Implementation Science

MEETING ABSTRACTS

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A1

Introduction

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At a time of significant upheaval in American health policy, maintaining a focus on a "North Star" is critical. For implementation science, this star is the knowledge base on how to optimally disseminate evidence related to health and health care, how to implement interventions to improve care within the many settings where people receive health care and make health-related decisions, and how to improve the health of the global population. To that end, the end of 2016 brought over 1100 engaged and activated "disciples of D & I" to Washington, DC for the 9th Annual Conference on the Science of Dissemination and Implementation in Health. Once again, the accompanying abstracts in this issue demonstrate the breadth, depth and vigor of this continually expanding and evolving subset of health research. During three dynamic plenaries with rows and rows of filled seats and packed concurrent sessions presenters and attendees shared findings, raised methodologic and other challenges, and discussed future priorities, trends, and next steps for this community of research.

For the third year in a row, we were buoyed by a strong partnership, co-led by AcademyHealth and the National Institutes of Health (NIH), with co-sponsorship from others committed to implementation science: the Agency for Healthcare Research and Quality (AHRQ), the Patient Centered Outcomes Research Institute (PCORI), the Robert Wood Johnson Foundation (RWJF), and the US Department of Veterans Affairs (VA). The multidisciplinary program planning committee informed the development of the key themes for the conference, identified the plenary sessions topics and speakers, established track leads to manage the review process for concurrent panels, papers, and posters, and convened a scientific advisory panel to advise on the overall conference, thus ensuring a robust, inclusive, and rigorous process.

Together, the opening keynote address and the three plenary panel sessions set a tone of innovation and dialogue, raised critical issues, surfaced different perspectives, and ensured that follow on lunchtime and hallway discussions delved deeper into thorny challenges facing the field. Roy Rosin, Chief Innovation Officer for the University of Pennsylvania's Perelman School of Medicine, introduced the audience to a range of methods for rapid testing, innovation in healthcare delivery, and lessons learned from other industries to maximize potential of new practices to be scaled-up. Each of the three plenary panels presented a general discussion on a high priority challenge for dissemination and implementation (D & I) research. A panel on

the balance between intervention and implementation fidelity and local adaptation touched on the very real dynamic that is playing out in communities across this country as policy and payment changes are driving providers and others to seek new ways to solve the challenges in their particular contexts. A panel on the longer-term decisions around sustainment or de-implementation of interventions could not be more timely given the "improvement fatigue" of some systems and providers and the very real limits on providers' time and focus. Too often, the imperative is to "do more"; much more attention needs to be about stopping what is not working, particularly in light of estimates that 30 percent of care provided is either unnecessary, of low value or wasteful (Institute of Medicine, 2013). The third plenary panel brought different perspectives on the enduring and evolving challenges in the dissemination of evidence and evidence-based practices as well as the opportunities emerging from innovations in the digital health sector. The plenary sessions were complemented by facilitated lunchtime discussions on these topics, as well as additional research priorities, which enabled more in-depth discussions, additional question and answer time, and brainstorming of future directions. Synopses of the lunchtime discussions are included in this supplement.

The concurrent sessions were once again organized by tracks. Last year's tracks—Behavioral Health, Big Data and Technology for Dissemination and Implementation Research, Clinical Care Settings, Global Dissemination and Implementation, Promoting Health Equity and Eliminating Disparities, Health Policy Dissemination and Implementation, Prevention and Public Health, and Models, Measures and Methods—were maintained, and a new track on Precision Medicine was added, built upon the significant interest that emerged from last year's plenary and subsequent discussions at NIH, National Academy of Medicine, and beyond. The tracks again enabled conference participants to follow a consistent theme across the multiple sessions of the conference and to better group thematically the individual papers and posters submitted by the conference participants. This supplement also is organized by these track themes.

The call for abstracts, including individual paper presentations, individual posters and panel presentations, resulted in 601 submissions, spread across the nine thematic tracks. Over one hundred reviewers from multiple disciplines, sectors, settings and career stage devoted their time to ensuring a comprehensive and expert review, and reviews were conducted within each track and coordinated by the track leads. For the final program, 19 oral abstract sessions, 9 panels, and 334 posters were presented over the two-day meeting, in addition to a "poster slam". Slides for the oral presentations and panels (with the agreement of the authors) were posted on the conference website (https://academy-health.confex.com/academyhealth/2016di/meetingapp.cgi/Home/0) and all abstracts were included on the conference webapp (https://academyhealth.confex.com/academyhealth/2016di/meetingapp.cgi). New this year was a presentation format that combined the

efficiency of posters with the benefits of oral presentation—the poster slam. Eighteen of the top scoring posters were selected for this format. This new format enabled the lead authors of the top scoring posters to present their key findings in three minutes each, forcing clarity of communication on the vital message of their research. This skill of the "elevator" pitch is often not well developed amongst researchers.

This supplement has compiled the abstracts for presented papers, panel sessions, and lunchtime discussions from the 9th Annual Meeting on the Science of Dissemination and Implementation in Health: Mapping the Complexity and Dynamism of the Field. We are pleased to have the combined proceedings from the conference together in one volume once again, and look forward to the 10th Annual meeting, scheduled for December 4-5, 2017 in Arlington, VA. We look forward to next year's conference which will also be the 10th anniversary of this convening, marking just how much implementation science has grown over the last decade.

D1
Balancing adaptation and fidelity: Exploring the continuum

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Efforts to implement evidence-based interventions (EBIs) must address the challenges of remaining faithful to the original design of an intervention (i.e., fidelity) while considering whether and how adapt to local populations, contexts, or delivery models. Similarly, there may also be a need for adaptation of implementation strategies and adaptation of systems and organizations in which EBIs are being implemented. It is increasingly recognized that adaptation processes go beyond simple either/or decisions in considering when, how, and why adaptations are necessary. This session provided an opportunity for participants to address the challenges of, and strategies for, studying and achieving adaptation without sacrificing meaningful fidelity. There were approximately 100 participants in this 90 minute session that included small group discussions and large group interactive discussions facilitated by the authors.

The key themes identified included the importance of determining how much adaptation indicates a significant departure from the EBI, types of EBI or contextual adaptations that might be needed for patients with comorbidities, how adaptations can be tailored within complex health systems, and optimal methods and measures for assessing fidelity and adaptation. Other central areas of focus were how to scale adaptation across health systems, identifying contextual influences on adaptation, and the tension in moving from adaptation to innovation while avoiding drift that may compromise EBI or implementation strategy effectiveness.

Recommendations included examining the degree to which adaptation is occurring, discriminating between intentional vs. unintentional adaptation, using metrics to determine when drift occurs, and having a plan to facilitate and monitor appropriate adaptation and drift.

A call was made for researchers to put more emphasis on identifying core EBI and implementation strategy components, and it was highlighted that in order to manage fidelity and adaptations, both the EBI and the clinical environment needs to be understood. This calls for collaborative approaches between researchers and practitioners. Also, there is a need to consider the outer system context and inner organizational context factors that can constrain or allow adaptation, as well as prioritizing scaling-up and spreading EBIs that are robust enough to survive some adaptation. Another recommendation was to use technology to assess fidelity in real-time and to be sure that fidelity assessment and source (e.g., clinician report, patient report, observation, etc.) is reliable and valid. Lastly, the importance of how adaptations or reinvention impact quality of care and outcomes was voiced. In conclusion, the discussion highlighted that

often, the question is not a matter of either fidelity *or* adaptation, but rather fidelity *and* adaptation.

D2
Novel directions in dissemination research

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Within funded health-related research, far greater emphasis seems to be placed on implementation of evidence-based practices than on effective dissemination processes to get evidence and evidence-based interventions spread to target audiences. With great advances in communications technology and new sources of data, this lunch discussion forum brought together over 150 conference attendees to discuss a broad range of challenges, share experiences, and explore future directions for dissemination research.

Participants began the discussion by distinguishing features of dissemination research as opposed to implementation research (i.e., directive spread, less active, communicating vs. adopting, not setting-specific) and noting that dissemination is not spontaneous and not effective when passive. Aspects of successful dissemination were highlighted, including stakeholder engagement, team science, community based participatory research, and coalition building. Participants also explored what makes research innovative, reflecting on the keynote by Roy Rosin and highlighting the value of rethinking the problem. Other aspects of innovation included: solving a problem that has not been solved before, addressing a problem in a new context, applying technology in new ways, exploring the significance of the changing environment, engaging a new sector or partners in addressing a problem, applying a theory from an outside sector, transferring technology in new ways, and rethinking strategies needed for scale up. Strategies to identify novel topics were explored, including identifying evidence gaps, using knowledge brokers, engaging partnerships, spending time with practitioners, and concept mapping.

Examples of innovative and scalable research opportunities were discussed, including in primary prevention and the Affordable Care Act, the integration of public health, literacy, tracking behavior in real time, social determinants of health, and value-based care and how to incorporate patient perspectives. Participants also emphasized research challenges, including in finding funding for cross cutting health issues, review processes, and data credibility particularly in the eyes of providers. And future directions were highlighted, including in policy dissemination, examination of ways in which evidence is moving, longitudinal evaluation of the impact of dissemination research, and understanding mechanism through which partnerships work and how best to measure that.

The discussion concluded with brief presentations about resources in dissemination research, including from Maureen Dobbins of the National Collaborative Centre for Methods and Tools who highlighted their capacity building activities, support for change initiatives, and mechanisms to disseminate reviews. A brief overview of resources at the National Cancer Institute in dissemination research was also highlighted and can be found at https://cancercontrol.cancer.gov/is/.

D3
Planning for the long-term: considering sustainment

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The last ten years have shown increasing interest in sustainment of interventions in population health and healthcare. In this lunchtime

discussion forum, participants from academia, community-based organizations, and research corporations discussed challenges, strategies, and goals in sustainment research.

A key theme of the conversation was challenges and strategies around funding for sustainment research. Participants discussed the limitations of the five-year research grant to cover both implementation and sustainment research. It was suggested that this was enough time to include both types of research only if an intervention could be implemented in full in year 1 (e.g., a minor change in EMRs). The group discussed the related challenge of being unsure at what point to shift from implementation research to sustainment research. Participants shared related strategies such as refining and implementing interventions in early waves of funding, and studying adaptation and/or sustainment in later waves of funding. A number of persons discussed the opportunities created by observational approaches to sustainment research. The importance of theory-driven research was also noted.

Another key theme of the conversation was the importance of adaptation for effective dissemination and sustainment. The group discussed a range of challenges related to effectively adapting interventions to suit a wide range of new contexts, including: balancing fidelity and adaptation in diverse contexts, adapting complex multi-part interventions to limited resource settings, and successfully implementing and sustaining an intervention in the absence of its original champions. The group highlighted related needs in D&I science, including: a need for intervention designers to identify and specify the core of the intervention versus the adaptable periphery; a need to document how peripheral aspects are adapted as context for reporting results; a need to capture multilevel influences on sustainability; the value of implementation tools and playbooks to support effective adaptation without reinventing the wheel; and the use of SMART designs, A/B designs, and observational approaches to compare the effectiveness of various adaptations in different populations/patient groups/contexts. The conversation also highlighted the need to understand how to routinize new interventions so they become part of "the way things are done" (but not to the extent that the interventions become entrenched and difficult to replace if more effective practices are identified), with an emphasis on training individuals in multiple implementing and leadership roles to facilitate routinization.

