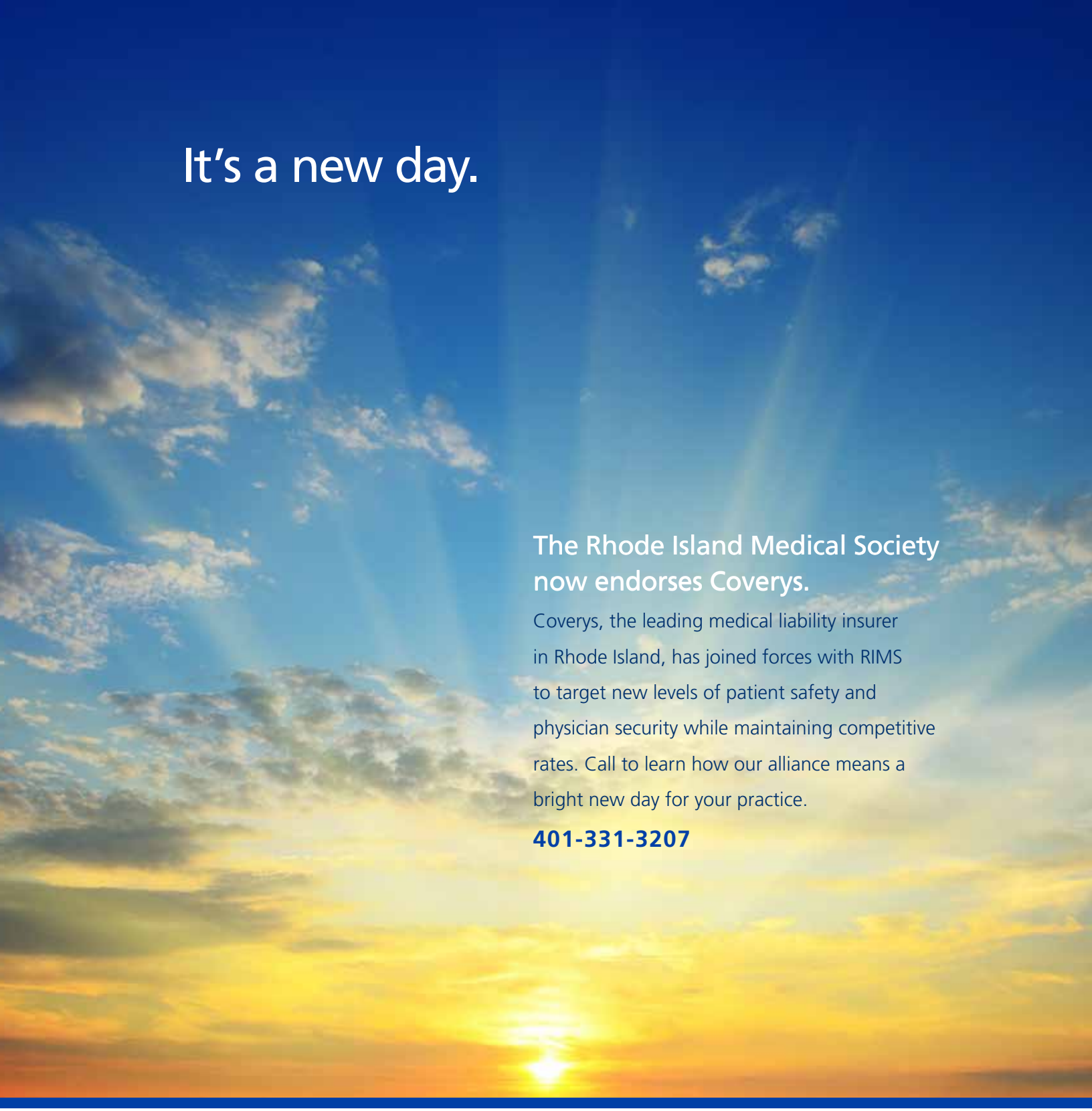
November 26, Monday

OHIC Cost Trends Analysis Group: Peter A. Hollmann, MD, President

Rhode Island Health Information Technology Survey Working Group Meeting

November 30, Friday

OHIC Admin Simplification Workgroup



RHODE ISLAND MEDICAL SOCIETY · 1812 ·

COVERYS®

RIMS CORPORATE AFFILIATES

The Rhode Island Medical Society continues to drive forward into the future with the implementation of various new programs. As such, RIMS is expanded its Affinity Program to allow for more of our colleagues in healthcare and related business to work with our membership. RIMS thanks these participants for their support of our membership.

Contact Marc Bialek for more information: 401-331-3207 or mbialek@rimed.org

Neighborhood Health Plan OF RHODE ISLAND™

www.nhpri.org

Neighborhood Health Plan of Rhode Island is a non-profit HMO founded in 1993 in partnership with Rhode Island's Community Health Centers. Serving over 185,000 members, Neighborhood has doubled in membership, revenue and staff since November 2013. In January 2014, Neighborhood extended its service, benefits and value through the HealthSource RI health insurance exchange, serving 49% the RI exchange market. Neighborhood has been rated by National Committee for Quality Assurance (NCQA) as one of the Top 10 Medicaid health plans in America, every year since ratings began twelve years ago.

