In This Issue

President’s Message 2

TPHA Committees and Highlights of Their Exciting Activities 2

Commissioner’s Comments
Mumps Makes a Comeback in Texas and the US 3

Poison Control News
Insect Repellant Bands: Attracting Kids Not Insects 4

Book Review
Rigor Mortis: How Sloppy Science Creates Worthless Cures, Crushes Hope, and Wastes Billions by Richard Harris 5

Public Health Practice Commentary
Protect the Prevention Fund 6

Original Peer-Reviewed Public Health Research
Creating Momentum in Public Health Through Strategic Planning and Academic Partnerships 7

Sifting for Clues: Using Patient Healthcare Records to Identify Missed Opportunities for Tuberculosis Prevention 10

The Effects of Chronic Medical Conditions and Obesity on Self-Reported Disability in Older Mexican Americans 12

Developing Partnerships to Reduce Sodium in Worksite Cafeterias and Congregate Meal Programs 16

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President’s Message
Carol M Davis, MSPH, CPH

Since 1932, the Texas Public Health Association (TPHA) has been promoting public health because we believe that public health is everybody’s business. I am honored to serve as your president for the 2017-18 year. I love being involved with TPHA and attending our conference because it provides me an opportunity to see the amazing things that are done across Texas to protect health. The passion of our members inspires me. The dedication of our members humbles me.

As your president, for those members who want to become more involved with public health beyond your explicit job duties, I want to help you connect with opportunities within TPHA. Our organization can help you connect with public health professionals across the state. One opportunity that is available for all members of TPHA is participation on our committees. We have committees tasked with looking at professional development, membership, legislation/policy/advocacy, marketing, and conference planning.

Another opportunity available to our members is the TPHA Journal Editorial Board Chair position. This position is responsible for working with the Editorial Board to coordinate the solicitation, review, and approval of manuscripts for our journal.

Please reach out to me at spilogale13@yahoo.com or to Terri Pali at txpha@aol.com if you are interested in learning more about our committees.

I first became active in TPHA by serving on a committee. I had ideas and opinions about the TPHA conference I had just attended and was invited to contribute to the next conference by serving on the programs planning committee. It was a great experience and I had the opportunity to help grow our annual conference.

I am looking forward to this next year because I am in a unique position to witness the exciting projects and wonderful accomplishments that will be done by our members both in public health practice and in academia. There may be uncertainty about budgets and health threats, but we have faced uncertainty before. Our dedication and our passion will help us continue to serve our communities and protect the public’s health. TPHA is full of public health leaders. Whether you are a health department director or a frontline employee. Whether you have decades of experience or are just getting your foot in the door. You are a public health leader.

We are public health leaders because we inspire others to live healthier lives. We actively work to protect health and empower others to do the same. Reading this journal, attending public health conferences, and your involvement with TPHA demonstrates your desire to learn and continue to grow professionally. The next step is to share what you learn with others. Use your knowledge and experience to improve public health and then amplify your impact by sharing that knowledge and experience with others. TPHA strives to support our members doing just that through this journal and our annual educational conference.

In closing, I look forward to working with you in promoting and protecting public health. Let your inner leader shine and I know we will continue to have substantial and meaningful impacts on the health of everyone in Texas.

TPHA Committees and Highlights of Exciting Activities

Much more information can be found on our website at www.texaspha.org/page/TPHACommitees.

Legislative, Policy & Advocacy Committee—Help us propose public health resolutions and policy statements; monitor State and national policy; educate elected officials and the public; build coalitions and provide updates.

Marketing Committee—Help us draft and recommend Association marketing plans; disseminate public health information; promote careers in public health and publicize TPHA sponsored meetings.

Membership Committee—Help us move our Association forward by enhancing member benefits, seeking recipients for student scholarships and candidates for officer positions and growing our membership.

Programs Committee—Help us arrange our annual meetings and serve on one or more subcommittee: Site Selection, Exhibit Procurement, Public Health Presentations, Local Arrangements and Awards.

Planning and Operations Committee—Help us review actions of the Association governing bodies to insure decisions are implemented and operations remain current and consistent with our Constitution and Bylaws.

Professional Development Committee—Help us coordinate internal/external training activities on leadership, member orientation and officer’s training to help our members succeed and keep our Association strong.
For years, mumps has not presented significant clinical challenges for most Texas medical providers and public health professionals. Widespread vaccination drove down the incidence of mumps, and a disease that once affected tens of thousands of Texans a year had dwindled to a dozen or two cases reported annually for most of the last decade. However, that picture has changed significantly over the last several months.

There have been small, isolated outbreaks in Texas in recent years, but an outbreak in Arkansas that started in August 2016 and has now grown to include nearly 3,000 cases, signaled that mumps has staged a serious comeback in the United States. We have seen multiple significant outbreaks in North Texas dating back to last year, and cases have been reported from many parts of the state. Already this year, DSHS has had more than 200 mumps cases reported, more than in any year since 1992. Unfortunately, I expect we will continue to see cases throughout the second half of the year.

We cannot ignore the resurgence of mumps and I encourage you to keep it in mind as you talk about preventing communicable diseases in your communities. Of course, vaccination remains the centerpiece of prevention, but prevention and response efforts cannot end there.

In 2017, DSHS has had more than 200 mumps cases reported, more than in any year since 1992. Unfortunately, I expect we will continue to see cases throughout the second half of the year.

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Insect Repellent Bands: Attracting Kids Not Insects

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As the summer months draw near, people are gearing up to protect themselves from insect bites, especially mosquitoes. With the risk of various illnesses transmitted by mosquitoes, such as West Nile, Dengue, Chikungunya, or the Zika virus, people are quickly turning to a variety of topical insect repellents available to protect themselves. Primary defense against mosquito bites and mosquito-borne diseases are personal protection strategies such as topical insect repellents.\(^1\)\(^2\)

Due to the variability of active ingredients in these products, there is a variation in the effectiveness of insect repellents and other personal protection strategies.\(^3\)\(^4\) Although natural or botanical alternatives to synthetic insect repellents have become increasingly popular,\(^5\) studies show that the most effective active ingredients are diethyltoluamide (DEET) and picaridin.\(^3\)\(^6\) Relatively few adverse clinical effects have been reported with DEET and picaridin.\(^3\)\(^7\)\(^8\)

In recent years, alternatives to topical insect repellents have appeared on the market. These include wearable products such as cloth or plastic wristbands or bracelets infused with synthetic (DEET) or natural (peppermint oil, citronella oil) repellents.\(^9\)\(^10\) The safety of these products is of concern as families use these products for family members of all ages. Several studies have indicated that these bands or bracelets have little or no effect at prevention of mosquito bites.\(^4\)\(^5\)\(^6\)\(^11\)

Under federal law, companies that market products containing natural ingredients are exempt from having to demonstrate to the government that their products stand up to scientific review because these ingredients are considered to pose minimal risk.\(^9\) In at least one case, the United States Federal Trade Commission has charged one company with making deceptive statements about their insect repellent band.\(^12\)

From 2003-2016, a total of 104 exposures were reported to the Texas Poison Center Network involving insect repellent bands. In Texas, over the last two years, there has been a drastic increase of exposures related to insect repellent bands, reaching as high as twenty-six cases reported each year. Over 50% of these exposures were reported in 2015 and 2016. A majority (n=63, 61%) of exposures occurred between May through July, coinciding with the hottest months of the year and the height of mosquito season. Males comprised 43% (n=45) of exposures while females represented 57% (n=59). The route of the exposure (an exposure may involve more than one route) was ingestion (n=92, 88%), ingestion plus dermal (n=8, 8%), dermal contact (n=3, 3%), and ocular (n=1, 1%). Patients ages 0-5 years comprised 87% of exposures followed by patients ages 6-12 years (8%). The majority (n=99, 95%) of the exposures reported to Texas poison centers were unintentional.