Overall, the group was highly engaged and committed to this area of D&I science. They framed sustainment research as an essential component of D&I science, and necessary to generate the data on long-term costs, population health and patient outcomes that are essential to public health and healthcare decision making. They believed these factors, along with interest in ROI and efficiency, were powerful reasons for funding agencies to invest in sustainment research.

D4

Addressing education and training needs in implementation science

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Over the past decade, there has been remarkable increased interest in the field of implementation science, with commensurate increases in demand for training. A number of programs and resources have been created to address this need. In this discussion forum, participants representing researchers and practitioners from academia, industry, community-based organizations, and research funders shared and discussed existing training and education opportunities in implementation science. Participants discussed barriers and facilitators to establishing and accessing training programs, and priorities for training in implementation science.

Multiple themes emerged through the discussion. Participants described an array of existing training opportunities in implementation

science globally and domestically, ranging from short courses to long-term degree programs, and targeting professionals in practice and/or researchers. Despite increases in training opportunities, demand continues to outpace supply, especially for low- and middle-income country researchers. Participants identified a number of constraints in implementation science training. The field lacks a standardized taxonomy for implementation science, including its definition and methodologic components. Furthermore, training competencies are not well formed, nor differentiated for multiple end users (e.g. practitioners vs. researchers, domestic vs. global implementation scientists, undergraduate vs. graduate/doctoral trainees), which impedes assessment of training programs success. Participants noted that there is a lack of critical mass of expertise in implementation science, including insufficient mentors and support for mentors, which combined with limited funding opportunities to support training, constrains efforts to build a broad base for the field. Finally, participants noted the need to educate the value of implementation science among practitioner organizations, grant reviewers and journal reviewers.

Participants identified priorities to address implementation science training gaps. First, a crosswalk of existing training programs to catalog competencies for different end users, metrics for these competencies, and core methodologies and tools covered in these training programs could improve consensus and identify specific gaps to inform future training development. Efforts are needed to engage practitioner organizations to enhance training programs to meet their priorities, and generate support for training in implementation science; a clear understanding of return on investment for implementation science, perhaps illustrated through a set of case studies would support these efforts. Further engagement with disciplines outside of the health sciences would support infusing implementation science into other training programs. Finally, participants noted that diverse funding for implementation science training is needed to match the needs of different end users, including funding to support dedicated mentorship to build a critical mass in implementation science expertise.

D5

De-implementation

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De-implementation—reducing or stopping the use of ineffective, harmful, low-value, and/or unproven interventions, practices, and programs—is an important but understudied area of research. To advance the field, we need to develop and test frameworks, methods, measures, outcomes and strategies that address issues specific to de-implementation issues. The purpose of the forum was to discuss these issues, raise awareness of and interest in the need for advancing the science, and identify next steps for moving in such a direction.

During the forum, researchers, funders, and practitioners with various health care and public health perspectives identified key questions and issues in de-implementation, including: terminology, definitions, multi-level factors, frameworks, challenges in conducting research on de-implementation, and priorities for advancing the field. Common questions focused on how to incentivize de-implementation among multi-level stakeholders, including patients, providers, care teams, organizations, systems, and policies. Other challenges included mapping terms and processes, identifying and testing appropriate frameworks, and utilizing diverse methodologies (e.g., direct observation) to understand de-implementation processes, and testing financial and other de-implementation strategies. Participants discussed ways to capitalize on ongoing initiatives to reduce overuse or inappropriate care (e.g., Choosing Wisely; http://www.choosingwisely.org/) to study de-implementation. Participants also noted commonly-used terms broadly used to describe the field of de-implementation (e.g., reassessment, disinvestment, de-adoption, and decreased use), and the

need for standardized definitions, operationalization, and validated measures. Finally, processes involved in de-implementation were perceived as similar to but distinct from those involved in implementation, warranting novel conceptualizations, outcomes, research designs, and practical considerations.

Consistent with the need to advance this emerging discipline, recommendations from attendees to advance the field were numerous and multi-pronged. To begin, participants suggested organizing stakeholder meetings with relevant health researchers, practitioners, funders, payers, and policymakers to discuss definitions, conceptualizations, and prioritize next steps. Participants also encouraged efforts to raise awareness of the field, including publishing data-driven and perspective pieces on terminology, standards for warranting de-implementation, outcomes, and incentives for de-implementation. Finally, participants suggested ways in which the field could use natural experiments to study policy changes aimed at reducing overuse as well as collecting data on de-implementation from ongoing implementation studies.

D6
Designing for dissemination and implementation

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Behavioral researchers have evidence of effective health interventions that work, but this evidence is not widely used in practice. Programs to disseminate effective interventions exist (Small Business Innovative Research Program (SBIR), NSF I-Corps program, etc.) to help move biomedical research into practice, but there is limited assistance for behavioral researchers to move their interventions into practice. This lunch discussion forum provided participants the opportunity to explore how the field can better support efforts to design interventions with dissemination and implementation in mind.

The forum began with brief statements by NCI leaders regarding the concept of designing for implementation. Several considerations in designing for implementation were discussed including giving serious attention to ease of future implementation in practice, considering the range of contexts in which an intervention is likely to be implemented, as does implementation feasibility. Researchers, practitioners and funders engaged in discussions that raised a number of issues and lessons learned from their own experience.

Concern about minimizing the intrusiveness and influence on implementation sites was raised, since the trial of an implementation is supposed to occur in environments as they exist. Significant modification of an implementation site by research activities can diminish the validity and utility of results. It can obscure findings regarding the resources generally needed and available to implement an intervention.

Hybrid designs were discussed as a means to allow the development of an intervention in the same study that implementation research questions were asked. Further discussion focused on which designs might be appropriate at which stage of intervention development.

The importance of researcher, practitioner, and other stakeholder collaboration was emphasized. The utility of a participatory approach to the design of an implementable intervention was noted.

Career issues were discussed, with special concern for early researchers. Developing effective practices doesn't necessarily build academic careers in the traditional model. Novel efficacious interventions are rewarded in publications and further research funding which are necessary for success in academic careers. The need for publishable intervention outcomes as well as successful implementation outcomes and strategies are challenging for those seeking tenure and career advancement.

The discussion was an interactive and supportive one. As participants asked questions and raised issues, other participants engaged to respond to questions with accountings of previous experiences and lessons learned.

D7
Learning from improvement

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The purpose for the lunch discussion on "Learning from Improvement" was to report out on and discuss insights from the Salzburg, Global Seminar Session 565, "Better Health Care: How do we learn about improvement?", which was convened from July 10th – 15th, 2016. During the lunch discussion a panel of participants from the seminar shared insights from the session as well as next steps.

The session is designed to discuss the need for research methods, such as mixed methods in order to address the complex issues posed by health care delivery. Understanding that the contextual nature of health care delivery in the real-world setting does not easily allow for replicability in research, the Salzburg Global Seminar discussed issues such as:

- Can we attribute the improvements we are measuring to the changes we are testing and implementing?
- How do we know that no other factors are influencing the results?
- If other factors are also affecting the results, how do we know what part is attributable to the changes we are making?
- Why did the changes which yielded improvements work, and how?
- How can we incorporate the effects of local context into improvements?
- How should we design improvement efforts to answer different learning objectives?
- How do we optimize data collection that simultaneously serves to drive quality improvement, inform evaluation efforts, and fulfil performance reporting requirements?

As a result of deliberating on these questions during the seminar, a framework was created to tackle these issues and encourage a "marriage" between implementation and research and evaluation. The framework describes that all improvement and evaluation must start with an aim specific detailing what is to be done and for whom. The aim is interwoven with a "theory of change". The theory of change itself is closely related to "what" is to be done and "how" it is to be done in the improvement. Each of these factors, "what", "how", and the "theory of change" are related to context. In consideration of all of these complex factors, evaluation design and methods must be selected and integrated. In this way, evaluation design must occur alongside improvement, not after an improvement initiative is conducted. Such a change will allow for both better improvement design to allow for better learning and better evaluation design to inform implementation.

After insights from the seminar were shared regarding these issues, interaction, questions, and comments from participants was encouraged through group discussion.

Behavioral Health

S1
Large-scale implementation of collaborative care management for depression and diabetes and/or cardiovascular disease

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Background
The effectiveness of collaborative care management for patients with depression and comorbid chronic medical conditions is influenced

by numerous implementation factors. The objective of this study was to describe the variation in implementation across medical groups of the Care of Mental, Physical, and Substance-use Syndromes (COMPASS) initiative, a large-scale implementation of an evidence-based collaborative care management model to improve health outcomes in patients with depression and diabetes and/or cardiovascular disease.

Methods

Ten health care systems participated in the COMPASS initiative, representing 18 medical groups with over 172 clinics across eight states, and 3,854 patients. Eligible patients had active depression (PHQ9 > =10) and one of the following poorly controlled medical conditions: diabetes mellitus with a HgbA1c > 8% or systolic blood pressure (SBP) > 145; and/or cardiovascular disease with (SBP > 145 [SBP > 165 for patients over 65]). COMPASS entailed 1) a clearly defined care management process, a care team that included a consulting physician and psychiatrist, and weekly systematic case reviews focusing on treat-to-target guidelines; 2) A registry to track patients for follow-up contacts; and 3) monitoring of hospital and emergency department utilization. Descriptive data on COMPASS implementation were obtained from annual site visit reports and supplemental site surveys. Site visit reports were analyzed with Atlas.ti software to identify emergent themes regarding implementation. The Consolidated Framework for Implementation Research (CFIR) was used to generalize themes to broader implementation constructs.

Findings

Nine specific implementation themes were identified that related to six main CFIR constructs: 1) Length of patient enrollment in COMPASS and 2) registry use (CFIR intervention characteristics); 3) patients' social needs and 4) challenges to health systems' organizational environments (CFIR outer setting), 5) primary care physician engagement and 6) experiences with care coordination (CFIR inner setting); 7) care manager characteristics (CFIR characteristics of individuals); and 8) COMPASS care team dynamics and 9) quality improvement and outcomes monitoring reports (CFIR process).

Implications for D&I Research

Substantial variation across COMPASS medical groups was observed in the emergent implementation themes. Understanding such variation may provide important data with which to increase successful large-scale dissemination of similar models.

Primary Funding Source

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S2

Cost analysis of the collaborative care model for behavioral health in an urban, African-American, Medicare population

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Background

The Collaborative Care Model (CCM) for behavioral health has been studied in more than 70 randomized controlled trials and has been shown to be more cost-effective than usual care in the primary care setting. However, it has not been evaluated in an urban, predominately African-American, Medicare population. We evaluated the change in inpatient and outpatient provider costs before and after implementation of the CCM in this population.