RHODE ISLAND PHYSICIANS CORPORATION PRIMARY CARE

www.ripcpc.com

RIPCPC is an independent practice association (IPA) of primary care physicians located throughout the state of Rhode Island. The IPA, originally formed in 1994, represent 150 physicians from Family Practice, Internal Medicine and Pediatrics. RIPCPC also has an affiliation with over 200 specialty-care member physicians. Our PCP's act as primary care providers for over 340,000 patients throughout the state of Rhode Island. The IPA was formed to provide a venue for the smaller independent practices to work together with the ultimate goal of improving quality of care for our patients.

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

ANCHOR MEDICAL ASSOCIATES

AQUIDNECK MEDICAL
Member of University Medicine

THE CENTER FOR orthopaedics INC.

COASTAL MEDICAL
LEADERS IN HEALTHCARE

Ortho Rhode Island

NorthMain Radiation Oncology

Ob-Gyn Associates
A Lifespan Physician Group Practice

Orthopaedic Associates, Inc.

Rhode Island Eye INSTITUTE

RI ENT

SKIN PROS

UEMF
university EMERGENCY MEDICINE foundation

UNIVOTO
University Otolaryngology

Women's Medicine Collaborative
A program of The Miriam Hospital
Lifespan. Delivering health with care.®

For more information about group rates, please contact Marc Bialek, RIMS Director of Member Services

Proud to sponsor the Rhode Island Medical Society

More than $1 out of every $4 of practice revenue is the patient's responsibility!

24/7 Online

Client Management System

Patient portion has been growing by five to six percent per year. Getting control of patient portion an important focus of any private practice that expects to say private.

On average practices send 3.3 statements before receiving payment

*The average cost of printing, handling and stamping a statement is $1.25 per statement, not including employee cost.

LET US HELP YOU IN 2019

COLLECTIONS WITHOUT ALIENATING YOUR PATIENTS

DYNAMIC
RECOVERY SOLUTIONS

Improved Patient Retention
Local
High Recovery
Customized Programs

For a free consultation call Carmella Beroth at 508-553-1916 or visit www.gotodrs.com

We Focus on those who don't pay
So you can Focus on the day to day!!

Philanthropist Michael Bloomberg visits RI, praises the RIDOC MAT program

RIDOH's James McDonald, MD, MPH, at left of former New York City Mayor Michael Bloomberg, Governor Gina Raimondo, and other members of Governor Raimondo's Overdose Prevention and Intervention Task Force met last week to discuss Rhode Island's response to the overdose crisis. [PHOTO: RIDOH]

CRANSTON – Philanthropist **MICHAEL BLOOMBERG** visited Cranston's Adult Correctional Institution on Monday November 26th to develop a firm understanding of the 'ground-breaking' work being done to curb the opioid crisis in Rhode Island.

"There's an enormous crisis that's come on us very recently," Bloomberg said. He came with a team to learn about the RIDOC MAT program, and to congratulate state leadership and healthcare workers who are addressing an issue, he says, has no boundaries. His visit was prompted by the startling findings that show the RIDOC MAT program has contributed to a 60 percent decline in overdoses across the state.

CODAC Behavioral Healthcare administers treatment in this program, and helps ensure recently released inmates continue to have access to services that they need. The Cranston-based organization helps screen inmates, and provides all three FDA-approved medications for the treatment of opioid use disorder. They also provide other services to help individuals on their path to recovery.

"CODAC Behavioral Healthcare is extremely gratified by Michael Bloomberg's recent visit to our state. Our staff regularly meets with several out-of-state officials who have shown an interest in understanding how the MAT program works, and we are always willing to help other states implement similar programs," said **LINDA HURLEY**, President/CEO of CODAC. "We are among the few states to have seen a decrease in overdoses, and findings from Brown University researchers suggest the RIDOC MAT program is having a real impact."

David Dorsey, a clinical supervisor with CODAC and a champion for the recovery community, can attest to the number of visitors who have expressed interest in the MAT program. Dorsey has an office at the ACI, and he is involved in the case of every person who is receiving medication at the ACIs.

GOVERNOR GINA RAIMONDO also took the opportunity to praise the healthcare workers, recovery specialists, and inmates who are contributing to "ground-breaking, path-breaking work."

"Nobody I know, nobody I've talked to here or anywhere, wants to be addicted," Raimondo said.

She said this program is helping countless individuals return to healthy, fulfilling lives, but agreed with Bloomberg in saying the nation still has "a long ways to go." ❖

Charitable Foundation brings virtual reality technology to Southcoast Health patients

NEW BEDFORD – Virtual reality technology is coming to Southcoast Health, courtesy of a gift from the Thomas H. and Catherine D. O'Neil Charitable Foundation. The technology, with a variety of viewing programs for patients to utilize, will be used to help mitigate patient pain and anxiety both leading up to and during medical procedures.