Most (n=96, 92%) of the patients were managed on site (outside of a healthcare facility), six (6%) were already at or en route to a healthcare facility when the poison center was contacted, one (1%) was referred to a healthcare facility by the poison center, and one (1%) was managed at an unspecified other location. None of the exposures reported had a serious outcome, and no deaths were reported. The most frequently reported clinical effects were vomiting (n=4, 4%), abdominal pain (n=4, 4%), rash (n=3, 3%), and oral irritation (n=3, 3%). The most commonly reported treatments were dilution, irrigation, or wash (n=80, 77%); and food or snack (n=13, 13%).

In summary, children are curious and it is very common for them to explore the world with their mouth as evident in insect repellent band exposures. Although the data from the Texas Poison Center Network suggest that exposures to insect repellent bands are not likely to be serious and may be managed outside of a healthcare facility, it is important that families are aware of the risks that these products pose to young children. These bands are infused with various ingredients, and although there have been no serious outcomes related to these types of exposures, the development of new insect repellent products may pose additional risks. If you or your child is exposed to an insect repellent band and experience a rash or other reaction, or if you have questions after using these products, contact the Texas Poison Center Network at 1-800-222-1222.

REFERENCES

Book Review: Rigor Mortis: How Sloppy Science Creates Worthless Cures, Crushes Hope, and Wastes Billions by Richard Harris

Carol A. Galeener, PhD, MPH

The science is settled. The western world reveres “science” above all else as the pure quest for the eternal truths of the universe. And no truths are more important than those of the life sciences, revealing to us: how embryogenesis propels us from the random meeting of egg and sperm to the unruly toddler and even more unruly teenager; how viruses mutate from relatively benign fellow travelers to agents decimating entire populations; how an errant cell opts for immortality beginning the downward spiral into “cancer.” In Rigor Mortis, Harris laments, not how much society spends on life sciences research exploring these questions, but rather how much of that expenditure is badly spent. As Harris describes in the clear prose of the award-winning science writer that he is, the science is not so settled. And it is often for reasons quite not so altruistic as the finding of “truth.”

The unravelling of the mystique of life sciences research began in 2005 with the publication of a journal article by Stanford Professor John Ioannides, claiming to explain “Why Most Published Research Findings Are False.” This highly cited article was a beginning, but the proverbial feces did not hit the fan until the 2012 publication in Nature of C. Glenn Begley and Lee Ellis’s commentary recounting Begley’s experiences at Amgen attempting to reproduce the results of 53 experiments that were at the time considered breakthroughs in the life sciences. Despite a great deal of attention given to employing the same methods and materials, only a scant half dozen could be reproduced. Some results could not be reproduced even by the original study team. Peer reaction was swift and frequently vituperative; however, it started a worthy discussion about science, experimentation, reproducibility, and generalizability. Somewhere in the Great Beyond, the good Dr. Hill was pointing to his Criteria, and promoting once again the importance of consistency in causality and the undervalued role of chance in the affairs of mice and men.

Harris identifies those factors that result in the parlous state of life science research today. Some of these are inherent in nature. The first factor in this class is that mice are not men. Even our near genetic cousins, such as mice, have so often proven to be poor predictors of how humans will react to the same exposures that some reasonable scientists question whether animals should be used as predictors at all. Even within the same species reproducibility is problematic. For example, mice do not react consistently, depending on such seemingly small elements as microbiomes or exposure to different bedding. Even co-operating labs studying cells in vitro may find it difficult to reproduce each other’s work, depending on such bizarrely simple steps as whether the samples are shaken or stirred. Another “nature factor” is that a man is not men—the heterogeneity of individual humans and their reactions to diseases that themselves may encompass great heterogeneity explains much of why clinical trials often fail in the very late and thus very expensive stages.

A second set of factors involves what may charitably be called, “sloppy science.” Study designs are frequently uncontrolled or underpowered for the important inferences they report. Experimenters may ignore strict attention to methods and materials in execution, and may not report these key elements necessary for reproducibility. For many years, some labs had studied what investigators thought were breast cancer cells, only to find they had been studying HeLa-contaminated ovarian cancer cell lines. Other scientists skirt ethical boundaries by the insidious processes of p-hacking (a form of selective data reporting) or HARKing (hypothesizing after results are known.)

Finally, Harris addresses the ultimate causes that result in so much bad science being flogged by so many scientists. The incentives in academic research are not conducive to good, impactful science. Junior scientists are frequently encouraged to publish to secure tenure and promotions, despite whether investigation results are impactful or not. More senior scientists may be tempted to “play the game” deciding what to publish in journals or what is worthy of grants. Journals too bear a responsibility. Negative findings are given short shrift, thus discouraging dissemination of information that may be of great value to society. There is no common process for identifying articles that have been found to be incorrect. Thus articles with incorrect findings may be cited by researchers long after their “sell by” date has passed.

The prize for good science is large. The cost to the US taxpayer of producing science that is incorrect is estimated to be in the ballpark of $30 billion a year; the delay of effective treatments and avoidance of ineffective treatments is additional to this considerable sum. Harris makes a good case that the current situation is not sustainable, and it is time for life scientists to set their house in order.

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Public Health Practice Commentary: Protect the Prevention Fund

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Despite tremendous improvements in the 20th century, the U.S. is still far from being the healthiest nation. According to a recent Commonwealth Fund report, we spend far more on healthcare than any other high-income country, but our lives are shorter and less healthy.

We must treat those who are sick and injured. But to become a healthier nation, we must also invest in prevention and wellness to prevent people from becoming sick in the first place. The Prevention and Public Health fund – a key part of the Affordable Care Act – is a unique program doing just that. By keeping people healthier, costs are saved as well. It is, however, interesting to note that only in public health do we need to continually justify saving lives and/or improving the quality of life with cost-saving arguments. New medical interventions are not typically held to that same standard.

H.R. 1628, the American Health Care Act, now being considered in the United States Senate, would result in many disturbing consequences including an estimated 23 million people losing their health insurance coverage by 2026 and increased premiums and other out-of-pocket costs. An estimated more than 2.5 million Texans would lose insurance coverage adding to our already high rates of those uninsured. AHCA would cut more than $830 billion from the federal contribution to the Medicaid program over the next decade. The bill would also allow states to opt out of ACA protections that restrict insurance companies from charging higher premiums for people with pre-existing conditions and from the requirement that insurers cover 10 essential health benefits including maternity care, prescription drugs, and mental health and substance use disorder services. While it may appear costs are saved at the federal level from not providing coverage, this does not take into account increased insurance premiums and property taxes to cover uncompensated care and forces people to use emergency departments as their healthcare provider, the most expensive and least effective way to provide medical care for chronic, non-acute conditions.

However, there’s another equally disturbing aspect of the AHCA of which people may not be aware. It would repeal the Prevention and Public Health Fund meant to expand and sustain the national investment in prevention and public health programs. The Prevention Fund represents 12% ($1 billion) of the Center for Disease Control and Prevention’s budget and this is on top of the cuts proposed in the President’s budget. The Prevention Fund is absolutely necessary to improve the health of Texans and to slow the rise of health care costs.