Methods

The Medicare Advantage Program (MAP) CCM program for Behavioral Health was implemented in January 2016 at the primary care clinic of an urban academic medical center. The MAP CCM program involved routine and targeted mental health screening, outreach, and comprehensive care management. We performed a retrospective

analysis of the total costs of patients who were continually enrolled in Medicare Advantage from July 2015 to June 2016. Changes in total cost before and after the start date of the CCM were compared using a Wilcoxon signed rank test, as well as changes in emergency room, inpatient and outpatient costs.

Findings

Of the 762 patients in MAP, 460 patients were continuously enrolled during the study period. Median (range) age was 69 years (29-95), 67% were female and over 85% were African-American. There was a significant decrease in median health care costs after (vs. before) the CCM implementation (difference = -$1,899, interquartile range (IQR) (-11,921, 5193), p = 0.005), mostly due to a decrease in outpatient (difference = -$946, IQR (-8283, 4501), p = 0.01), and emergency room (p = 0.002) costs. There was also a decrease, although not significant, in inpatient costs (p = 0.26).

Implications for D&I Research

These results provide evidence of potential cost-saving attributable to the Collaborative Care Model for Behavioral Health in an urban, predominately African-American, Medicare population. Future studies will include a more detailed evaluation of the CCM program in order to evaluate the cost-effectiveness of the program in this population, both for patients with depression and for those with depression and diabetes.

S3

Barriers and facilitators to implementing the New York state collaborative care initiative for depression in academic primary care settings: using a theoretical framework to inform policy

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Background

In 2012, the New York State (NYS) Office of Mental Health, in partnership with the NYS Department of Health, implemented Collaborative Care (CC) for depression in 19 academic medical centers (32 clinics serving 1 million patients). We aimed to assess barriers and facilitators to its implementation and to use a theoretical framework to propose corresponding policy and behavioral change interventions for future successful spread of CC.

Methods

Of 19 centers, 17 agreed to be interviewed. We completed 30 semi-structured interviews (6 psychiatrists, 8 clinic administrators, 8 primary care physicians, and 8 care managers) representing 8 healthcare systems before reaching saturation. We conducted a hybrid process of both inductive and deductive thematic analysis (NVIVO 11.1), before using the *Capability, Opportunity and Motivation-Behavior (COM-B)* model to characterize the themes and to propose related policy recommendations that could address identified barriers and facilitate site-level behavioral change.

Findings

Clinics ranged in size from 6,000 to 70,000 patients (5% to 37% depression screen positive rates) with 0.5 to 6.0 care manager full time equivalents. Themes related to major implementation barriers concerned *personnel-resources* (e.g., competing care manager demands, inadequate staff) (77% of respondents), *patient engagement* (e.g., no shows/non-adherence) (63%), *team engagement* (e.g., physicians/residents) (50%), and *external factors* (e.g., competing state/national initiatives, psychosocial resources) (40%). Major facilitators involved *patient engagement* (e.g, warm handoffs, personalization) (83%), *team engagement* (e.g., culture change, training, accountability) (80%), and *personnel/resources* (e.g., hiring paraprofessionals for registry/billing)

(73%). Themes were predominantly classified under opportunity and motivation (COM-B). Corresponding policy categories for future opportunities included optimizing billing infrastructure and instituting value-based purchasing (*fiscal supports, legislation*), incorporating paraprofessionals and information technology platforms into the CC framework (*environmental/social planning, service provision*), and providing educational and decision support tools to improve staff, physician and patient engagement (*marketing/communication, guidelines*).

Implications for D&I Research

This is one of the first studies to identify barriers and facilitators for implementing a large, state-wide initiative for depression CC in academic centers and to use a theoretical framework to provide concrete suggestions for its future dissemination and successful implementation. Our study suggests that engagement strategies with optimization of registry and billing infrastructures are key to success.

Primary Funding Source

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S4

Improving transitions from detox to continuing care: using a care transition implementation system

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Background

With successful transitions from detoxification to continuing care, patients are more likely to remain drug-free or sober, making this is a key transition in the addiction treatment continuum. Yet, just 11-27% of individuals receiving emergency detoxification services for alcohol or drug abuse receive additional treatment or continuing care. This is occurring at a time when drug overdose deaths, primarily due to opioids, are the leading cause of accidental death in the United States.

Methods

The system to be tested to improve transitions from detoxification to continuing care integrated three evidence-based implementation science approaches: a) a *practice bundle* of replicable evidence-based practices found to increase detoxification to continuing care transition rates, b*)* a *checklist* to review use of practice bundle elements, and c) an established *standardized organizational change model,* called the NIATx model, to facilitate use of the practice bundle and checklist. The mixed methods analysis compared baseline to post-intervention detoxification to continuing care transition, the efficacy of different practice bundle combinations, and observed the use of the checklist.

Findings

The integrated implementation approach improved detoxification to continuing care transition rates from 20% (baseline average) to 43% (post-intervention). The bundle combination that demonstrated the highest transition rates was: a) transitioning patients from detoxification to continuing care in <3 days; b) conducting warm/orchestrated hand-offs (or transfers) between levels of care when possible; and c) collecting data in the detoxification unit to monitor continuing care performance. The process checklists were modified from being used per patient to being used to guide systems change.

Implications for D&I Research

The intervention uses an innovative approach based on practice bundles and process checklists, which have been successfully applied in acute care hospital settings, with varied approaches to implementation. The system offers a standardized implementation approach and examines how using bundles and checklists is generalizable to a community-based behavioral health setting. Should the system prove to be generalizable and beneficial, it could provide a tool to address other long-standing public health challenges that are worsened by poor transitions between levels of care.

S5

A mixed-methods study of system-level sustainability of an evidence-based practice following 12 large-scale implementation initiatives

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Implementation Science 2017, **12**(Suppl 1):S5

Background

As evidence-based practices (EBPs) become more widespread in community behavioral health systems, determining how to systematically sustain (facilitate and optimize) EBPs in complex, multi-level service systems has broad implications for public health. The current study sought to understand the process of sustaining a particular EBP, Parent-Child Interaction Therapy (PCIT), based on the knowledge and experiences of individuals working within existing service systems across states that have employed large-scale implementation initiatives.

Methods

This mixed methods study examined rates of sustainment following 12 large-scale initiatives to implement PCIT, factors impacting sustainability, and strategies used to enhance sustainment. Participants were recruited from large-scale PCIT training initiatives using a snow-ball sampling approach. A mixed-methods approach to data collection was utilized; qualitative and quantitative data were sequentially collected and analyzed, using each type of data to answer specific questions and to provide depth and breadth of understanding related to sustainability outcomes and processes.

Findings

Sustainment strategies fell into nine categories, including infrastructure, training, marketing, integration, and building partnerships. Strategies involving integration of PCIT into existing practices and quality monitoring predicted sustainment, while financing also emerged as a key factor. The relations among demographic variables, barriers, and strategies were examined, with regression results indicating two strategies (integration into existing practices and monitoring quality) and one barrier (lack of financial funding) as significant predictors of sustainment outcomes. In conjunction with the quantitative data, a grounded theory approach was used to qualitatively identify system-level factors, implementation and initiative factors, and intervention factors related to the facilitation and impediment of the sustainability of PCIT over time.

Implications for D&I Research

Authors will discuss implications for the system-level sustainability of EBPs, such as the dynamic interaction among challenges and specific strategies utilized, as well as the reported need of innovation in systems and practice.

Primary Funding Source

National Institutes of Health - This research was supported by funding from the National Institute of Mental Health (R01 MH095750)

S6

Implementing integrated primary care in late adopter sites: the impact of key events on repeated measures of uptake

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Background

Integrating behavioral health care into primary care is a complex behavioral health innovation and often warrants facilitation—an umbrella implementation strategy—to increase its adoption, especially in late adopter sites. We conducted a secondary data analysis from a two-year hybrid Type II study using facilitation to promote implementation of integrated primary care across seven VA medical clinics. Our aim was to (a) identify patterns of adoption across clinics and (b) identify associations between key events that occurred during implementation and adoption.

Methods

For each clinic, we synthesized quantitative and qualitative data. First, we utilized a quantitative B-spline function to map out a pattern of continuous, linear combination of multiple repeated (monthly) measures of adoption—this accounted for correlations between time points. Second, we used qualitative data from program records, debriefing interviews with facilitators, and facilitator time logs to identify key events that occurred during implementation facilitation (e.g., staff turnover). Two coders categorized key events into domains of the theoretical framework that informed the study—Integrating Promoting Action on Research for Health Services (i-PARIHS). Then, we created a visual overlay of key events on to mapped patterns of adoption.

Findings

Adoption increased over time, although with great variability—it was more rapid for smaller clinics. Events that inhibited adoption over time included staff loss and hiring of staff and leadership not trained in the innovation. Events that promoted adoption over time included facilitator site visits, positive changes in leadership, and creating and reviewing implementation-planning checklists.

Implications for D&I Research

When using facilitation for complex innovations in healthcare, preliminary results suggest that site visits, continuous assessment of implementation-planning checklists, and staff loss or mismatch to the innovation are most impactful on adoption. Though it presents methodological challenges, an advantage of using repeated measures is that, rather than having only a snapshot of adoption at a few, discrete time points, we were able to assess variability in adoption by using a nearly continuous measure of repeated assessments over two years. One challenge is validity of associations between adoption and key events, due to the multifactorial nature or "shocks" of the data over time.

Primary Funding Source

Department of Veterans Affairs - Health Services Research and Development and QUERI grants

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S7

Enhancing organizational capacity in implementation science: an evaluation of the practicing knowledge translation course

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Implementation Science 2017, **12**(Suppl 1):S7

Background

Effective evidence implementation can help health care organizations optimize quality of care. A challenge is lack of organisational capacity in implementation. Building on a previous evaluation, we developed a 6-month course, Practicing Knowledge Translation (PKT), designed to teach best practices in high-quality implementation and equip participants with the core competences required to integrate evidence-informed practices. We conducted an outcome evaluation of the course.

Methods

The 15 PKT course participants included professionals working in healthcare, government, and non-government organizations that support healthcare delivery or funding. The primary outcome was an increase in *knowledge* and *self-efficacy* across six core competencies (developing an evidence-informed, theory-driven program (ETP); implementation; evaluation; sustainability, spread, scale up; contextual assessment; stakeholder engagement) measured through surveys (likert 1-7) completed before (time 1), immediately after (time 2), and 7 months after (time 3) the course. Secondary outcomes included *use of implementation* (likert 1-5) and satisfaction with the course based on semi-structured interviews. Descriptive statistics and repeated-measures ANOVA and Bonferroni post-hoc models were used for quantitative data analysis to evaluate changes in knowledge and self-efficacy in SPSS v.20. Data from qualitative interviews will be analyzed in NVivo.

Findings

Survey response rate was 60-80% across all time points (Time 1, n = 12; Time 2, n = 12; Time 3, n = 9). Participants' *knowledge* and *self-efficacy* increased in four and five of the six core competencies, respectively: developing an ETP ($p = .06$; $p = .01$), implementation ($p = .002$; $p = .001$), evaluation ($p = .003$; $p = .03$), sustainability/scale/spread ($p = .002$; $p = .02$), contextual assessment ($p = .012$; $p = .002$), and stakeholder engagement ($p = .06$; $p = .13$). There was no change in current implementation practice after the course was delivered ($p = .12$). Qualitative data are being analyzed and will be available for presentation.