The donation was presented by the grandchildren of Thomas and Catherine O'Neil at St. Luke's Hospital on the 76th anniversary of Boston's Cocoanut Grove Fire. Thomas and Catherine were among the 492 individuals killed on November 28, 1942 in the historic blaze. To honor their memory, in 2012 one of Thomas and Catherine's grandchildren, Chris O'Neil, created the Foundation as a way to honor the victims of the fire while also helping those suffering from painful injuries, particularly burn victims and pediatric patients. Chris says, "I wanted to bring some good where a lot of pain had once been, that the lives lost were not in vain. We can make an impact with the O'Neil Foundation."

The virtual reality system will be the first such technology utilized by Southcoast Health. The system will be used to manage patient pain, first at the Southcoast Health Wound Center at St. Luke's Hospital, with plans to incorporate its use into other service areas at Southcoast moving forward. "The opportunity for our Foundation to provide this technology to Southcoast has brought a lot of excitement versus a simple cash donation," Chris says. "We get a chance to be part of a new way of helping people."

The O'Neil Foundation gift was made in memory of Dr. Charles Eades, one of the Foundation's most generous supporters. ❖

Peggy O'Neil Verronneau tries out donated VR device at St. Luke's Hospital on 76th anniversary of Cocoanut Grove Fire.

O'Niel family joins Southcoast Philanthopy, CEO, and medical staff to mark occasion: Front Row Jack Dresser SVP of Southcoast Health Philanthropy, Chris O'Neil, Keith Hovan CEO of Southcoast Health, Dr. Robert Sanfort Wound Center Medical Director, Catherine O'Neil Norton. Behind left to right: Dr. Robert Caldas Chief Medical Officer, Ellie Potter, and Peggy O'Neil Verronneau. Behind Left to right: Mark O'Neil and Andrew O'Neil. Back row: Tom O'Neil (left), Tricia Grimes of Southcoast Health Philanthopy (center), and Tricia Verronneau (right).

[PHOTOS: STEPHEN PRESTON/SOUTHCOAST HEALTH]

AMA Announces $15M 'Reimagining Residency' Initiative

CHICAGO – Building on its work over the past five years to reinvent the way future physicians are trained, the American Medical Association (AMA) recently announced a new $15 million competitive grant initiative aimed at significantly improving residency training. Through the new AMA "Reimagining Residency" initiative, the AMA will work toward better aligning residency training with the evolving needs of patients, communities, and the workforce needs of the current and future health care system.

The AMA Reimagining Residency initiative marks the next phase in AMA's successful efforts to transform physician training. The goal of the effort is to address the growing gap between how physicians are being trained and the skills they'll need to practice in modern health systems.

"Applying what we've learned through our successful initiative to create the medical schools of the future, we're embarking on a new effort to reinvent residency training to ensure our future physicians are able to make a seamless transition into residency and ensure they're prepared for practice – while supporting their well-being and improving patient safety," said AMA CEO & Executive Vice President **JAMES L. MADARA, MD**. "During this unprecedented time of rapid growth and technological change in the U.S. health care system, the AMA is continuing to support significant redesign and innovation in physician training that will help physicians adapt and grow at every stage of their career, and ultimately improve the nation's health."

Through the new grant program, the AMA will provide $15 million over five years to fund up to eight innovations among U.S. graduate medical education sponsors, medical schools, health systems, and/or medical specialty societies to support bold and innovative projects that promote systemic change in graduate medical education.

The selected organizations will join an AMA-convened consortium and work together to evaluate successes and lessons learned, and promote wide dissemination and adoption of successful innovations.

Beginning January 3, 2019, organizations interested in applying to receive funding and join the consortium must submit letters of intent describing the goals and scope of their proposed project by February 1.

Specifically, funding will be awarded to institutions and their partners for:

- Improving the transition from medical school to residency to preserve continuity in professional development
- Ensuring readiness for practice through modifications of residency curricula
- Optimizing the learning environment to support well-being among trainees, mentors, and staff

From the initial pool of proposals, the AMA will invite a select group of organizations to submit full proposals by April 17, and will conduct a thorough review of all materials before announcing the selected organizations at its annual meeting in June 2019.

Upon selection, the eight institutional partners receiving grant awards will meet together to agree upon standardized criteria for student assessment, resident selection procedures, on- boarding/transition of students to residency, off-cycle selection of residents, core curriculum for residents in health systems science and a common evaluation program that measures performance, patient outcomes and learner well-being.

Beginning January 3, 2019, organizations interested in applying to receive funding and join the consortium must submit letters of intent describing the goals and scope of their proposed project by February 1.

The new AMA Reimagining Residency initiative builds on the work of the AMA Accelerating Change in Medical Education initiative launched in 2013 to create the medical schools of the future. The new partner organizations will work in tandem with the AMA's consortium of 32 medical schools created through the AMA Accelerating Change in Medical Education initiative, which has impacted more than 19,000 medical students who will one day provide care for more than 33 million patients annually.

For more information about the initiative and to view a short video, visit:
www.ama-assn.org/ama-reimagining-residency-initiative

DOES YOUR BUSINESS HAVE
COMPLIANCE CHANGES

Covered?