Texas faces significant health and fiscal challenges that could be mitigated by a better and more reliably funded public health system. As documented by the Trust for America’s Health, the Prevention Fund is a vital part of the effort to create such a system. Since 2010, the Prevention Fund has provided Texas with more than $150 million ($29 million in 2016 alone) to support a variety of public health activities. Repealing the Prevention Fund would result in a major loss of funding for core public health programs in Texas.

The monies that the Prevention Fund sends to Texas are crucial for improving the health of Texans. It supports programs to reduce tobacco use including the 1-800-QUIT NOW telephone line with tips on quitting from former smokers. A recent study found that the campaign led to over 1.5 million smokers attempting to quit and prevented over 17,000 premature deaths. It’s worth noting here that tobacco use is the number one cause of preventable deaths. The Prevention Fund also helps Texans prevent diabetes and obesity as well as heart disease through programs promoting healthy nutrition and physical exercise. Texas receives money to immunize children and low-income adults, helping all of us as a well-immunized population stop spread of infectious diseases.

The Texas Department of State Health Services received almost $1 million to upgrade the laboratories that detect outbreaks of disease and food borne illnesses and bioterrorism events. Without state-of-the-art laboratories, identification of these outbreaks is delayed and so more people can get sick. Texas also received money to prevent healthcare associated infections, a major problem within healthcare facilities and one that could affect anyone entering a hospital or nursing home.

Another program that the Prevention Fund supports in Texas is called the Preventive Health and Health Services Block Grant (over $6 million to Texas in 2016 alone). These are funds that gives Texas the flexibility to respond rapidly to emerging health issues (think Zika) and to fill funding gaps that are leading causes of death and disability in Texas. Texas receives these block grants to address our unique public health needs in innovative and locally defined ways.

While personal responsibility for health is certainly part of the equation, the Prevention Fund is intended to ensure a coordinated, comprehensive, sustainable, and accountable approach to improving our country’s health outcomes through the most effective, evidence-based programs. It empowers states and communities to address their most pressing health needs. Loss of the Prevention Fund would make it harder for public health professionals to help protect Texans’ health and respond to public health emergencies.

The Texas Public Health Association sent letters to Senators Cornyn and Cruz in January stating their support for the Prevention and Public Health fund and stating “…by repealing this fund, we would not be able to sustain the progress we have made towards improving the health of Texans and risk eliminating, if not reversing, the gains we have already made.” As public health professionals, we need to work with businesses, schools, nonprofits, hospitals and insurers as well as individuals to come together to support the Prevention Fund and the health of all in our state.

Please join the leadership of the TPHA as we continue to advocate to preserve this fund by organizing advocacy efforts in your area. To learn more about how, please contact me.

REFERENCES
Creating Momentum in Public Health through Strategic Planning and Academic Partnerships
1Texas Tech University Health Sciences Center School of Nursing, Lubbock, Texas
2Texas Christian University Harris College of Nursing and Health Sciences, Fort Worth, Texas
3University Medical Center of El Paso, El Paso, Texas
4Fresenius Kidney Care, Midland, Texas
5Verbena PLLC, Austin, Texas

ABSTRACT
A strategic plan provides organizational direction and is one of seven pre-accreditation requirements of the Public Health Accreditation Board. However, developing a strategic plan requires an allocation of resources that can burden most local public health departments. The Victoria County (Texas) Public Health Department (VCPHD) leveraged resources and collaborated with an academic partner to develop a strategic plan in six weeks. Five Doctor of Nursing Practice students from Texas Tech University Health Sciences Center School of Nursing used the National Association of City County Health Official’s (NACCHO) Developing a Local Health Department Strategic Plan: A How-To Guide as a roadmap for planning and facilitation. Preplanning included conducting a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis for each of the seven health department divisions. VCPHD leadership (director and managers) participated in a one-day planning session. As a result, a new organizational vision, mission, and first-time strategic plan were created. With adequate planning, any health department could apply the strategies outlined by the authors to create a strategic plan that creates positive momentum in an organization.

Key Words: Strategic Planning, Collaboration, SWOT Analysis, Academic Partnerships, Public Health

BACKGROUND
A strategic plan is a necessary organizational compass and a Public Health Accreditation Board requirement.1 According to Bryson,2 strategic planning is a “deliberative, disciplined approach to producing fundamental decisions and actions that shape and guide what an organization (or other entity) is, what it does, and why” (p. 8). If executed well, strategic planning taps into the collective wisdom, ensures an organization pursues significance within the community, and creates public value.2-4 Successful strategic planning requires leadership to support the process, identification of organizational champions who will manage implementation of the plan, and hiring a facilitator to free up leadership to participate fully in the process. A facilitator must quickly familiarize themselves with the organization and establish close trusting relationships with leaders and champions.3 However, the cost of facilitation can be prohibitive for many local health departments and options can be limited. One solution we used to address the cost of facilitation was creatively leveraging resources with an academic partner to develop a strategic plan.

Many other local health departments, like the Victoria County Public Health Department (VCPHD), have never had a strategic plan.3 Several major issues faced the organization: lack of employee engagement, outdated internal and external policies/ordinances, and lack of community visibility. Dr. Lisa Campbell (first author), the director of the VCPHD and Associate Professor at Texas Tech University Health Sciences Center School of Nursing Doctor of Nursing Practice (DNP) Program provided technical assistance to five DNP students who facilitated the strategic planning process (Figure 1).

Population and Methods
Situated in Victoria County, Texas, population 92,382,4 VCPHD serves a vastly rural area surrounded by the metropolitan areas of Houston, Austin, San Antonio, and Corpus Christi, each an approximate two-hour drive from Victoria. The health department receives local and state funding and a variety of external grants. Divisions within the VCPHD include: administration, animal control, environmental health services (general sanitation, food inspections and permitting, mosquito control, septic facility inspection and permitting, water lab, and flood plain administration), epidemiology (added after strategic planning), HIV/AIDS resource program (HARP), public health emergency preparedness, public health nursing, and Women, Infant, Children Supplemental Nutrition Program (WIC).

Each DNP student took one to two divisions within VCPHD and conducted a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis which served as a starting point for discussion of the current, overall condition of the organization.1,5 The SWOT analyses of the VCPHD divisions were performed using information provided by the Director, division managers, and the organization’s website. The resulting SWOT analyses were used as the main method to organize information about internal and external factors facing the organization. The tool consisted of a matrix where the organization’s strengths, weaknesses, opportunities, and threats were listed. Each important factor was assigned to one of these four categories and assisted the group in performing an evaluation of the impact of the level of risk each factor had on the organization as it currently stands. (Figure 2).

The strengths identified were: staff, support from county officials,
new leadership, and teamwork. The weaknesses included: image, record keeping, and resistance to change. The opportunities distinguished were: proactive public relations, outreach and education, increase seasonal help, and program expansion. The threats described were: county funding, certain community members, and wages.

Once the SWOT analysis was completed and compiled to contextualize a global perspective, the next step was developing a strategic plan. Three DNP students traveled to Victoria from north and west Texas to facilitate the all-day strategic planning meeting with the leadership team. The students used NACCHO's Developing a Local Health Department Strategic Plan: A How-To Guide in the pre-facilitation planning and facilitation phase of the strategic planning session. Institutional review board (IRB) review was not required for this project.