Implications for D&I Research

Quantitative findings indicate that the PKT course increased participant knowledge and self-efficacy across 5 of 6 core competencies. There is a need to evaluate the impact of implementation training on participants' knowledge of and self-efficacy in using implementation science in their projects and organizations. Findings from this evaluation can be used to inform future training initiatives.

S8

Implementation barriers and facilitators of treatments for criminogenic thinking in the Veterans Health Administration

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Implementation Science 2017, **12**(Suppl 1):S8

Background

With the rise of specialty courts, behavioral health services are increasingly called upon to treat criminal offenders in order to reduce offenders' risk for recidivism. *Criminogenic thinking* (antisocial cognitions/attitudes) is the risk factor with the strongest association with criminal recidivism. Cognitive-behavioral treatments for criminogenic thinking–e.g., Moral Reconation Therapy (MRT); Thinking 4 a Change (T4C)–were developed within correctional settings and are regarded as best practices for reducing recidivism. However, knowledge of their implementation potential within behavioral health services is unknown. To address this gap, we identified barriers to implementation of cognitive-behavioral treatments for criminogenic thinking in the Veterans Health Administration (VHA), and facilitators that could serve as solutions to these barriers.

Methods

Specialists from the VHA's Veterans Justice Programs–a nationwide outreach and linkage service for justice-involved veterans–were

recruited to participate in a semi-structured phone interview to describe their practices regarding treatment of criminal recidivism (n = 63). Participants who had been trained in MRT or T4C (n = 22) were asked questions regarding the implementation potential of these interventions in VHA. Thematic coding and pile-sorting techniques were used to identify barrier and facilitator themes at the patient-, program-, and system levels.

Findings
The time-intensiveness of these treatments emerged as a barrier to implementation. Potential solutions identified were patient incentives for treatment engagement, streamlining the curriculum, and implementing the treatments within long-term/residential programs. At the program level, providers' stigma/bias towards patients with antisocial tendencies was seen as a barrier to implementation, as were time/resource constraints on providers. To address the latter, use of peer providers to deliver the treatments and partnerships between justice programs and behavioral health services were suggested. At the system level, lack of recognition of criminogenic treatments as evidence based, and uncertainty of sustained funds to support ongoing costs of these treatments emerged as implementation barriers. To address the latter, a "train-the-trainers" model was suggested.

Implications for D&I Research
Our findings serve as a guide for implementation of criminogenic treatments for providers/policymakers in VHA and other large healthcare systems that are increasingly called upon to provide care to justice-involved adults–a large and highly vulnerable subgroup of the behavioral health population.

Primary Funding Source

S9

Therapist and leader attitudes towards evidence-based practices: influence of practice, staff role, and perceptions of organizational climate

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Implementation Science 2017, **12(Suppl 1):**S9

Background
Organizational factors, such as implementation climate and workforce burnout, play an influential role on attitudes towards implementation of evidence-based practices (EBPs) in mental health systems. Both line staff and administrators are integral to EBP implementation efforts, and it is important to understand whether attitudes toward specific EBPs vary between agency leaders and therapists. Further, it is plausible that distinctive organizational factors differentially impact leader versus therapist attitudes toward EBPs.

Methods
This study examined leader and therapist attitudes towards EBPs within the context of a system-level reform mandating the implementation of multiple EBPs through reimbursement policies in children's mental health services in Los Angeles County. Study objectives were to: 1) determine whether leaders and therapists differed in their attitudes toward six EBPs, and 2) identify organizational factors associated with leaders' and therapists' practice-specific attitudes. Data were obtained from 181 leaders and 763 therapists who completed an online survey that assessed perceptions of workplace burnout and organizational functioning using subscales from the Organizational Climate Measure and Organizational Readiness for Change. Hierarchical linear models were specified with practice (L1)

nested within leader/therapist (L2) nested within agency (L3) to predict practice-specific attitudes (e.g., ease of use, adaptability to fit to service setting).

Findings
There were significant cross-level interactions between practice and informant, indicating that leaders and therapists reported differing preferences for EBPs. Furthermore, distinctive organizational factors interacted with practice to predict leader and therapist attitudes. For example, leader perceptions of staff cohesion were associated with more positive appraisals for most practices. Therapist perceptions of burnout were associated with more negative evaluation of some practices but more positive evaluation of others.

Implications for D&I Research
Understanding the unique perspectives of different types of staff towards EBPs can inform EBP implementation efforts. Findings indicate that leaders and therapists differ in their preferences for practices and these differences may be shaped by their perceptions of organizational functioning. Results highlight the importance of considering organizational characteristics such as staff cohesion and burnout when selecting and implementing EBPs to promote uptake and sustainment in service systems.

Primary Funding Source

S10

The influence of leadership at executive and middle management levels on the implementation of evidence-based behavioral health care practices

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Implementation Science 2017, **12(Suppl 1):**S10

Background
Leadership plays a critical role in the implementation of evidence-based practices (EBPs) in behavioral health settings. While most research focuses on a single leader or a broad leadership style (e.g. transformational approach), this study examined the impact of both broad and focused leadership and multiple leadership levels on implementation of EBPs. Guided by social exchange theory, we proposed that mid-level, implementation-focused leadership would enhance how executive level transformational leadership affects 1) staff attitudes toward EBPs, and 2) implementation of contingency management treatment (CMT) and medication-assisted treatment (MAT).

Methods
We collected multilevel data in 2013 from 427 employees embedded in 112 behavioral health treatment programs in the largest addiction health services system in the United States. We measured transformational leadership using the Survey of Transformational Leadership, implementation-focused leadership using the Implementation Leadership Scale, and attitudes towards EBPs using the Evidence-Based Practice Attitudes Scale. We assessed implementation of CMT and MAT using a 5-point Likert Scale indicating how often the EBP is used in the program. We tested a multilevel path analysis with bootstrap standard errors using Stata, 13.

Findings
Results showed a positive relationship between transformational executive leadership and mid-level implementation-focused leadership (standardized direct effect = .173, bootstrap $p < .03$). As expected, transformational leadership was indirectly associated with employee

attitudes toward EBPs via mid-level implementation leadership (standardized indirect effect = .090, bootstrap $p < .01$). Also, transformational executive leadership was indirectly associated with delivery of CMT through mid-level implementation-focused leadership (standardized indirect effect = .006, bootstrap $p < .09$), though this relationship was partially significant. The relationships between leadership types and MAT were not statistically significant.

Implications for D&I Research
This study offers theoretical contributions to social exchange and leadership theories as applied to implementation of EBPs in behavioral health settings. Findings highlight the importance of testing leadership process using mediators in order to unpack how leadership may cascade to different levels. Results highlight the importance of training mid-level management on implementation leadership to enhance the uptake of CMT in addiction health services.

Primary Funding Source
National Institutes of Health - R33DA035634-03, PI: Erick Guerrero, R25 MH080916, PI: Enola Proctor.

S11

A multilevel case study of act implementation
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Implementation Science 2017, **12**(Suppl 1):S11

Background
Commonly used implementation frameworks—such as the Consolidated Framework for Implementation Research (CFIR) and the Exploration, Preparation, Implementation, and Sustainment (EPIS) framework—describe the multilevel nature of evidence-based practice (EBP) implementation. These frameworks highlight the ways in which inner and outer contextual features overlap, interact, and influence implementation success. This study uses a multilevel case study method to understand the implementation of Assertive Community Treatment (ACT) in Los Angeles County.

Methods
Focusing on fidelity as a key implementation outcome, we conducted semi-structured interviews to explore ACT implementation experiences at three levels: county, agency leadership, and frontline staff. The sample included county level experts as well as 35 providers and managers at three organizations currently implementing ACT in L.A. County. Interview questions assessed knowledge of the ACT model, history of ACT implementation, fidelity, and the use of ACT in everyday clinical practice. Experts and managers addressed outer contextual features such as legislative decisions, funding structures, and contracting arrangements. Frontline staff and managers addressed inner contextual features such as organizational characteristics, employee attitudes, and EBP fit.

Findings
Findings revealed important relationships and differences among the three levels of ACT implementation, in particular relating to definition of the ACT model and conceptualization of fidelity. At the provider level, frontline staff offered many examples of 'doing' ACT, yet reported little explicit knowledge of model components or fidelity measurement. This was consistent with county administrator interviews describing the California programs as 'ACT like' and designed to be flexible, but also contrasted with administrator and director statements about the importance of achieving fidelity to core components.

Implications for D&I Research
This study demonstrates how a multilevel case study approach can capture and describe the nuances and complexity of EBP implementation. First, this design enabled us to link specific outer contextual features to behaviors and perspectives among those who are using ACT on a day-to-day basis. Second, this design allowed us to explore and assess differences across the three levels of analysis. Findings offer concrete examples of the relationships described in implementation frameworks.

S12

Organizational factors differentiating VA PTSD outpatient teams with high and low delivery of evidence-based psychotherapy
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Background
As part of a broad effort to implement evidence-based care, the Veterans Health Administration (VHA) has been working over the past decade to expand use of Cognitive Processing Therapy (CPT) and Prolonged Exposure (PE) for treatment on posttraumatic stress disorder (PTSD). VHA's primary strategy has been national training initiatives efforts that target individual clinicians. Less attention has been given to team-level processes, and identifying local organizational factors that promote higher levels of use of CPT and PE.

Methods
This mixed methods study used automated processing of chart notes to select PTSD clinics with high and low use of CPT and PE. Rapid Assessment Process methodology was then used to compare teams along dimensions known to affect implementation and sustainability of a practice improvement program. The primary method of data collection was semi-structured interview with 100 staff from nine VA medical centers which had PTSD teams that differed in reach of CPT and PE to therapy patients with PTSD. Qualitative analysis involved constant comparison of high, medium and lower reach teams in terms of the identified themes.

Findings
High reach teams embraced a mission to deliver evidence-based psychotherapies for PTSD. This mission was reflected in staff beliefs about CPT and PE, enacted through clinic operations and supported by resources and leadership outside the teams. Lower reach teams were less specialized and situated in practice environments with less support and movement of patients between mental health teams. Medium reach teams shared characteristics of both high and lower reach teams.

Implications for D&I Research
Widespread implementation of PE and CPT requires not only training clinicians to deliver these treatments, but also addressing team and facility-level organizational factors. High reach teams prioritized evidence-based treatments and either de-implemented or shifted to other clinics delivery of other types of care. Teams that added EBPs without de-implementing other clinical responsibilities had lower reach.