Not many small businesses are ready to deal with the changes to health insurance, compliance, and human resources. Whether it's finding the best deal on health insurance, assisting your company with business and HIPAA compliance, or keeping up with the most recent human resource requirements, HNI is ready to help you with the support you need to focus on what really matters – your patients.

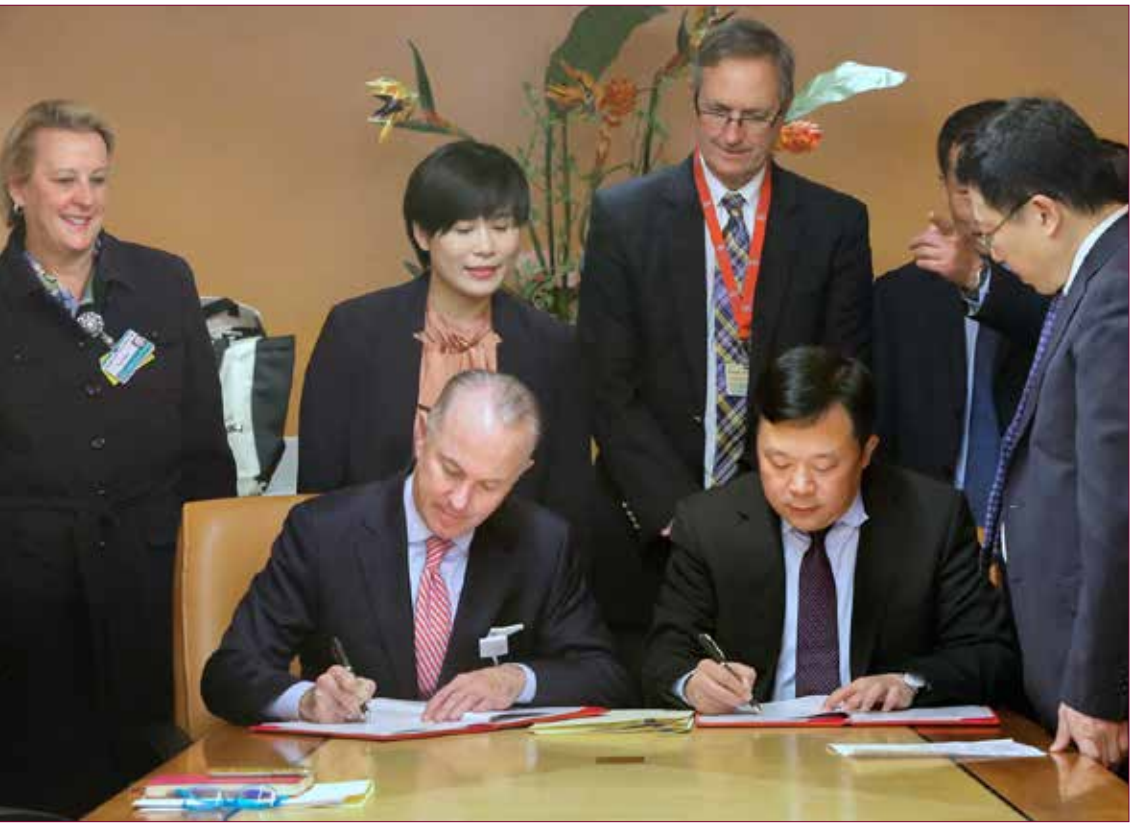
With over 20 years of combined experience in group benefits, HNI has the expertise to advise on the most complex benefits matters, yet we are small enough to keep a personal touch.

Make sure you're covered.
Call us today 401-228-8915 or visit us online HNIins.com

GROUP HEALTH/DENTAL/VISION/ANCILLARY INSURANCE | COMPLIANCE CONSULTING | HUMAN RESOURCE CONSULTING

Lifespan Cardiovascular Institute partners with Chinese academic medical center

International exchange to foster research, cultural awareness



Lifespan President and CEO **Timothy J. Babineau, MD**, and Union Hospital President **Yu Hu, MD, PhD**, sign the agreement between the two institutions as members of their senior teams look on.

PROVIDENCE – Leaders of Lifespan and the Lifespan Cardiovascular Institute convened November 7th at Rhode Island Hospital with a delegation from Huazhong University of Science and Technology's Tongji Medical College and Union Hospital in Wuhan, Hubei Province, People's Republic of China. The parties signed a memorandum of understanding to establish an exchange program centered around cardiovascular research and medical knowledge in the areas of cardiology, echocardiography and cardiovascular surgery.

University Cardiovascular Surgical Associates, the practice group which includes several Lifespan surgeons, is also a party to the agreement.

The program initially calls for each institution to host two to five medical students, residents, fellows, physicians, faculty and other health care providers per year in an exchange arrangement. It is the intention of the participants to expand medical education and cultural awareness, develop collaborative research and education projects, and build a lasting relationship between and among the health care institutions.