RESULTS

For the public health department, a new direction emerged focused on community engagement. The key outcome of the facilitated work was the development of a framework for action, which included an organizational mission and vision, and a set of core values. Three focused strategic goals were created to guide the immediate and long-term work of the public health department (see Figure 3).

The primary concern of the health department was achieving regional relevance in an ever-changing milieu. The goals developed targeted three vital areas hindering the organization’s ability to reach relevance: the lack of the public health department’s visibility in the community and to key stakeholders, a decline in frontline employee engagement, and dated internal and external policies.

Increasing visibility took the form of providing quarterly reports to key stakeholders (city council, county commissioners, and the board of health), developing a new organization website, and identifying and engaging with community members/or organizations on opportunities for public health outreach, engagement, and education. These actions led to numerous partnerships that positioned the health department as a trusted source of health information. In addition, the health department was re-branded to better describe the provision of services and changed its name from the Victoria City/County Health Department to the Victoria County Public Health Department (VCPHD). The VCPHD was on its way to becoming a leading influence on the health of the community.

An additional step in improving visibility and employee engagement came from individual participation in an organization-wide meeting held on June 25, 2015, at the VCPHD facility. Those attending

Figure 3: Victoria County Public Health Department Strategic Plan

Note. The acronym ACE IT! was created by reordering the core values.

Mission: To promote, protect, and respond to the residents of Victoria County and the communities we serve by providing public health services essential for healthy communities.

Vision: The Victoria County Public Health Department will be a recognized leader in advancing the health and safety of the community.

Core Values: ACE IT!

Accountability: We shall strive to continually learn and improve in order to achieve the highest ideals of public service and take responsibility for performance in all decisions and actions.

Customer Service: We shall value and respect diversity and recognize the benefit it brings in service to the community and approach all people with respect, understanding, compassion, and dignity. We shall continually provide the highest quality customer service by engaging and listening intently to customer concerns and expectations.

Education: We shall continually seek to educate and learn; to build on our successes and failures; and to cultivate openness and curiosity to learn from anyone, anywhere, anytime.

Integrity: We shall adhere to the highest ethical and moral standards in performing our duties and conduct ourselves with a high level of professionalism while treating the community and colleagues with fairness and respect.

Teamwork: We shall leverage the abilities of all team members to the greatest possible extent to meet common goals and take the initiative in developing and executing solutions to community health issues. We shall treat all team members, customers, partners, suppliers and any other individuals with respect and sensitivity, recognizing the imperative of diversity.

Strategic Plan Goals:
1. Increase Visibility to Community and Stakeholders
2. Employee Engagement in Mission, Vision, and Values
3. Actively Engage in Internal and External Policy
A systems perspective was employed to address outdated policies and procedures. Department leaders collaborated on internal policies and procedures, while simultaneously aligning these policy and procedures with the external city ordinances and county orders. The process included evaluations of and updates to all legal documents, including revisions to the comprehensive Health Insurance Portability and Accountability Act (HIPPA) policy and request for information policy. To promote ownership and stewardship asset management, policies were revised, such as the workplace attendance policy and purchasing policy.

The five DNP students also gained unexpected insights and personal successes from participating in this strategic planning process. These doctoral students shared learning by collaborating on the SWOT analysis process and forecasting changes needed for each division within VCPHD. They gained a better appreciation of leading an organizational team while facilitating innovation and change. The DNP students were immersed into the diverse work of public health through engagement with public health professionals in anticipating the needs of the community served. Through their involvement with the project, the DNP students successfully met several of The Essentials of Doctoral Education for Advanced Nursing Practice, which constitutes the foundation of their studies. These included: Organizational and Systems Leadership for Quality Improvement and Systems Thinking, Health Care Policy for Advocacy in Health Care, Inter-professional Collaboration for Improving Patient and Population Health Outcomes, and Clinical Prevention and Population Health for Improving the Nation’s Health.

DISCUSSION

The development of a strategic plan moved the VCPHD one step closer in the Public Health Accreditation Board (PHAB) pre-accreditation process. However, this process was not without its challenges. A new director with a transformational leadership style required the creation of strong relationships built on trust, both within the department and the community. Developing a culture of trust is essential for creating collaborative relationships within an organization. High levels of organizational trust increase productivity, improve employee morale, and decrease employee turnover. According to Bennis, "Trust is the lubrication that makes it possible for organizations to work" (p.139).

Harnessing a workforce necessary to overhaul the health department was challenging. Creating a strategic plan began with a complete SWOT analysis of the organization and required more resources than the VCPHD could afford. The alternative was leveraging an academic partnership with Texas Tech University Health Sciences Center (TTUHSC) School of Nursing and began with the recruitment of DNP students with strong analytical skills to assist in the process. DNP students were offered clinical time in exchange for their service and a chance to participate in a program of considerable magnitude. VCPHD will gain by sustaining the partnership with TTUHSC to add further support to the development of future endeavors.

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ABSTRACT

Introduction: Structured medical records reviews have potential to give broad insight into individual risks. How these might identify missed opportunities in screening for tuberculosis (TB), readily observable TB risk indicators, or modifiable factors associated with the future development of active TB is incompletely understood. We explored the potential utility and limitations of structured medical records reviews in a local public health department setting.

Methods: During five weeks beginning June 2015, we requested all available current and historical medical records for consenting TB patients in treatment in an urban public health department. We reviewed records to identify TB “prevention opportunities” - risk factors recorded at any healthcare or clinical encounter that took place at least two months prior to the onset of classic TB symptoms.

Results: Sixteen of 33 eligible patients provided medical records releases, and one or more healthcare providers returned records for 14 of these 16. TB risk factors were evident in 14/14 record sets, and prevention opportunities were identified for 6/14 (n=12, range one to four).

Discussion: Since TB is inherently preventable, every incident case represents an individual who has ‘fallen through the cracks’ in otherwise successful TB prevention programs. We found that simple, accessible, and well-established methods may have potential to identify gaps in TB control strategies.

INTRODUCTION

Progress toward domestic tuberculosis (TB) elimination goals has begun to flatten.1-2 While the incidence of TB (in the United States) is relatively low (in Texas, there are 4.9 cases per 100,000 residents), remaining pockets of disease risk are a persistent threat to individual and public health in the US.3 From morbidity and mortality among acutely ill patients to the less visible but very real dangers posed by contagion and increasing antibiotic resistance, the direct and potential impacts of even relatively well-controlled TB are substantial.4-6

TB is inherently preventable, and every incident TB case arguably represents a missed prevention opportunity.7-8 TB risk is a function of many biological, clinical, environmental, social, behavioral, and system factors.9 Many of these, such as incarceration, nation of origin, and HIV status, are known and accounted for in public health strategies, but important gaps remain.10 How to find such gaps is less clear. Due to the relatively low incidence of active TB, comprehensive prospective study of the complex systems driving TB risk is prohibitive. The same complexity poses challenges to retrospective study as well. While much clinical, social, demographic, and other data are routinely collected by outside providers, it is uncommon for this to be routinely available in its entirety to public health authorities.