Primary Funding Source
Department of Veterans Affairs

S13

Engaging clinicians and veterans in efforts to decrease benzodiazepines in posttraumatic stress disorder (PTSD): de-implementing through academic detailing
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Implementation Science 2017, **12**(Suppl 1):S13

Background

Benzodiazepines are not recommended by practice guidelines for the treatment of PTSD. Despite these recommendations, providers routinely prescribe benzodiazepines in patients diagnosed with PTSD. Our research group has identified subgroups of Veterans with PTSD in whom the rate of prescribing of benzodiazepines is higher and to whom benzodiazepine use poses increased risk of harm. Resulting non-adherence to the guideline recommendations suggests that increased education, training, and consultation to both clinicians and Veterans can help 'de-implement' the use and harm of these agents.

Methods

Our team conducted research locally and in Northern California to examine the use of an Academic Detailing (AD) intervention to share developed decision support tools (brochures for both providers and patients). A clinical pharmacist met with providers in individualized outreach visits at their practice site to promote evidence-based treatment options. A dashboard developed by VA's Pharmacy Benefits Management identified providers and patient-level prescribing data and allowed a focus on high-risk patients on a provider's panel. Brochures were shared, key clinical messages about benzodiazepines in PTSD were discussed, and safer treatment alternatives were reviewed. Direct-to-consumer strategies were used by mailing patient brochures to identified subgroups of Veterans and were asked to discuss the content with their provider at upcoming visits.

Findings

Not all clinical pharmacists are strong detailers. We experienced variability in the skill of our pharmacists to engage providers in discussions of decreased benzodiazepine use. We also learned that clinical providers are typically too busy to have time to use performance dashboards designed to improve care. So the detailer has to offer brief key messages, clinical shortcuts, and resources to engage prescribing clinicians in a dialogue. Decreases in incidence and prevalence rates of benzodiazepine prescribing have been variable. More success has been observed locally due to repeated visits by the detailer.

Implications for D&I Research

AD is a promising and potentially efficacious de-implementation strategy, but it requires interpersonal skill and repeated contacts for it to be effective.

Primary Funding Source

Department of Veterans Affairs

S14

Participatory system dynamics: triangulating electronic health records, stakeholder expertise and simulation modeling to expand evidence-based practices

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Implementation Science 2017, **12**(Suppl 1):S14

Background

In some settings, evidence-based practices (EBPs) may be adopted by providers, prioritized by leadership and supported by health system infrastructure, yet still not reach an adequate proportion of patients. In these systems, local staff expertise and operations data can be synthesized in a participatory system dynamics (PSD) model, developed for selecting strategies to improve EBP reach. PSD modeling simulation empowers stakeholders by enabling them see the potential yield of implementation plans prior to implementation.

Methods

Our team worked with Veteran patients, local leadership, psychiatrists, psychologists, social workers, nurses and clerks to develop a PSD model of Veterans Health Administration (VA) outpatient mental health care. Our team coordinated with national VA offices responsible for disseminating evidence-based psychotherapy and pharmacotherapy, and conducting quality assurance. Qualitative group modeling sessions with frontline staff included developing the model structure, reviewing data inputs for validity, and model calibration checks against the historical behavior of the clinical system. Stakeholders provided a list of restructuring scenarios intended to improve EBP reach, which were evaluated with simulation.

Findings

Using a model parameterized with local clinic data, stakeholders viewed the operational mechanisms in their settings that they believed could expand EBP reach. Interdependent relationships among model parameters, such as patient factors (e.g., missed appointment rates), and system capacities (e.g., staffing) were examined. Stakeholders determined which implementation plan was likely to increase EBP reach the most, drilling down to examine the entire EBP continuum: referral to EBP, scheduling EBPs, initiating an EBP, completing a therapeutic dose of an EBP and patient benefit from an EBP.

Implications for D&I Research

PSD models evaluate stakeholders' theories of clinic operation, testing explanatory mechanisms (i.e., local policies and procedures) by which EBP reach could be improved. PSD capitalizes on health record data, stakeholder expertise and simulation to optimize implementation. PSD may be a strategy for more timely patient access to EBPs even when no new system resources (e.g., new staff, new EBP trainings) are available. The PSD process increases staff general capacity for quality improvement, while the PSD modeling tool identifies implementation strategies tailored to local EBP-specific capacities and constraints.

Primary Funding Source

Department of Veterans Affairs

Big Data and Technology for Dissemination & Implementation Research

S15

Media influence and framing the public health narrative around unarmed deaths, race, and gun violence: mapping the Trayvon Martin case

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Implementation Science 2017, **12**(Suppl 1):S15

Background

Restrictions on gun-related research in the US create barriers to fully understanding the health implications of gun violence on racial disparities. Media coverage of gun related deaths and violence, particularly incidents that result in the death of unarmed African Americans, helps illustrate the gun violence landscape. The killing of unarmed teen Trayvon Martin offers a potent case study for examining the potential influence of participatory media on framing gun violence and race as a public health issue.

Methods

We collected data on the Trayvon Martin case from Media Cloud sources to analyze the media coverage volume and network.

Conceiving of the media ecosystem as a network demanded a network analysis approach, for which we used Gephi and the PageRank algorithm. We complemented and informed the direction of our quantitative analysis through qualitative interviews with media activists involved in the early stages of the Trayvon Martin story. Peak coverage and the linked network of publishers were mapped from the date of his death, February 26, 2012, to April 30, 2012.

Findings

News coverage started as a short-lived, local Florida news piece. Media pressure grew after Martin's family hired a civil rights attorney, and a few large influential media outlets generated the racial framing of the story. 8643 total sources linked to one another and the civil rights narrative was carried across the national media network through hyperlinks. Social media clicks (n = 1.2million) provided a proxy for readership and resulting action offline. Broadcast media remained an amplifier and gatekeeper of the narrative, but participatory public media activism co-created the framing of the story's ultimate message about race

Implications for D&I Research

These findings show the utility of viewing online media influence metrics in the context of a network of diverse actors. Our results suggest that this network influenced the public discourse, sentiment, and response to gun violence and race. Mapping the network of online media sources that create, spread, and reinforce messages illustrates how the general public shapes the conversation through their own narratives. Network mapping provides opportunities for identifying professional and public influencers who can assist in framing gun violence and racial disparities as public health issues

Primary Funding Source

S16

Vaccine hesitancy and digital networks: the influence of social proof

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Background

Health experts recognize childhood vaccinations as one of the most important public health achievements of the twentieth century. The Internet, directly linked to vaccine hesitancy, is a well-documented health information source. The rise in numbers and combinations of vaccines along with globalized, non-hierarchical communication make today's challenge of overcoming vaccine hesitancy particularly complex. Despite a variety of efforts to address this challenge, online vaccine hesitant communities remain robust.

Methods

We used Media Cloud's searchable archive of over 350 million stories from 50 thousand media sources, along with tools to analyze that archive, to conduct quantitative and qualitative network analysis based on key word selection and community detection. We generated a network map of sources who published about vaccines from June 1, 2014 to March 1, 2015. We measured influence via hyperlink degree centrality, betweenness centrality, degree of freedom of speech, and sentiment for the top 400 sources. Pearson chi squared tests determined magnitudes of associations.

Findings

4,187 identified sources formed distinct networked communities based on hyperlink sharing. Those link-sharing communities separated cleanly into pro and vaccine hesitant groups. Pro vaccine sources were directly linked to most frequently (p = 0.027), but highly connected sources within the network were twice as likely to portray vaccine hesitant sentiment contrary to evidence (p = 0.03). Sources that were more successful in spreading their information through linked connections were non-evidence based (p = 0.001) with low or no degree of scientific peer review. (p = 0.033).

Implications for D&I Research

The social structure and function of the Internet means network science and visualization mapping is essential in understanding relationships and connections between various publishers. These findings demonstrate an online environment where scientific evidence may not be as influential as social proof, a form of imitation where individuals ascribe to social behaviors of others to resolve uncertainty, such as link sharing. A challenge for childhood vaccinations communication may not only be poor quality information online but also the norms and values of the most influential online social networks sharing that information. Understanding online influence and network sociology is key to maximizing the effectiveness of digital and social communications necessary for sustaining optimal vaccine acceptance and reducing vaccine hesitancy.

S17

Could fragmented communication networks reshape the narrative?: Evidence from tobacco and e-cigarette media framing

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Background

Youth smoking behavior in 2003 could be predicted from content analysis of the public communication environment around tobacco. The more frequently tobacco appeared in the news (e.g., describing negative health effects and anti-smoking policies), the less youth used tobacco. However since 2003, media platforms have diversified – as have tobacco products.

Methods

Text from websites popular among 12-24 year olds were pulled from the Media Cloud database via tobacco terms. Three traditional media sources. (Associate Press [AP], top 50 U.S. newspapers, and broadcast news transcripts) were pulled by searching the Lexis-Nexis database for the same set of tobacco terms. Supervised learning was used to classify this initial sample of potentially related texts (n = 79,020) as truly tobacco-related (n = 62,232). We calculated the three-day frequency of mentions of each topic for each source (n =136). Online and traditional media were compared.

Findings

E-cigarette mentions accounted for (n = 4,167, 7%) while tobacco only mentions were the majority (n = 58,065, 93%). Results for both topics showed moderate coordination between websites with broadcast news and AP. Coordination was significant for e-cigarette coverage across all sources (r = .44), suggesting that different platforms are picking up on the same e-cigarette narrative of events. For tobacco, message coordination across websites and newspapers was absent.

Implications for D&I Research

Comparing new online networked messaging with traditional media sources allows us to evaluate how the narrative is changing as media evolve and new tobacco products emerge over time. Implications of this approach include visualizing general trends in narratives across the publishing network (rather than

single issues or events), mapping of all data available from every source, and the inclusion of many examples of sources for each platform (i.e., multiple newspapers and websites). However e-cigarettes in particular are a controversial product, so there could still be fragmentation in type of coverage. Follow-up analysis of specific content of e-cigarette news coverage across sources will provide further information about whether or not the public communication environment is fragmented on this topic. Network science and visualization models can assist in improved hyperlinking and generating new connections for dissemination of optimally coordinated messaging around tobacco and e-cigarettes.

Primary Funding Source

S18

Implementation of real time clinical decision support: the challenge of evaluation

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Background
Comprehensive electronic medical records (EMRs) permit access to large datasets with granular clinical data and can serve as platforms for clinical decision support (CDS). In theory, this combination should facilitate testing, implementation and evaluation of CDS tools to improve patient outcomes. In practice, demonstration of clinical benefit remains difficult. We describe challenges encountered in evaluation of two inpatient CDS systems deployed by Kaiser Permanente Northern California.

Methods
Using data from >1.0 M patients, we developed an early warning system for patient deterioration outside the intensive care unit (ICU) and a risk score for non-elective rehospitalization. The early warning system, deployed at 2 hospitals in 2013-2014, provides discrete, patient-specific probability estimates every 6 hours. The rehospitalization risk score, deployed in 7 hospitals in 2016, generates patient-specific probability estimates every morning. Implementation teams developed clinician workflows for both systems. Given KPNC's 22 hospitals and unitary information capture (single EMR across the entire enterprise), we can assign probability estimates to patients at the pilot sites and virtual probability estimates at the other sites. This permits evaluating the CDS by comparing patient outcomes from pilot and non-pilot hospitals (adjusting for risk differences via multivariate matching, since technical limitations precluded randomization).