In Rhode Island, the program will be co-directed by **PHILIP HAINES, MD**, associate director of echocardiography at Rhode Island Hospital, and **FRANK SELLKE, MD**, chief of cardiothoracic surgery at Rhode Island and The Miriam hospitals and representing University Cardiovascular Surgical Associates.

The partnership originated with conversation between Dr. Haines and his mentor, Dr. Tao Wang of the University of Pennsylvania, who had himself studied at Tongji Medical College. Dr. Haines, upon arriving in Providence from his fellowship at Penn, says he had a vision of expanding the cardiovascular research collaborations of both the Warren Alpert Medical School of Brown University and the Lifespan hospitals as its major teaching affiliates.

"The exchange of faculty and trainees between these two organizations is an enormous opportunity in the global pursuit of medical knowledge and research breakthroughs," said Dr. Haines. "The possibilities for both universities and hospitals cannot be underestimated. I am grateful for the support and mentorship of Dr. Sellke and Dr. (Athena) Poppas as we pursued formalizing this exchange of ideas and resources."

Drs. Haines, Sellke and Poppas, the chief of cardiology at Rhode Island and Miriam hospitals, have traveled to China to meet and develop the emerging partnership.

"Wuhan Union Hospital and Tongji Medical College are premiere medical institutions in China," said Dr. Sellke. "They have tremendous patient volume and their researchers will bring a new perspective and new capacity, while their students and fellows will benefit from learning more about our research and clinical practices here at Brown and the Lifespan hospitals. All of this enables greater potential for basic and clinical research, and the benefits are truly reciprocal." ❖

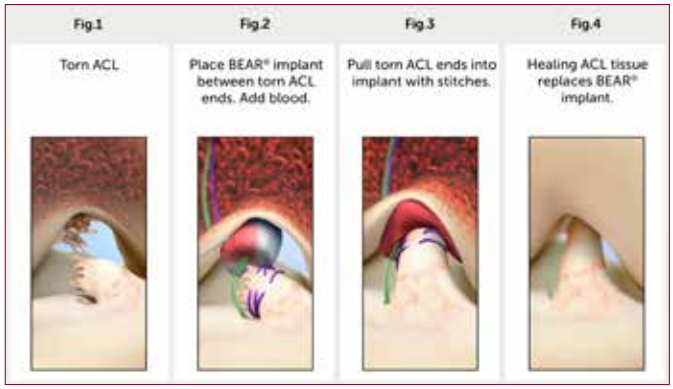
University Orthopedics Partners with Boston Children's Hospital on ACL Repair Trial

PROVIDENCE – University Orthopedics announced that their team of sports medicine surgeons, Drs. Hulstyn, Fadale and Owens, have begun performing ACL repairs with BEAR, a procedure that has been developed by **DR. MARTHA MURRAY** and her team at Boston Children's Hospital, with the help of **DR. BRADEN FLEMING** and his team at Rhode Island Hospital.

The new technique, bridge enhanced ACL repair (BEAR), uses stitches in a bridging scaffold (a protein sponge injected with the patient's blood) to stimulate healing of the torn ACL.

University Orthopedics' **DR. MICHAEL HULSTYN** was the first to perform the surgery at Rhode Island Hospital. "Anterior cruciate ligament reconstruction is the standard of care for a torn ACL with high patient satisfaction and outcomes, but carries the long-term risk of graft failure and knee post traumatic degenerative arthritis. The BEAR procedure allows reattachment of the native ligament and is less invasive than reconstruction surgery. The goal is for a faster recovery time and return of knee stability with high patient satisfaction, and hopefully less chance of arthritis 15 to 20 years down the road."

Dr. Murray states, "We are now in our third clinical trial and we feel that University Orthopedics and Rhode Island Hospital are a perfect fit to continue this research. Doctors



Hulstyn, Fadale and Owens have extensive experience in ACL surgery and we are excited to have them join this study."

The goal of the current study is to analyze the BEAR procedure and more patients to determine if patient age contributes to the success of the procedure. Up to 250 patients will be enrolled at University Orthopaedics/Rhode Island Hospital and at Boston Children's Hospital."So far the results have been very promising. We are thrilled to be part of this exciting trial and appreciate Dr. Murray and her staff for allowing University Orthopedics to continue this groundbreaking work," says Hulstyn. ❖

Southcoast Health opens new Fall River Breast Center, upgrades to 3-D mammography

From Left to Right: Derek Viera (Project Team), Debra Desmarais, George Berg (Project Team), Christopher DaSilva, Dr. Maureen Chung, Christine LoPiano, Mary-Lou Shea RN, Filomena Curley.

FALL RIVER – Southcoast Health has opened the Southcoast Health Breast Center in Fall River, where all regional services have been integrated at one site.

This $4 million project brings the latest in breast care services – from mammography to surgical consults – to offer timely, integrated care that also includes breast ultrasound and bone densitometry.

Southcoast Health modeled the Fall River site after its successful Breast Program in Dartmouth at the Center for Women's Health, on Faunce Corner Road. This program has been in place for several years and has produced exceptional results in reducing the time from a positive mammogram to surgery and cancer diagnosis. The excellent outcomes at that site helped Southcoast Health gain certification by the prestigious National Accreditation Program for Breast Centers.