Medical records for TB patients may hold important clues to TB risk and have potential as an accessible means to study local risk determinants. Medical records are ubiquitous, detailed, and may be available from the period well before a patient develops active TB. TB patients may visit multiple providers prior to and concurrent with treatment for TB for complaints unrelated to TB such as back pain, diabetes management, or medication refills. Each such contact represents a potential opportunity for clinicians to recognize and address identifiable TB risk factors, and it is of interest to health authorities to understand the opportunities and gaps associated with such interactions. Release and management of protected medical records at the patient’s request is a routine activity in the clinical setting. Unfortunately, record sharing between providers can be inconsistent and the patient’s record on file at any particular institution cannot be assumed to be comprehensive.

The Tarrant County Public Health’s Tuberculosis Clinic (TCPH-TBC) manages all outpatient treatment for patients with known active TB in Tarrant County, Texas (pop. 2.2 million).5 Some patients are identified directly by TCPH, but many are referred from other providers after suspicion of TB. Within TCPH-TBC and similar settings, health records tend to be tightly focused on TB-related information and are often standardized to facilitate reporting and surveillance. Consequently, health department medical records may provide little insight into how TB risk might have been identified and acted upon prior to a patient developing active TB.

Patient records outside of the health department, including records from the referral source, can be accessed using routine practices and relatively modest investments of time and effort. We conducted a pilot project to explore the feasibility of obtaining and reviewing medical records from other healthcare providers for current TB patients as a means to identify prevention opportunities during the period prior to recorded onset of TB symptoms and eventual diagnosis.

METHODS

During June-July 2015, we obtained and conducted a retrospective review of available clinical records among a convenience sample of consenting patients under treatment for active TB by TCPH-TBC. Inclusion criteria included the ability to give informed consent or have it given by a guardian if a minor (with translator, if necessary), a confirmed TB diagnosis, and a clinic visit scheduled during the study period.

During each eligible patient’s appointment, clinic staff introduced the investigator, briefly explained the project, and invited the patient to consider taking part. A $15 stored value card was offered for participation. Consenting participants completed a standard Texas medical records release request form to request medical records from TCPH-TBC and all other health care providers they could recall visiting since 2012 to be provided to the investigator for review. No other participant interview took place. The investigator collected, de-identified, and securely stored records as they were received. Records were reviewed to identify “prevention opportunities,” defined as healthcare encounters that might reasonably have spurred clinical investigation of existing TB risk but did not, and that took place two or more months prior to the onset of classic TB symptoms or clinical activity that resulted in a diagnosis of TB or referral to the TCPH-TBC. Additional review identified major medical and environmental risks for TB infection as defined by the Centers for Disease Control and Prevention (CDC) and health insurance status and type.11-13

Abstrected data were compiled in an Excel database and all original and de-identified records were destroyed. University of North Texas Health Science Center (UNTHSC) local Institutional Review Board (IRB) reviewed the project and determined it was “not human subjects research,” the same IRB approved our requested Health Insurance Portability and Accountability Act (HIPAA) waiver.

RESULTS

Of the 33 unduplicated patients presenting for TB treatment during 16 TCPH-TBC clinic days during the study period, 16 (48.5%) consented to take part in the study. Reasons for non-participation included “uninterested,” “upset or fatigued,” and “not asked.”

At least one usable clinical record from TCPH-TBC was obtained for 14 (87.5%) participants; 14/14 (100%) of these had one or more secondary sources of care identified. We requested records from secondary sources
One or more TB risk (foreign-born, healthcare worker, incarceration, etc.) was identified in all 14 record sets, and identifiable but preventable region of Asia with self-reported TB exposure and ongoing tobacco use. For Latent Tuberculosis Infection (LTBI) testing was recorded, despite including pregnancy and childbirth, we found no record of further TB risk assessment or other follow-up until she ultimately developed active disease more than five years later. Another patient had received routine care for a generation: health equity through action on the social determinants of health.

**Table 1: Clinical record sources, requests, and receipts**

<table>
<thead>
<tr>
<th>Requested</th>
<th>Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCPH-TBC*</td>
<td>16</td>
</tr>
<tr>
<td>County health district inpatient</td>
<td>6</td>
</tr>
<tr>
<td>County health district outpatient</td>
<td>1</td>
</tr>
<tr>
<td>Other local inpatient</td>
<td>5</td>
</tr>
<tr>
<td>Other local outpatient</td>
<td>4</td>
</tr>
</tbody>
</table>

All 14 record sets reviewed identified participant nativity (11/14 or 78.6% were foreign-born), and insurance status could be identified for 12/14 (85.7%). A majority (8/12 or 66.7%) were insured, four with Medicare/Medicaid and four with commercial insurance.

**DISCUSSION**

We approached this study with very limited goals driven by a question: is it practical for a local public health department to use existing methods and sources to obtain meaningful information that might bolster their TB services? Within that question were others: Would patients give access to their prior medical records? Would other providers be responsive to these requests? Can prior medical records identify a potential “missed opportunity” for TB risk reduction – defined as visits to a provider at least two months prior to classic TB symptoms? In our very brief and limited study, we found the answer to each of these questions a modest but encouraging “yes.”

Our methods identified missed opportunities to address TB risk prior to onset of TB symptoms for almost 20% (6/33) of TB patients during the study period. Such an approach is intuitive and accessible, and management of medical records is a routine activity. We found an average of 0.86 TB prevention opportunities for each set of records obtained for patients in current TB treatment, suggesting a reasonable return for modest investments of time and effort. Other factors of interest were easily ascertained as well, including insurance status, nativity, and demographic information.

Hindsight is clear, but some of the patient TB risks recorded by clinicians prior to the development of active TB seem to have offered good opportunities for intervention. For example, we reviewed records for a healthcare worker with a positive Tuberculin Skin Test (TST) noted in 2009. Despite her subsequent continuous engagement in healthcare, including pregnancy and childbirth, we found no record of further TB risk evaluation or other follow-up until she ultimately developed active disease more than five years later. Another patient had received routine care to address diabetes mellitus and hypertension for at least three years before Latent Tuberculosis Infection (LTBI) testing was recorded, despite being a current tobacco smoker and an immigrant from a TB-endemic region of Asia with self-reported TB exposure and ongoing tobacco use. Our study has many limitations. Our methods were designed to allow a brief, cursory, and non-scientific feasibility evaluation, and our findings are neither generalizable nor robust. It is likely that unfulfilled records requests and the possibility that obtained records were not comprehensive, current, or correct introduces an ascertainment bias into the data collected. Despite these limitations, our findings suggest that medical records from other providers are a potentially important data source to identify TB prevention opportunities. We found that simple, accessible, and well-established methods have the potential to identify TB prevention opportunities and contribute to informed decision-making, including unconventional risk characteristics we did not expect.

While TB is inherently preventable, every incident case represents a TB patient who has ‘fallen through the cracks’ in our otherwise quite successful public TB prevention programs. TB risk is multifactorial, and medical records can be a rich source of demographic, health system, socioeconomic, and clinical factors that comprise its determinants. Obtaining and reviewing medical records of active TB patients from the period prior to their becoming sick is an accessible strategy to identify gaps in prevention strategies. Innovative approaches to address public health challenges need not be resource intensive, and technically simple approaches may benefit health authorities and the populations they serve. Progress toward US elimination goals and protecting the public from the underappreciated dangers of TB requires health authorities to turn lost opportunities for prevention into new opportunities for prevention.

**Acknowledgements:** We are grateful for the cooperation and encouragement of Jeremy Gallups, Kimela Ledbetter, Penny Gory, and other Tarrant County Public Health TB Division staff, and to George Samuel, MD for his patience, assistance, and guidance. Finally, we gratefully acknowledge the intellectual and other contributions of CDC’s Tuberculosis Elimination Studies Consortium and the University of North Texas’s Summer Research Fellowship program that made this work possible.