Findings
Based on observed mortality, rehospitalization, and cost decreases at the pilot sites, KPNC will deploy these two CDS systems in all its hospitals. We encountered these challenges in the evaluation process: selection of outcomes measures - including the problem of employing mortality as an outcome, since patients near the end of life may not desire further intervention; inability to access real time data for model development; lack of concordance between real time data used by CDSs and data that are stored for retrospective analyses; computational challenges involving extremely large datasets; need for balancing measures (e.g.,

possible increases in admissions to the ICU); and differential effects across study sites

Implications for D&I Research
Although the use of EMRs as platforms for real time CDS holds great promise, quantification of benefit is likely to remain challenging in the near future. Greater attention should be given to methodological aspects of the evaluation of CDS impact.

Primary Funding Source

S19

Reducing readmissions through improving care transitions (RRTICT): development of a tailored approach to improve veteran outcomes

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Implementation Science 2017, **12**(Suppl 1):S19

Background
The Pittsburgh Veterans Engineering Resource Center (VERC) partnered with the University of Pittsburgh and the VA Office of Patient Care Services to develop the Reducing Readmissions through Improving Care Transitions (RRTICT) program. RRTICT is a suite of care strategies that combines 32 best practices from Veterans Administration Medical Centers (VAMC) and health services literature. The use of a near real-time readmission risk predictive model to assist clinical decision making and equitable provisions of care differentiates RRTICT from other programs.

Methods
The RRTICT model was derived using a set of over 7000 patients and has an 80% accuracy rate. It uses administrative, clinical, and patient descriptive data from the VA Corporate Data Warehouse to predict risk of hospital readmission (within 30-days of discharge, 30DRR) at initial hospital admission. Six VAMCs volunteered to pilot RRTICT for six months in FY15. Participating sites had to agree to engage a discharge team, participate on monthly calls, and submit a midpoint and final report. The model provided daily risk values for each patient on the pilot wards. At the conclusion of the pilot, the VERC used the VA Inpatient Evaluation Center (IPEC) all-cause readmission rate definition to calculate the 30DRR on the patients in the pilot sites. Calculated rates were compared to rates from the same six-month period in FY 2014 using the two proportions Z-test.

Findings
Sites that implemented RRTICT demonstrated an overall decrease in 30DRR by 28% (Table 1).

Implications for D&I Research
RRTICT provides a structured framework that helps translate evidence based interventions into clinical practice. By using "Big Data," the RRTICT predictive model allows clinical teams to maximize their use of best practices to achieve the greatest equity of care. In addition, the success of reducing readmissions is encouraging further interest to expand RRTICT throughout the VHA.

Table 1 RRTICT 30DRR Results

Site	Readmission Rate Difference	Percent Difference	P Value
Overall	−0.044	−28%	0.00001
Albany	−0.013	−9%	0.59992
Bay Pines	−0.043	−27%	0.00937
Gainesville	−0.056	−22%	0.24760
Omaha	−0.053	−35%	0.05105
San Juan	−0.077	−48%	0.00011
Sioux Falls	−0.021	−17%	0.32614

S20

Work system redesign and implementation of evidence-based hypertension protocol in specialty clinics using electronic health record prompts

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Background
Hypertension protocols improve hypertension control and CVD prevention in primary care but have not been tailored for implementation in specialty clinics, although specialty visits outnumbered US primary care visits in 2013. We aimed to engage clinic staff in work system redesign to tailor and implement a blood pressure (BP) protocol for specialty clinics using electronic health record (EHR) prompts.
Methods
Over six months, our multidisciplinary study team (specialty MD, nursing, systems engineering) engaged staff from three specialty clinics in focus groups, specialty-relevant education, EHR prompted workflows, and audit feedback. EHR alerts prompted routine re-measurement and EHR order set assisted with primary care follow up orders after elevated BPs. Four monthly interactive 1-on-1 audit and feedback sessions with staff used a Self Determination Theory-informed process to continuously identify and overcome barriers to improving protocol fidelity and reach. EHR data was used to monitor implementation outcomes: re-measurement of elevated BP, follow up orders, and timely follow up. We also administered a retrospective anonymous 15 item staff questionnaire.
Findings
We compared implementation outcomes for all visits with elevated BP at baseline and in the intervention study months. BP re-measurement improved from <2% of visits to 83%. Follow up orders for patients with confirmed elevated BP improved from 0% to 73%. Monthly patient-completed timely follow up improved from 29% to 71%, doubling timely follow-up in multivariable analysis (OR 2.1, CI 1.4-3). All groups benefited and black patients showed additional gains compared to white patients (OR 1.7, CI 1.1-2.5). Gains were sustained at 18 months. Additionally, the percentage of staff self-reporting high or extremely high BP care confidence (self-efficacy) rose from 20% to 90% after implementation.
Implications for D&I Research
Work system redesign with EHR-prompted workflows resulted in success tailoring and implementing a hypertension protocol for specialty clinic staff. Results suggest sound intervention reach, feasibility, and acceptability including improved BP re-measurement, follow up orders, patient-completed timely follow up, and staff self-efficacy.

Clinical (i.e., Primary, Specialty, Hospital, etc.) Care Settings

S21

Diffusion of Excellence initiative: accelerating the implementation of best practices in America's largest integrated healthcare delivery system

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Background
The Veterans Health Administration (VHA) is America's largest integrated healthcare system with over 1,700 sites of care, serving 8.76 million Veterans each year. Despite numerous accomplishments, VHA previously lacked a systematic mechanism for identifying and scaling best practices.
Methods
The model has five steps: [1] identify promising practices; [2] find the champions; [3] adapt and replicate; [4] establish consistency and standardize; and [5] sustain and improve. Three guiding principles were governance, process, and technology.
Findings
Launched in October 2015, this initiative has already resulted in over 280 adaptations of gold status practices at over 70 facilities nationwide. Key accomplishments include:

- Facilitated adaptation provided to over 15 facilities to adapt 12 practices.
- Identified select processes for national rollout
- Prioritized vulnerable populations facing mental health, economic, and chronic disease related challenges:
  o One practice that includes the use of tablets for patients to complete screening tools from the waiting room reduced data entry time by 17 minutes per patient. This process improves care for Veterans with mental health conditions, as it increased screening for suicide risk from 50% to 90% and cut in half the time to document suicide risk.
  o One practice brings Veterans together in social worker facilitated group visits to discuss advance care planning. 85% of all participants took concrete steps to develop more comprehensive care plans, especially important as patients with lower socioeconomic status are less likely to have Advance Directives.
  o One practice leverages pharmacists to support the primary care team, saving primary care providers 15 minutes per new patient appointment. This practice could save up to 2,000 hours of primary care providers' time if implemented just for patients with diabetes.

Implications for D&I Research
The VHA diffusion initiative model offers early evidence that it is an engaging solution that can scale best practices that serve vulnerable patient populations.

S22

Reducing disparities in a regional health improvement collaborative: a positive deviance approach

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Implementation Science 2017, **12**(Suppl 1):S22

Background
In northeast Ohio, our regional health improvement collaborative uses a positive deviance (PD) approach with public reporting to identify and disseminate best practices in primary care. PD identifies subgroups in a community whose strategies enable better solutions to problems than their peers, despite having similar challenges. We examine reductions in disparities in diabetes (DM) care and hypertension (HBP) control using the PD approach.

Methods
Observational study of disparities in DM care (four measures, over 7 years, by race/ethnicity) and HBP control (<140/90, over 2 years, by several social factors) among patients in diverse urban clinics. PD protocols were identified from clinic performance data, confirmed by interviews, and disseminated using practice coaching and biannual Learning Collaboratives. For DM, we modeled annualized region-wide changes in race/ethnicity gaps (highest minus lowest performing category). For HBP, we compared improvement in control across numerous disparities factors, including non-safety net vs. safety net clinics (SNC). For DM, 53 clinics reported DM achievement regularly across 2008-2014. In 2014, there were 34,185 DM patients: 46.3% non-white, 17.5% uninsured or Medicaid, and over 30% in the region's lowest tertile for household income and education. For HBP, 35 clinics reported in both 2014 and 2015. In 2015, 42% of these clinics' 122,740 patients were treated at SNCs.

Findings
For patients with DM in 2008, there was a 16.3 percentage point gap between white and Hispanic patients meeting all four care measures (achievement: 50.4% white, 47% black, and 34.1% Hispanic). In 2014, the gap was reduced to 4.4 points, an 11.9 point reduction. In a weighted regression, gap reduction was 1.72 points per year (95% CI: -2.74, -0.71; p = 0.002). For HBP, the top 9 improvers (2015 vs 2014) of 35 clinics were SNCs using PD with coaching. Together the 25 SNCs improved by 2.9 percentage points; non-SNCs improved by 0.5 point.

Implications for D&I Research
A PD approach in a primary care regional health improvement collaborative was associated with community-wide improvement and reductions in disparities in care and outcomes for important chronic conditions. Similar models for accelerating improvement should be tested in other regional improvement collaboratives that collectively serve more than 120 million Americans.

Primary Funding Source
The Robert Wood Johnson Foundation - Aligning Forces for Quality

S23

Building synergy among national health system initiatives and a regional health improvement collaborative: a case study of the Cleveland Veterans Affairs medical center

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Background
The Veterans Health Administration, the largest integrated health system in the U.S., has made substantial efforts in recent years to ensure system-wide provision of high-quality ambulatory care. These efforts include full implementation of the Patient-Centered Medical Home, increased use of non-face-to-face encounters, and tools to support population management strategies that emphasize care coordination and quality improvement. On a local level, the Cleveland VA Medical Center (Cleveland VAMC) developed and implemented a variety of best practices to ensure high quality primary care. In addition, 13 VA clinics recently joined the main clinic at Cleveland VAMC in becoming members of Better Health Partnership (BHP), a northeast Ohio regional health improvement collaborative (RHIC) that publicly reports clinic-level data twice yearly.

Methods
Leadership at the Cleveland VAMC emphasizes the use of clinical process and outcome data for internal and external benchmarking as a foundational tool for quality improvement efforts. Local population health management tools and regular performance reports at the provider and clinic level were developed as a partnership between operational, analytic, and clinical staff. By participating with BHP in public reporting and twice yearly regional Learning Collaboratives, the Cleveland VAMC learns from and collaborates with health care "competitors" to improve care for the region's residents with chronic medical conditions. Exceptional achievement (top decile performance in the region) is recognized by BHP with publicly awarded "Gold Stars".

Findings
The Cleveland VAMC has maintained a "5-Star Quality" rating on internal VA benchmarking metrics since 2010. Public reporting of all fourteen Cleveland VAMC primary care clinics through BHP began in 2016, including results for 10,146 VA patients with diabetes and 40,910 patients with hypertension. All fourteen clinics received "Gold Star Practice" awards for care and/or outcome achievement in 2015.

Implications for D&I Research
Local initiatives in a hospital system synergized with national system-wide quality improvement efforts and a regional health improvement collaborative. Public reporting and the sharing of best practices with provider systems outside the VA will benefit the community and strengthen even high performing VA facilities.