A staff radiologist will be available at the new center to read all mammograms. The center also has a surgical clinic where patients can meet with a breast surgeon who will coordinate their care with the assistance of a nurse navigator. This model of care provides a seamless approach for all patients who are diagnosed with breast disease.

The new center also uses the latest in mammography technology, tomosynthesis or 3-D mammograms. Unlike standard 2-D mammogram images, the 3-D images provided with tomosynthesis enable radiologists to identify tumors at their earliest stages, when they are most successfully treated. Tomosynthesis also makes it easier to identify benign abnormalities, reducing the need for patients to return for a second mammogram.

"Studies show that a physician-led, multi-disciplinary team approach to breast care delivers the best results," said **DR. MAUREEN CHUNG**, medical director of the Southcoast Health Breast Program. "We have confirmed those studies at Southcoast Health, with our own experience in Dartmouth, and I am pleased that we can replicate that approach in Fall River."

These advances in Southcoast Health's Breast Program include improvements to the IT system to allow digital transfer of the larger, 3-D images.

Support for the project came from the Manton Foundation, Southern New England Radiology Associates and the Charlton Memorial Hospital Auxiliary. Massachusetts Sen. Michael Rodriques also provided unwavering support for the new Fall River center. ❖

Confidence in your coverage instills confidence in your practice.

Helping you to...

practice CONFIDENCE

NORCAL GROUP®

Medical Professional Liability Insurance
Flexible coverage that's right for you

Risk Management
Industry-Leading CME offerings and educational opportunities

Professional Wellness
Self-care resources for healthcare practitioners

844.4NORCAL | NORCAL-GROUP.COM

Appointments

Athena Poppas, MD, named Chief of Cardiology at Brown, Lifespan; VP of ACC

PROVIDENCE – **ATHENA POPPAS, MD, FACC, FASE**, has been named Chief of the Division of Cardiology for Rhode Island and The Miriam hospitals, as well as The Warren Alpert Medical School of Brown University. Dr. Poppas has served as interim chief since June 2017. She also is director of the Lifespan Cardiovascular Institute, which includes Rhode Island, The Miriam and Newport hospitals and multiple offices around the state.

"Lifespan is fortunate to have the leadership of Dr. Poppas in such a vital and rapidly evolving area as cardiology," said Lifespan President and CEO **TIMOTHY J. BABINEAU, MD**. "She has helped bring the Lifespan Cardiovascular Institute to the forefront of the diagnostic, therapeutic, and research arenas in our region, and we look forward to building upon our program with her leadership."

"Dr. Poppas has led a distinguished career in research, clinical leadership, and medical education," said **JACK A. ELIAS, MD**, senior vice president for health affairs and dean of medicine and biological sciences at Brown. "I am thrilled that she will remain in this role in a permanent capacity."

Dr. Poppas was also recently named vice president of the American College of Cardiology (ACC). She will assume her position in March, when the organization holds its convocation, inauguration and awards ceremony. This is the first of a three-year leadership role (vice president, president and immediate past-president). As vice president, she will be an officer of the board of trustees.

"Dr. Poppas has been actively engaged in leadership roles at the state and national level within the college for many years, including leading the recent transformation of the ACC's governance structure and processes," said ACC Immediate-Past President **MARY NORINE WALSH, MD, MACC**. "Her wealth of experience and knowledge of how the college is best suited to meet the diverse needs of the global cardiovascular community ensures she will be a strong leader for the ACC."

Her clinical and research specialties are in valvular heart disease, heart disease in women, and echocardiography and heart disease during pregnancy. She has over 100 publications and frequently presents internationally.

Dr. Poppas earned her BS in biology at Brown University, followed by a doctor of medicine degree from the University of Wisconsin Medical School. She completed her residencies in internal medicine at University of Wisconsin Hospital and Clinics and in cardiovascular medicine at University of Chicago Hospital. She practiced and taught at University of Chicago and then Massachusetts General Hospital/Harvard University before joining Lifespan and Brown in 1998. ❖

E. Bradley Miller, MD, joins South County Urology

E. BRADLEY MILLER, MD, recently joined South County Urology where he will continue to treat adult patients in the areas of urologic oncology and reconstructive urology, using laparoscopic and daVinci Xi robotic assisted surgical procedures. He is certified by the American Board of Urology.

Dr. Miller received his medical degree from the University of Massachusetts Medical School (Worcester), and completed a urology residency at Eastern Virginia Graduate School of Medicine in Norfolk, VA. He also received extensive training in reconstructive urologic surgery at the Devine Reconstructive Center in Norfolk, VA. Prior to joining the South County Health Medical Staff, Dr. Miller taught as a clinical assistant professor in surgery (urology) at the Warren Alpert Medical School of Brown University.

Dr. Miller's experience with the daVinci Xi robotic assisted technology will expand South County Hospital's ability to treat urological conditions and urologic cancer patients with minimally invasive surgery. ❖

Adam Klipfel, MD, elected to ACS Board of Governors

ADAM KLIPFEL, MD, FACS, FASCRS, has been elected to the Board of Governors as a Governor-at-Large for the American College of Surgeons.