**REFERENCES**

The Effects of Chronic Medical Conditions and Obesity on Self-Reported Disability in Older Mexican Americans

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ABSTRACT
We investigated the effect of chronic medical conditions including obesity on self-reported disability and mobility in Mexican Americans aged 75 or over using data from the Hispanic Established Population for the Epidemiological Study of the Elderly (Hispanic EPESE) Wave 5 (2004–2005). Disability was assessed with a modified version of the Katz activities of daily living (ADL) scale and mobility was assessed with the Rosow Breslau scale of gross mobility function. The percentage of participants needing assistance with ADLs were as follows: 26.7% for transferring from a bed to chair, 26.6% for walking across a small room, 17.9% for dressing, 16.3% for using a toilet, 14.3% for grooming, and 8.2% for eating. Fifty percent reported limitation in the ability to walk ½ a mile and walking up and down stairs. Multivariate logistic regression analysis after controlling for all covariates showed that arthritis, diabetes, stroke, and obesity were significantly associated with any ADL limitation, walking up and down stairs, and walking 1/2 mile. Prevention of obesity and chronic medical conditions will help increase functional independence in this population.

Key words: Chronic Medical Conditions, Obesity, ADL disability, Gross Mobility Function Aging, Older Mexican Americans

INTRODUCTION
The presence of chronic medical conditions has been associated in previous research with old age and with functional limitations and disability.¹⁻¹⁶ Additionally, obesity has been associated with several prevalent chronic conditions in older people.¹⁷⁻²⁰ Chronic medical conditions in older adults, including obesity, substantially increase the primary US public health burden because, for older adults, physical mobility limitations associated with chronic medical conditions including obesity increase the risk of morbidity and mortality as well as dependence on others.²¹⁻²³

Obesity has been associated in previous research with decreased lower body function and mobility.¹⁴⁻¹⁶ The association of chronic diseases including obesity with self-reported disability and functional disabilities among older Mexican Americans has not received as much attention in the literature¹⁴,²³,²⁴ as have similar conditions among the general population of older people.¹⁵,²⁵,²⁶

Older Mexican Americans are a rapidly growing segment of the U.S. population with high rates of disability.¹⁸,²⁷,²⁸ The gap in research focused on this population is critical because obesity is associated with serious health consequences including the development of chronic medical conditions. The objective of this study was to investigate the effect of chronic medical conditions including obesity on self-reported disability and functional limitations in older Mexican Americans age 75 and over using data from the Hispanic Established Population for the Epidemiological Study of the Elderly (Hispanic EPESE). We expected that chronic medical conditions including obesity would be associated with decreased mobility and increased disability, in line with the findings of previous research.¹⁸⁻²⁰

POPULATION AND METHODS
This analysis replicated a previous analysis of the baseline data from the 1993–1994 Hispanic EPESE, at which point participants were age 65 and over.²⁹ The present analysis used data from the 2004–2005 (Wave 5) Hispanic EPESE, which studied the same population, including many original participants, at age 75 and over. However, special attention was given to the association of obesity with ADL disability in the present study which was not examined in the previously conducted studies.

Study Population
Data from Hispanic EPESE Wave 5 were used in the analysis. The Hispanic EPESE, a longitudinal, population-based study of non-institutionalized Mexican Americans age 65 and over, has been conducted in five southwestern states (Arizona, California, Colorado, New Mexico, and Texas) and began in 1993–1994. This sample, using area probability extraction procedures, was general-ized to the approximately 500,000 older Mexican Americans living in these five southwestern states.

Wave 5 data was collected during 2004 and 2005. Of the original 3,050 participants inter-viewed at baseline (1993–1994), 1167 individuals aged 75 years and over were re-interviewed. A representative sample of 902 Mexican Americans from the same region also age 75 and over were added for a total of 2069 participants. Measures included chronic medical conditions, body mass index (BMI), activities of daily living (ADL), instrumental activities of daily living (IADLs), and socio-demographic information. In-home interviews were conducted in Spanish or English depend-ing on the participant’s preference. The study had received Human Subjects approval from the In-stitutional Review Board of the University of Texas Medical Branch.

Measures
Seven common prevalent chronic medical conditions were assessed: arthritis, cancer, dia-betes, stroke, heart attack, hip fracture, and obesity. The latter was measured by using Body Mass In-dex (BMI) calculated from actual height and weight. Other conditions were based on self-report of a doctor’s diagnosis.

Standard BMI is calculated by dividing weight in kilograms by height in meters squared (kg/m²). However, a non-metric approximation can be calculated by dividing weight in pounds by height in inches squared and multiplying the result by 703.²⁹ For this research, BMI was calculated based on that formula using weights and heights from the data sample.²⁹ Then, BMI was categorized into “underweight (less than 18.5),” “normal weight (18.5 – 25.0),” “overweight (25.0 – 30.0),” and “obese (more than 30)” based on the National Institutes of Health obesity standard.²⁹ There were 426 cases with missing BMI, a lacuna which cannot be ignored because of its considerable size (20.6%). Thus, non-BMI cases were retained in the analysis by creating a BMI category for them.
Functional limitations were measured using a modified version of the Katz activities of daily living (ADL) scale and the Rosow–Breslau scale of gross mobility function. The seven ADLs were walking across a small room, bathing, grooming, dressing, eating, transferring from a bed to chair, and using a toilet. Additionally, the two items used from the Rosow–Breslau scale of gross mobility function were walking up and down stairs and walking a 1/2 mile.

**Statistical Analysis**

The Statistical Analysis System (SAS: SAS Institute Inc., Cary, NC) version 9.2 was used in this analysis. The confidence interval level for statistical significance is 95%. Seven ADLs, two items from the Rosow Breslau scales, and an “any ADL” measure were used as outcomes for multivariate logistic regression analysis as a function of seven chronic medical conditions including obesity, along with age and gender.

**RESULTS**

Table 1 shows the sociodemographic characteristics of the sample of the 2004–2005 (Wave 5) Hispanic EPESE. Among the 2069 participants, the mean age was 81.9 (SD=5.15), 38.5% were men, and 61.5% women. Of these participants, 1158 or 56% were born in Mexico with the remainder born in the U. S. About 80% were interviewed in Spanish. Two-thirds of the men were married as compared to 27% of the women. Years of education (75% less than 7 years) and household income (73.7% less than $15,000 a year) for the sample were quite low. Finally, 34.4% of the women and 18.2% of the men reported living alone.

Table 2 presents the prevalence of seven chronic medical conditions—arthritis, cancer, dia-betes, stroke, heart attack, hip fracture, and obesity (BMI)—for the 2004–2005 Hispanic EPESE. Arthritis was the most prevalent condition (59.3%), followed by diabetes (33.3%), heart attack (16.6%), stroke (13.7%), hip fracture (7.5%), and cancer (7.2%). Approximately 24.9% of the sample were of normal weight (BMI of 18.5 to 25.0), while 30.9% were overweight (BMI of 25.0 to 30.0), and 22.3% were obese (BMI of ≥30.0). Approximately 20.6% of the respondents were missing BMI values.