Primary Funding Source
Department of Veterans Affairs

S24

Applying lean principles to improve hepatitis C testing in VA primary care community clinics

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Implementation Science 2017, **12**(Suppl 1):S24

Background
The proliferation of Lean and team-based quality improvement (QI) has been relatively unexplored at Department of Veterans Affairs (VA) community-based outpatient clinics (CBOCs), which often serve rural areas and socioeconomically underserved neighborhoods. Hepatitis C (HCV) testing is recommended for all those born between 1945-1965. Nevertheless, 42,008 (38%) VA New

England 1945-1965 birth cohort Veterans have never been tested. We describe a primary care-based QI initiative using Lean principles, external facilitators, and local champions to increase HCV testing in CBOCs.

Methods

Four intervention and four matched control CBOCs across different healthcare systems were selected based on primary care volume (medium/large), HCV tested population (29.5-77.1%), and geographic location. The intervention consisted of: 1) collaborative on-site improvement sessions, 2) ongoing external facilitation, 3) champion-led Plan-Do-Study-Act cycles, and 4) audit and feedback. Using interrupted time series we analyzed pre- and post-intervention HCV testing rates, adjusting for clinic volume, implementation climate scores, and HCV prevalence.

Findings

Veterans with a first HCV test increased (p = 0.016) at intervention CBOCs by an average of 20.4% (4.4-36.2%) and without significant change (p = 0.204) at matched controls [5.3% (-0.5-15.1%)] over a three-month period. In the month prior to intervention, Lean intervention CBOCs were 8% of regional HCV testing and by intervention month three were 29%. Clinic staff participated in training sessions (N = 68) and responded (N = 45) to an organizational context instrument. At baseline, 43% of staff were satisfied with current HCV testing processes and 53% were familiar with QI. While 84% agreed that they have a sense of personal responsibility for improving patient care and outcomes only 31% agreed that they would receive appreciation for HCV testing Veterans. Higher improvement sites had more rapid uptake and integration of changes into workflow. The lowest baseline HCV testing performance site had the lowest implementation climate, and highest testing improvement with a 20-fold increase (1.9 to 38.1%) of newly tested.

Implications for D&I Research

This Lean and team-based multi-modal QI intervention activated HCV testing improvement in CBOCs. Future study will use Qualitative Comparative Analysis to identify the necessary context, organizational and interventional conditions conducive to adoption and sustainability before being scaled across CBOCs.

Primary Funding Source

Department of Veterans Affairs - QUERI

S25

What does the facilitation implementation strategy look like in the real world?

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Implementation Science 2017, **12**(Suppl 1):S25

Background

Evidence-based collaborative care programs can improve physical and mental health outcomes. However, barriers to implementation of effective programs in community-based practices are significant. External facilitators (EF), or change agents outside of the study site, have been highlighted as a key factor in successful implementation. Yet, few studies have studied the content and impact of EF as it relates to implementation.

Methods

49 community-based practices participating in a health systems trial of implementation strategies to improve the uptake of a psychosocial intervention, Life Goals, were randomized to receive either External Facilitation (EF) or EF augmented with Internal Facilitation (EF + IF) for 6-12 months. The EF logged their tasks, categorizing mode, personnel interaction, duration, and primary focus of each task. We examine the content of EF tasks, describing predominant themes, and testing differences in content and quantity of tasks across sites receiving EF vs. EF + IF.

Findings

1,037 tasks were logged by the EF between January 2015 and July 2016. The EF logged a median of 28 minutes (IQR: 24-41) per site per month. 64% of interactions were done via email and 34% via phone, with email requiring a mean 6 minutes of EF time and phone calls 23 minutes. Interactions at EF sites (N = 564) involved site administrators (31%), supervisors (29%) and providers (20%); at EF + IF sites (N = 473), 70% of interactions were with the assigned IF. Mean interaction times did not differ across EF and EF + IF (t = 0.47, p = 0.64), however content did. EF sites focused more on education (EF: 55%; EF + IF: 45%), while EF + IF sites focused more on strategic tools (EF: 10%; EF + IF: 18%), including leveraging resources, marketing, and developing implementation plans, and reinforcement (EF: 26%; EF + IF: 36%).

Implications for D&I Research

Our uniquely-detailed purview of EF tasks provides insight into the mechanisms of EF as it impacts implementation efforts. Our results show that the focus of EF activity becomes more strategic when augmented with IF. Future work will link EF data to data collected by IFs to further describe differences in mechanisms of EF vs. EF + IF implementation strategies, and also explore site-level differences in EF interactions as they relate to implementation success and mediators of implementation success.

Primary Funding Source

National Institutes of Health - R01MH099898

S26

Lesson learned from NCI SPRINT entrepreneurs: commercializing a tobacco treatment for cancer center implementation

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Implementation Science 2017, **12**(Suppl 1):S26

Background

As clinical researchers investigating the integration of evidence-based, tobacco treatment into cancer care, we participated in an NCI Dissemination and Implementation Research Program initiative beginning in July 2016, Speeding Research-tested INTerventions (SPRINT). SPRINT's trains researchers in the business of real-world transformation of behavioral interventions into commercially viable and scalable products or services. We have worked towards creating and refining a business plan for our promising intervention. Our goal is to market tobacco treatment, as a 3-part product, to a variety of buyers (i.e., hospitals, health care systems, employers).

Methods

The SPRINT course consists of didactic learning, interactive presentations, expert consultation, collaborative learning and completion of targeted interviews focusing on our potential customers' preferences and needs. We were tasked to complete 30 interviews with potential "end users" (e.g., patients, clinicians, administrators, insurers, and businesses). Our initial value propositions, are as follows: 1) Providers and patients need a detailed tobacco treatment manual/guide; 2) Cancer patients have unique tobacco treatment needs; 3) Oncology nurses will be eager to deliver tobacco treatment; and 4) There are specialized training needs for tobacco treatment in cancer patients.

Findings

To date we have completed 20 interviews, all of which have played vital information supporting or disproving our value propositions. We

developed a Value Proposition Canvas to assess interest in our products (e.g., manuals, certification and training), perceptions of customer "Pains" (reducing no shows) this product could address, and customer "Gains" (engaging patients in tobacco treatment) that our product would achieve. We also identified three types of customer archetypes (oncology providers, tobacco treatment specialists, and cancer patients) representing our potential end users. Currently, we are exploring channel distributions (e.g., publishing and training companies) as well as payment and reimbursement venues. Primary interview themes will be presented.

Implications for D&I Research

Lessons learned from our training experience- both its process and results- will guide our ability to transform our research-tested intervention into a marketable product. Complementary to traditional behavior change theory and strategies, business concepts and methods, introduced through SPRINT and explored through a series of interviews, can shape the translation of behavioral intervention into real world settings.

Primary Funding Source

National Institutes of Health - NCI SPRINT initiative

S27

Dissemination and implementation in health systems: more GPS than self-driving car

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Background

Effective dissemination of research findings into practice is a critical element of the research lifecycle, but one that is often constrained by lack of resources, time, and/or skill. Moreover, spreading evidence into organizations requires substantial effort, as implementation is rarely a turn-key process. Overcoming these barriers and enhancing availability and usability of evidence is a critically important step in realizing the promise of true learning healthcare systems. Using the example of an embedded research center in a care delivery system, we explored the barriers and potential facilitators to more effective dissemination and implementation (D&I).

Methods

Through key informant interviews and an environmental scan, we explored the barriers and facilitators to researchers' willingness and ability to engage in D&I activities beyond conference presentations and journal publications. We assessed the potential business model(s) for effective D&I, and also discussed with interviewees whether there is a moral imperative to engage in D&I. The environmental scan identified case studies of exemplar entities that sustained their research through strategic D&I activities.

Findings

Through 28 semi-structured interviews, we identified a range of challenges and opportunities related to researchers' dissemination and implementation capabilities. Notably, some researchers felt compelled to intensify their D&I skills and activities, whereas others felt that good science and publications were sufficient end products. Challenges impeding D&I included lack of funding, lack of protected time for building connections and nurturing relationships with health system leaders, and incomplete understanding of the market potential for research products. Use of digital and social media was identified as an opportunity, but many researchers are not proficient in these newer approaches. Fifteen exemplar organizations were included in the environmental scan, and illustrate a range of business models and approaches to supporting translation of research into practice.

Implications for D&I Research

Dissemination and implementation of research results often amounts to an "unfunded mandate" for many researchers. Moreover, many would benefit from training on how to effectively communicate their results to healthcare decision-makers, policymakers, and other stakeholders. The entire research community would benefit from addressing the structural, interpersonal, financial, and technical aspects that invigorate and incentivize more effective D&I.

Primary Funding Source

GHRI Director's Development Fund

S28

Implementation of an integrated care management program in community pharmacies: identifying barriers and employing implementation strategies

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Background

Preliminary evidence and expert guidance suggest integrated care management (ICM) programs in community pharmacies contribute to improved outcomes and lower cost of care. However, existing payment models prioritize drug dispensing rather than integrated care services. In this study, we identified and categorized barriers to implementing ICM services among a network of community pharmacies and documented implementation strategies employed to assist uptake.

Methods

The Community Pharmacy Enhanced Services Network (CPESN) of North Carolina focuses on implementation of a payment model to support delivery of enhanced services. At launch, 123 community pharmacies joined CPESN. We conducted interviews with pharmacists representing 73 pharmacies to identify implementation barriers within the ICM program: [1] Initiating; [2] accessing internal information; [3] accessing external information; [4] scheduling patients; [5] performing patient interviews; [6] developing assessment; [7] developing a care plan; [8] documenting; [9] coordinating care; and [10] performing follow-up. We also conducted 23 interviews with CPESN staff and collaborators who were employing implementation strategies to assist pharmacies. We used a semi-structured interview guide informed by Proctor et al.'s (2013) recommendations for reporting implementation strategies and Powell et al.'s (2015) implementation strategy compilation.

Findings

Most pharmacists reported barriers around "Initiating" and "Documenting". Many pharmacists lacked a planning process for incorporating new services, underestimated resources needed, and/or did not ensure timely availability of resources. The most commonly reported barriers were around adequate staffing and time. Also, documentation in the web-based platform was problematic due to unclear requirements, poor system design, time, and system connectivity/responsiveness. Regarding implementation strategies, several strategies from the Powell et al. compilation were reported, such as conducting educational outreach and audit and feedback. The strategies have been focused on utilizing staff time more efficiently, facilitating documentation in the web-based platform, and monitoring performance.

Implications for D&I Research

Our project highlights challenges with implementing new care processes within a complex program. Identifying barriers within an ICM

program facilitates targeted interventions for pharmacists' needs; however, systematic evaluation of each strategy is needed. Finally, documenting implementation strategies promotes more efficient use of implementation resources and reveals barriers not currently being addressed.