His appointment was made official by the Fellows at the Annual Business Meeting of Members on October 24, 2018 for an initial three-year term ending at the conclusion of the 2021 Clinical Congress.

Dr. Klipfel is a colorectal surgeon with expertise in colon cancer and surgical oncology. He received his medical degree from Mount Sinai School of Medicine in New York and completed a residency at New York Methodist Hospital. Dr. Klipfel gained further experience through a colorectal fellowship and an anorectal physiology fellowship at University of Southern California-affiliated hospitals. He has expertise in robotic surgery for benign and malignant disease.

He is a clinical assistant professor of surgery at The Warren Alpert Medical School of Brown University, affiliated with University Surgical Associates, Inc. and The Miriam and Rhode Island hospitals. ❖

Recognition

Dr. Vivian Sung (left), who received the Best Clinical Paper Award at the American Urogynecologic Society (AUGS) annual meeting is pictured here with colleagues from Women & Infants Hospital/Brown University Dr. Charles Rardin, president of AUGS, and Dr. Deborah Myers, past president of AUGS.

Dr. Vivian Sung receives two awards for urinary incontinence research

VIVIAN SUNG, MD, MPH, FACOG, of the Division of Urogynecology and Reconstructive Pelvic Surgery at Women & Infants Hospital, was recently presented with two awards for research she is leading for the *Eunice Kennedy Shriver* National Institutes of Child Health and Human Development's (NICHD) Pelvic Floor Disorders Network.

At the October American Urogynecologic Society (AUGS) Annual Meeting, Dr. Sung won Best Clinical Paper for the study "The ESTEEM Trial: A Randomized Trial Comparing Combined Midurethral Sling and Behavioral/Pelvic Floor Therapy to Midurethral Sling Alone for Mixed Urinary Incontinence." In August, she received the International Continence Society Best Abstract Award for the same research.

The ESTEEM Study supports midurethral slings as a highly effective treatment for mixed urinary incontinence with low rates of worsening urgency incontinence. The addition of behavioral and pelvic floor therapy to surgery can further improve certain outcomes. Women & Infants Hospital was a top recruiter for this trial. ❖

Dr. Thomas Miner inducted into ACS

PROVIDENCE – **DR. THOMAS MINER**, a surgical oncologist with University Surgical Associates, was recently inducted into the New American College of Surgeons (ACS) Academy of Master Surgeon Educators™.

Dr. Miner, an associate professor at the Warren Alpert Medical School of Brown University, was among 91 surgeons honored during the Academy's inaugural ceremony held on October 3, 2018. Hailing from seven different countries, inductees convened for the ceremony at the John B. Murphy Memorial Auditorium in Chicago, Illinois.

"I'm grateful for the opportunity to train the next generation of surgeons. It's very rewarding to contribute to their path of excellence," said Dr. Miner. "I look forward to collaborating with internationally renowned surgeons to improve patient outcomes not only for the people of Rhode Island, but also the international community-at-large."

Dr. Miner was inducted as a member following a stringent peer review that examined his surgical achievements and lifelong history as an educator. As a newly inducted member, Dr. Miner will share in the responsibility to promote the Academy's overarching goals and help promote improvements in surgical care and patient safety.

"University Surgical Associates recognizes that our faculty are thought leaders in surgical practices and experts in their respective fields. Dr. Miner's recognition reflects his passion for the field of oncology as well as the high quality of care patients should expect to see when they seek services at one of our facilities," said **DR. WILLIAM CIOFFI**, President of University Surgical Associates and the surgeon-in-chief at the Miriam and Rhode Island hospitals. "All of us at University Surgical Associates would like to congratulate Dr. Miner on his recent achievement." ❖

Rhode Island Hospital named one of the nation's 50 Top Cardiovascular Hospitals by IBM Watson Health

PROVIDENCE – Rhode Island Hospital is among the nation's top cardiovascular programs, according to IBM Watson Health™. The Watson Health 50 Top Cardiovascular Hospitals™ study is now in its 20th year. This is the fifth time Rhode Island Hospital has been recognized with this honor, one of only three hospitals in New England to earn the distinction this year, and the only one in the state.

The Watson Health 50 Top Cardiovascular Hospitals study uses 2016 and 2017 Medicare Provider Analysis and Review (MedPAR) data, 2017 Medicare cost reports (2016 if 2017 reports were not available) and Centers for Medicare & Medicaid Services (CMS) Hospital Compare published in the second quarter of 2018. Hospitals were scored in key value-based performance areas: risk-adjusted mortality, risk-adjusted complications, percentage of coronary bypass patients with internal mammary artery use, 30-day mortality rates, 30-day readmission rates, and severity-adjusted average length of stay, among other areas.