Table 3 shows the percentage of 2004–2005 Hispanic EPESE study participants with specific functional limitations of ADL and of the two Rosow Breslau items, walking up and down stairs (49.9%) and walking 1/2 mile (49.6%). The percentage of participants needing assistance with ADLs were as follows: 26.7% for transferring from a bed to chair, 26.6% for walking across a small room, 17.9% for dressing, 16.3% for using a toilet, 14.3% for grooming, and 8.2% for eating.
DISCUSSION

Arthritis, diabetes, stroke, heart attack, hip fracture, and obesity affected all self-reported functional limitations among Mexican Americans age 75 or older residing in the Southwestern United States. In harmony with previous research, these selected chronic diseases showed statistically significant relationships with several functional limitations, and each functional limitation was mutually exclusive including age and gender.

Generally, compared with the 1993–1994 Hispanic EPESE (age 65 and over) baseline analysis, the prevalence of chronic medical conditions and the percentage with specific functional limitations increased in the 2004–2005 sample (age 75 and over). However, selected chronic medical conditions were less likely to affect gross mobility function in the latter sample as compared to the former. In addition, this research finds that obesity, added in this analysis, is clearly associated with functional limitations and disability, especially with respect to transferring and walking. Although the impact of selected chronic diseases on gross mobility function is relatively smaller, severely obese people clearly have problems walking and transferring as compared to individuals with a normal BMI.

Compared to the previous analysis of date from the 1993–1994 Hispanic EPESE, stroke also had a more significant influence on all indicators for the sample studied here. This finding is still consistent with previous research. Arthritis (from 40.8% to 59.3%) and diabetes (from 22.2% to 32.3%) were more likely to explain much of the self-reported disability as compared with the 1993–1994 Hispanic EPESE analysis. Arthritis and diabetes were significantly associated with most disability indicators except personal grooming and eating. Arthritis was significant for “any ADL” limitation, going up and down stairs, and walking half a mile, while diabetes was significant for most indicators except bathing, personal grooming, and eating. Heart attack was less associated with gross mobility function as compared with the previous analysis due to the increased prevalence of heart attack (from 9.2% to 16.6%). Heart attack was only significant in going up and down stairs, and walking half a mile. Finally, obesity emerges as a possible explanation for self-rated disability in this analysis. Compared with normal BMI, obesity (BMI) is significantly associated with walking across a small room, any ADL limitation, transferring, any ADL limitation, going up and down stairs, and walking half a mile.

In harmony with previous research,27 these selected chronic diseases affected all self-reported functional limitations among Mexican Americans age 75 or older residing in the Southwestern United States.

Table 4 presents the results of the logistic regression analysis of functional limitation indicators by age, gender, and selected chronic medical conditions including obesity of the 2004–2005 Hispanic EPESE. Age was significantly associated with all functional limitation indicators, with odds ratios ranging from 1.05 (eating) to 1.12 (floor transfer). Smoking was not significantly associated with any item, with OR=1.05 (95% CI=0.87-1.28), and walking 1/2 a mile (OR=1.01, 95% CI=0.89-1.13). Missing BMI was significantly associated with all items, with OR=1.50 (95% CI=1.16-2.07), and walking 1/2 a mile (OR=2.01, 95% CI=1.42-2.84). Obesity (BMI > 30) was significantly associated with difficulty in walking across a small room (OR=1.53, 95% CI=1.15-2.05) and walking half a mile (OR=1.41, 95% CI=1.26-2.10). Arthritis was significantly associated with all functional limitations and disability, especially with respect to transferring and walking. Although the impact of selected chronic diseases on gross mobility function is relatively smaller, severely obese people clearly have problems walking and transferring as compared to individuals with a normal BMI.
limitation, climbing stairs, and walking 1/2 a mile.

This study is subject to some limitations. First, due to intrinsic limitations of the cross-sectional design, causation cannot be established. Therefore, this analysis concerns the association between selected chronic medical conditions, including obesity, and certain functional limitations. However, this analysis consistently points toward a significant influence of selected chronic diseases on functional limitations, supporting existing research. A longitudinal analysis could more precisely predict a causal relationship between selected chronic diseases and functional limitations. Second, missing information on BMI was high. Missing BMI was significantly associated with all functional limitations when compared to normal BMI. However, the missing BMI cases do not effectively explain the association between obesity and ADL disability.

In summary, using the 2004–2005 Hispanic EPESE data, and consistently with the baseline 1993–1994 Hispanic EPESE analysis, we found an association between major chronic medical conditions and functional limitations among Mexican Americans participants age 75 and over. However, compared with the baseline Hispanic EPESE analysis, selected chronic medical conditions are less likely to affect gross mobility function, although the prevalence of selected chronic medical conditions and the percentage with specific functional limitations increased between the two samples. Additionally, this study showed obesity to be significantly associated with decreased mobility, suggesting a need for future research pertaining to this topic.

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REFERENCES

Developing Partnerships to Reduce Sodium in Worksite Cafeterias and Congregate Meal Programs

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ABSTRACT
Excessive sodium consumption is a worldwide public health concern and warrants immediate action to reduce sodium in the food environment. Public health departments are encouraged to partner with external entities to reduce sodium; however, multiple barriers to engaging and partnering with external entities exist. The purpose of this paper is to present strategies used to recruit and engage partners in implementing a sodium reduction initiative (SRI); identify barriers to implementation; and share lessons learned and recommendations for other local public health departments to successfully engage partners in implementing similar initiatives. The local health department used a multi-level approach to engage stakeholders and collaboratively assess opportunities for sodium reduction. As a result, the health department engaged 6 worksites and 3 congregate venues. The SRI included partners who collectively served over 13,500 working adults, 3,500 children and 3,000 older adults. The partnerships reduced sodium across 269 total food items, total. Local health departments can effectively partner with community entities to implement sodium reduction initiatives by using multi-level approaches to collaboration over traditional prescriptive approaches. Lessons learned can assist other municipalities in implementing similar sodium reduction initiatives in the food environment of their communities.

BACKGROUND
The World Health Organization identifies excessive sodium intake as a worldwide health issue, increasing the risk for hypertension, stroke, and other vascular-related illnesses.1 Americans typically consume 3000-5000 milligram (mg) of sodium per day,2 exceeding the recommended 1500-2400 mg per day. Reducing dietary sodium intake potentially decreases associated disease risks.3,7 Sodium reduction is a public health priority supported by government institutions and initiatives, including the National Heart, Lung, and Blood Institute, Dietary Guidelines for Americans (DGAs) 2015, Healthy People 2020, and the Centers for Disease Control and Prevention (CDC).

The Institute of Medicine (IOM) reports that reducing individuals’ sodium intakes requires a public health initiative to positively impact the food environment through large scale changes in governments and businesses.8 Environmental approaches are advantageous because consumers have little control over the sodium in processed and restaurant foods,9 the major sources of excess sodium in the diet.2 Environmental approaches can be used to gradually reduce sodium over time to increase consumer acceptance.10

The federal government does not mandate specific industry sodium standards as it does with public institutions like schools,10 but collaborative partnerships can voluntarily pursue healthier sodium standards. The IOM supports the removal of sodium’s ‘generally recognized as safe’ designation and implementation of mandated sodium regulations.11 National initiatives have engaged industry and government efforts to increase the availability of pre-packaged low-sodium foods available to consumers.12 Similar local efforts can reduce sodium in places where people commonly eat, such as worksite cafeterias and congregate sites.