"Rhode Island Hospital is proud to be named to this list of top hospitals for cardiovascular care for a fifth time. The expertise and cutting-edge treatment of our Lifespan Cardiovascular Institute, coupled with the outstanding experience provided by our entire inpatient and outpatient care teams, have made Rhode Island Hospital a top center in our region and across the country," said **MARGARET M. VAN BREE, MHA, DRPH**, president of Rhode Island Hospital. ❖

Recognition

Dr. Carol Wheeler earns designation in pediatric and adolescent gynecology

To help address the gynecologic needs of females from birth to young adulthood, **CAROL A. WHEELER, MD**, a reproductive endocrinologist at the Fertility Center at Women & Infants Hospital, recently took and passed the American Board of Obstetrics and Gynecology's (ABOG) Focused Practice Designation Exam in Pediatric and Adolescent Gynecology. Dr. Wheeler is one of only 100 physicians nationwide who took the exam, and the only one in Rhode Island.

ABOG introduced this new designation earlier this year. **GARY FRISHMAN, MD**, interim director of the Fertility Center at Women & Infants said, "This is a new designation on the part of ABOG with relatively few providers around the country so recognized in the field of pediatric and adolescent gynecology. We are truly fortunate to have Dr. Wheeler's expertise to help provide care for this patient population."

Dr. Wheeler is a professor of obstetrics and gynecology, clinician educator, at The Warren Alpert Medical School of Brown University is the director of the Pediatric and Adolescent Clinic, Third-Party Reproduction Program, and medical director of In Vitro Fertilization (IVF). She's sees patients at both Women & Infants Obstetrics and Gynecology Care Center (OGCC) and Fertility Center.

Board-certified in obstetrics and gynecology and reproductive endocrinology and infertility, Dr. Wheeler earned her medical degree from Jefferson Medical College in Philadelphia. Following this, she completed her residency training in obstetrics at Miami Valley Hospital in Dayton, OH, and her fellowship training in reproductive endocrinology and infertility at the Hospital of the University of Pennsylvania. ❖

Recognition

Hospital Association of Rhode Island holds annual meeting; honors healthcare leaders

PROVIDENCE – The Hospital Association of Rhode Island (HARI) recently hosted its 86th Annual Meeting at the Providence Marriott Downtown. Recipients of the Benjamin R. Sturges Distinguished Service Award, Francis R. Dietz Award for Public Service, and the American Hospital Association (AHA) Grassroots Champion Award were honored by the association and its attendees.

South County Health Chief Executive Officer **LOU GIANCOLA** was awarded the Benjamin R. Sturges Distinguished Service Award by Rhode Island Primary Care President Albert Puerini, MD. Giancola was honored for his significant contributions to Rhode Island's healthcare community. The Benjamin R. Sturges Distinguished Service Award honors and recognizes individuals who have made significant contributions to the improvement of health and hospital care in Rhode Island.

The Francis R. Dietz Award for Public Service was presented by HARI Board of Trustees Chairman John Holiver to Representative **MARVIN ABNEY** and Senator **WILLIAM CONLEY, JR.** for their leadership in restoring essential funds in the Fiscal Year 2019 State Budget for Rhode Island's most vulnerable patients. The Francis R. Dietz Award for Public Service honors individuals for remarkable contributions to health care issues.

RI Senator **William Conley Jr.**, center, also received the public service award.

The American Hospital Association's Grassroots Champion Award was presented by AHA Regional Executive Jack Barry to **MICHAEL SOUZA**, chief executive officer of Landmark Medical Center and The Rehabilitation Hospital of Rhode Island, for his exceptional dedication to grassroots advocacy. The award recognizes hospital leaders who effectively educate elected officials on how major issues affect hospitals' vital role in the community, who have done an exemplary job in broadening the base of community support for hospitals, and who have been tireless advocates for hospitals and patients. The AHA Grassroots Champion Award is presented annually to one individual from each state.

HARI President **TERESA PAIVA WEED** presented the HARI 2018 Annual Report. The report included highlights of the association's numerous legislative victories and quality initiatives. In addition to HARI's advocacy efforts, Paiva Weed provided attendees with a six-month summary of HARI's efforts with The Campaign to Change Direction.

The morning concluded with keynote speaker **A. KATHRYN POWER, MEd**, former Regional Administrator, Region One for the Substance Abuse and Mental Health Services Administration (SAMHSA). Prior to her federal role, Power served for ten years as the Commissioner of Mental Health and Substance Abuse Services at what is now known as the Rhode Island Department of Behavioral Healthcare, Developmental Disabilities, and Hospitals. ❖

From left, John Holiver, HARI Board of Trustees Chair; **Dr. Albert Puerini**, of Rhode Island Primary Care, presented the Benjamin R. Sturges Distinguished Service Award to South County Health CEO **Lou Giancola**; shown with HARI President **Teresa Paiva Weed**.

HARI Board of Trustees Chairman **John Holiver**, left, presented The Francis R. Dietz Award for Public Service to RI Rep. **Marvin Abney**; at right is HARI President **Teresa Paiva Weed**.

The American Hospital Association's Grassroots Champion Award was presented by AHA Regional Executive **Jack Barry** to **Michael Souza**, chief executive officer of Landmark Medical Center and The Rehabilitation Hospital of Rhode Island. [PHOTOS: HARI]