Despite the urgency for developing collaborative partnerships for sodium reduction, significant barriers exist and can impede progress. As public health practitioners aim to partner with worksites and food service providers, some traditional barriers include limited resources to enable partners to source and purchase new products; limited time to coordinate and implement changes; lack of collaborative experience between private and public sectors; and concerns of low-sodium product acceptability and sales.12 Additionally, partners experience barriers to participation, such as inadequate resources or lack of access to appropriate resources; potential increased costs or loss of revenue; time limitations; competing interests; and lack of policy guidance.13 Though these barriers are widely recognized, research on how public health departments circumvent these barriers to successfully recruit and engage external partners in implementing public health approaches to reduce sodium intake is lacking.

The purpose of this paper is to present processes used to recruit and engage partners in developing and implementing a sodium reduction initiative in worksites and congregate meal sites. The paper will highlight lessons learned, barriers to implementation, and provide recommendations for other local public health departments to successfully carry out similar initiatives.

Population and Methods
The Centers for Disease Control and Prevention (CDC) created the Sodium Reduction in Communities Program (SRCP) to fund U.S. communities’ efforts to create and implement local sodium reduction initiatives. One of these funded projects, The Sodium Reduction Initiative (SRI), was led by the Chronic Disease Prevention Section in the local health department (San Antonio Metropolitan Health District). The initiative aimed to reduce the amount of sodium served to Bexar county residents at worksites and at congregate sites that served meals to children, adults, and older adults.

Engaging Partners in Developing the SRI
To impact a diverse range of people, the local health department identified food providers serving working adults, preschool and school-aged children, and older adults over 60 years of age. Worksites with onsite cafeterias that employed 800-1000 working-aged adults were identified as potential partners. In addition, the local health department benefitted from previous relationships with worksites through the ¡Por Vida! program,14 which developed meals moderate in calories, sodium and fat. These previous partners were targeted for the SRI and if they did not meet the inclusion criteria, they were able to recommend other potential partners. Local health department staff met with worksite facility managers, chefs, food service directors, and human resources personnel at each potential worksite to discuss the SRI. The local health department presented potential worksites with information on excessive sodium’s relation to disease; the growing number of restaurants offering lower sodium foods; community obesity and diabetes rates; and how their worksite could impact employees by partnering with SRI. Common interests and goals were also presented to partners. Additionally, if an existing employee wellness program was present, the goals of the SRI were aligned with the wellness program’s goals.

Congregate sites, defined as sites that serve locally or federally funded meals to eligible individuals, were identified as potential partners for their ability to impact foods served to preschool children through TPHA Journal Volume 69, Issue 3
the PreK for SA program, school-aged children through the Summer Feeding program, and older adults through the Senior Nutrition Program. One food provider had an existing contract with the city to oversee the food production and menu development for all aforementioned congregate sites. The local health department leveraged the existing relationship between the food provider and the operating city department to include participation in the SRI. The local health department highlighted mutually beneficial goals to achieve higher nutrition standards and to benefit the community.

**Engaging Partners in Identifying Food Items for Sodium Reduction and Healthy Item Analysis**

Once partners agreed to participate, the local health department’s health program specialist (HPS) and registered dietitian nutritionist (RDN) worked with companies’ key stakeholders and food distributors to assess current sodium-related practices and recipe nutrient information. The Sodium Practices Assessment Tool (SPAT), a validated tool to assess current sodium-related practices, was used to assess the food inventory and preparation practices in the kitchen prior to initiative implementation. Partners were active in completing the SPAT and providing details regarding policies, food inventory, and food preparation practices.

The nutrition information from the menu was analyzed by the RDN and nutrient analysis data were used to determine which foods contributed the most sodium throughout the menu cycle and therefore might be potential food items targeted for sodium reduction. The partners provided detailed recipes and worked with the local health department to identify potential changes that could be made to reduce sodium throughout the menu. Sodium targets were determined by the DGA 2015 and other state and federally-mandated sodium requirements. For example, DGA 2015 sodium recommendations are that less than 2300 mg should be consumed on a daily basis. DGA guided sodium targets for entrees (less than or equal to 325 mg), side items (less than or equal to 215 mg), and meals (less than or equal to 750 mg) for working adult populations. Senior congregate meal sodium targets were based on the DGAs and Dietary Reference Intakes (DRI) and included targets for entrees (less than or equal to 325 mg), side items (less than or equal to 215 mg) and meals (less than or equal to 1000 mg). The Summer Feeding congregate meals targets were based on the National School Lunch Program (NSLP) requirements for meals for grades K-5 for school year 2017-2018 and the meal target was set at less than or equal to 935 mg. There are no established NSLP recommendations for individual entrees and sides. The HPS and RDN worked with key stakeholders to develop an action plan for sodium reduction. Stakeholders included food service directors, kitchen managers, chefs, and other administrators. The worksites worked with their food distributors to identify cost-effective, lower-sodium alternatives and create alternative recipes that had to pass quality control checks for taste and cost.

**OUTCOMES**

**Partnerships Established with Local Companies**

Nine local companies with worksite cafeterias agreed to participate in the SRI and six continued their established relationships throughout the entire project timeline. The five worksites that remained were: a construction company (1 worksite), 2 hospital systems (5 worksite locations), a utility company (1 worksite), a medical device company (1 worksite) and a bank (1 worksite) figure 1. These six worksites together served over 13,500 working adults. Additionally, the local health department evolved the established relationship between the food provider and the operating city department to include participation in the SRI. The local health department shared common strategies across sites to laboriously reduce the average sodium served at worksite cafeterias and congregate sites; and evidence of potential impact for similar initiatives.

**DISCUSSION**

This paper describes a collaborative framework that other communities can use to create similar initiatives in worksites or congregate sites and overcome commonly encountered barriers. The procedures...
can be adopted and easily tailored to a community’s needs. Finally, with 269 food items targeted for sodium reduction, this initiative presents evidence of potential impacts these collaborative efforts might have on overall sodium served.

Limitations of this initiative included lack of lower sodium product availability, limited ability to request alternative lower sodium products, and the iterative process required for the nutrient analysis. Worksites had limited access to lower sodium products due to low buying power and contract constraints that inhibited product access. Nutrition analysis needed to be reactionary, taking into account changing menu cycles and menu offerings. Therefore, the nutrition analysis was an iterative process, repeatedly assessing menu changes and sodium content. The time required to identify, request, and assess cost-benefits for recommended modifications limited the number of implemented modifications. Local governments can utilize lessons learned from this study to implement similar sodium reduction initiatives. Lessons learned from this study include the need for tailored implementation plans, uniformed product selection guides and buy-in from upper management and the site’s food service operator. Sites varied in their menu cycle length, types of food items served, food products available for purchase, contract limitations, and food distributors. Therefore, tailored implementation plans were necessary. Future initiatives can benefit from offering multiple sodium reduction strategies depending on the food served and prevalence of product use to result in impactful change. Due to the differences in foods available for purchase and limitations in food procurement contracts, future initiatives would benefit from creating a uniformed product selection guide of lower sodium items available from individual food distributors. Additionally, sodium content of partners’ ingredient inventory can serve as a proxy to a comprehensive nutrient analysis as a quicker, albeit less informative sodium reduction estimate for initiatives with limited resources and time. Obtaining buy-in and using a collaborative approach were essential for effective implementation. Collaborative initiatives, such as the SRI, can be more effective in creating sustainable changes than traditional prescriptive approaches used in public health.

This paper provides essential information to guide public health departments and local companies in effectively collaborating to change the food environment, reduce sodium in the surrounding community, and provide more healthful options for their communities.

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