Primary Funding Source
Centers for Medicare and Medicaid Services - CMS Demonstration Grant

S29

Implementation strategies for patient care services in community pharmacy: a systematic review

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Background
Studies have identified the positive impact of patient care services in community pharmacy; yet, widespread implementation remains limited. Identifying the most effective implementation strategies is critical to sustaining evidence-based patient care in this setting. This scoping systematic review aims to describe strategies used to [1] implement and [2] evaluate the implementation of patient care services in community pharmacies.

Methods
PubMed/ MEDLINE, EMBASE, and International Pharmaceutical Abstracts were searched until March 9, April 20, and April 5, 2016, respectively. *Innovations in Pharmacy, Implementation Science,* and reference lists of excluded articles were hand searched. The primary investigator reviewed each article's abstract to assess eligibility for full-text review. At least 2 investigators conducted full-text reviews. Discrepancies were resolved by a third investigator. To be included, articles had to [1] be written in English and published in 1985 or later; [2] describe a peer-reviewed empirical study or practice experience implementing a patient care service in a community pharmacy; and, [3] describe the strategies used to implement and/ or evaluate the implementation of the service. Data are being extracted from each article by 2 investigators using a standardized form, including pharmacy type(s), patient care service type(s), workflow and financial models, pharmacy staff roles, implementation strategies, implementation outcomes, evaluation method, and conceptual model/ framework. Implementation strategies are being categorized using terminology from the Expert Recommendations for Implementation Change (ERIC) study by Waltz and colleagues.

Findings
Of the 3,046 articles retrieved, 237 were included. The majority describe implementation of medication management, disease state management education, and risk reduction services in the US, Europe, and Australia. Preliminary results indicate an emphasis on adapting and tailoring to local context and training and educating stakeholders as implementation strategies and qualitative and process evaluation. Final results will be completed in October 2016.

Implications for D&I Research
This review is one of the first efforts to comprehensively identify implementation strategies for patient care services in community pharmacies and is a critical step in identifying the most effective implementation approaches. The results of this work will enable implementation scientists and clinicians to refine and test strategies that result in sustainable and scalable patient care service implementation.

S30

Testing implementation strategies for anticoagulation improvement in clinical pharmacy clinics: a qualitative study

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Background
Implementation science (IS) has recently concentrated efforts on assessing what implementation strategies are effective and in what circumstances. In complex interventions, a "bundle" of implementation strategies are often applied. In a four-year pharmacist-focused Anticoagulation Care Improvement Initiative (ACCII), we implemented a strategy bundle (audit and feedback, blended internal-external facilitation, small tests of cyclical change, and ongoing consultation) to improve anticoagulation across 8 Veterans Health Administration (VHA) medical centers in a single region. This study describes the significance and impact of these combined strategies on successful implementation.

Methods
We conducted an average of 50 semi-structured interviews with all frontline ACC staff annually for 4 years with a special focus on implementation strategies. Interviews were conducted with the pharmacy leadership twice (N = 22) and the External Facilitation Team (delivered intervention) once (N = 5). Analysis drew deductively on Promoting Action on Research Implementation in Health Services (PARIHS) as well as an emergent thematic analysis. Analysis focused on identifying factors related to the impact and effectiveness of strategies employed.

Findings
Sites with greater improvement: 1) Integrated and used all IS strategies. 2) Had support from managers so full implementation of strategies could occur. 3) Spread strategies throughout entire clinical team (i.e., made quality improvement everybody's job) as opposed to having a designated person. Sites with less successful implementation of the ACC II had less leadership support and lower engagement but most important they divided the bundle of strategies (i.e., pursued some but not all of them).

Implications for D&I Research
While the value of bundling IS strategies has been recognized, this study suggests how and why bundling can be effective in successful implementation as well as where it might not. Our

findings can help guide researchers who seek to choose and then incorporate a bundle of implementation strategies. This study contributes to a growing literature regarding if and how bundles of implementation strategies impact successful implementation.

Primary Funding Source

S31

An implementation research model for pharmacy: application of the Consolidated Framework for Implementation Research (CFIR) to community pharmacy

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Background
Pharmacists are providing direct patient care (e.g., medication therapy management) and delivering important prevention and screening (e.g., immunizations, rapid HIV testing) interventions. Community pharmacies are an increasingly important health care setting with opportunities for improving quality and safety, yet little is understood about determinants of implementation. Given community pharmacy's unique features for consideration in implementation research, we developed a model for implementation research for this setting based on the Consolidated Framework for Implementation Research (CFIR).

Methods
We conducted a critical review examining literature on services and interventions provided in community pharmacies, including MTM services, rapid HIV testing, and immunizations provided in community pharmacies. We scanned select titles and abstracts to identify implementation studies or studies that sought to understand barriers and facilitators to implementing these types of services in community pharmacies. We found few systematic implementation studies in these settings. To synthesize findings and develop a model, we chose the CFIR because of its ability to situate potential implementation determinants across a wide range of constructs.

Findings
While *Intervention Characteristics* depend on individual interventions, of note here are "relative advantage" and "complexity". The former because implementation of services can pose a cost-benefit challenge where dispensing is the primary role and the latter because of the challenge of integrating services into the dispensing workflow. In terms of *Outer Setting*, pharmacies are subject to external policy and incentives (e.g., CMS star ratings, payor incentives) but to a lesser extent than other health settings. For *Inner Setting*, important structural characteristics include pharmacy type (e.g., chain, independent, safety net), extent of "patient-centeredness", and relationships with schools of pharmacy– which facilitate social networks, communications, and "in-kind" staffing (e.g., students, residents). Key *Characteristics of Individuals* include training, preparedness, and self-efficacy of the pharmacist for providing new services (e.g., MTM). Finally, *Process* constructs of note from pharmacy implementation studies include the importance of champions/active local change agents.

Implications for D&I Research
As pharmacists' roles in health care expand, models to inform implementation research in community pharmacy (and other) settings are crucially needed. Additionally, further application of the CFIR to other healthcare settings expands the field's understanding of the utility of the framework.

S32

Adaptation of a motivational interviewing intervention in community pharmacies: application of the Wiltsey Stirman framework to characterize modifications in a 4-site implementation demonstration study

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Background
As community pharmacies expand their role in healthcare through the implementation of cognitive services into their dispensing workflows, identifying the different modifications made to these services for implementation and the impact of these modifications are important to determining their success or failure. Previous research by Wiltsey Stirman and colleagues (2013) identified 4 types of contextual modifications, 12 types of content modifications, and 7 levels at which modifications occur, all of which have the potential to impact the desired benefits of the intervention. This study seeks to apply their framework in the community pharmacy setting to determine the modifications that occur during implementation of cognitive services.

Methods
In a 4-site demonstration project, pharmacists were trained to provide a brief Motivational Interviewing (MI) intervention to at least 50 patients who were non-adherent to antihypertensive medications. Training included a three-hour online course in MI and in-pharmacy training on identifying eligible patients and documenting the intervention. Observations and semi-structured interviews took place in 4 community pharmacies that implemented the MI intervention. Interviews covered modifications to the process of identifying eligible patients, MI interventions, and documenting the intervention. Data was coded using Wiltsey Stirman and colleagues' framework.

Findings
Contextual modifications were made to the format of the intervention (e.g., telephone instead of in-pharmacy). All 4 pharmacies reported conducting at least some of their interventions via telephone. The most common content modification was 'Loosening the Structure' (e.g., cancelling use of computer alerts) followed by 'Drifting or Departing' (e.g., stopped MI with defensive patients). Although less frequent, 'Adding Elements' (e.g., reminder cards) and 'Repeating Elements' (e.g., identification of patients) were also mentioned. Modifications to the MI intervention typically occurred at the provider/facilitator level. Interestingly, modifications seemed to be made to fit the pharmacists' needs, not the needs of their patients.

Implications for D&I Research
This study demonstrates the utility of Wiltsey Stirman and colleagues' framework in the pharmacy setting. In contrast to previous research, individual level content modifications were uncommon. Data from this study will guide future research within a larger sample of pharmacies in an effort to determine the modifications that are detrimental and beneficial to patient outcomes and sustainability of services.

S33

Evidence supporting clinician acceptance of a standardized handoff process: findings from a hybrid effectiveness-implementation study of operating room to intensive care unit handoffs

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Background

Hospitalized patients whose care is transferred from one healthcare team to another experience a "handoff", during which patient information and accountability are transferred. After implementing a standardized handoff protocol for patients being transferred from a surgical operating room (OR) to the intensive care unit (ICU), we sought to determine clinician acceptance of the new process.

Methods

As part of the Handoffs and Transitions in Critical Care (HATRICC) study, we conducted interviews, focus groups, collected surveys, observed patient handoffs, and surveilled the health system's event reporting system from 2014 to 2016. We defined "process adherence" as following our standardized handoff protocol's steps in a pre-specified order. Qualitative data were analyzed with a grounded theory approach while quantitative data were analyzed with descriptive and bivariate statistics.

Findings

We conducted 109 interviews, 8 focus groups (71 participants), and collected 445 responses across 3 surveys from clinicians participating in OR to ICU handoffs, including physicians, nurses, and advanced practice providers. In interviews and focus groups before the intervention, a "perfect handoff" was variably described, but this definition coalesced afterward to become consistent with the new handoff protocol. In surveys, 143/152 (94.1%) and 136/152 (89.5%) respondents found the new process to be appropriate and acceptable, respectively. 125/160 (78.1%) respondents said that they usually or always used the new process in their handoffs. 107/156 (68.7%) said that the new process made patient care "better" or "much better". We observed 61 patient transfers before and 156 transfers after standardized handoff implementation. In the postintervention period, 156/156 transfers included an observable handoff, compared to 53/61 (86.9%) before the intervention (p < 0.001). Clinicians adhered to the new handoff process in 110/156 (70.5%) handoffs. Review of the hospital's event reporting system revealed safety reports including the term "HATRICC" (study acronym) used as both a noun and a verb, indicating familiarity with the process.

Implications for D&I Research

Multiple data sources may be used to assess clinician acceptance of a process change. In this study, we demonstrated through interviews, focus groups, surveys, direct observation, and event report review that clinicians were accepting of a standardized OR to ICU handoff process.

Primary Funding Source

S34

Defying expectations for care management practice uptake: a mixed methods analysis of positive deviants in a national sample of physician organizations

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Background

Evidence-based practices are often slow to diffuse from the settings in which they were initially developed. Given the differing contexts of these later adopter organizations, new strategies may be needed to support adoption. This study seeks to identify organizational characteristics associated with non-adoption of care management practices (CMPs) for diabetes and to examine the role of culture, leadership, and organizational priorities in non-adopters and positive deviants.

Methods

In this explanatory sequential mixed methods study, we first use quantitative analyses to identify organizational characteristics associated with non-adopter status in cross-sectional data from the National Survey of Physician Organizations (NSPO3, 2012-2013; n = 1,328), a nationally representative sample of physician organizations. We then conducted semi-structured interviews with key stakeholders (i.e., primary care provider, nurse, administrator) in a purposive sample of positive deviant and non-adopter organizations. Qualitative directed content analysis builds from this work to explore the role of culture, leadership, and organizational priorities in the adoption decisions for diabetes CMPs among non-adopter and positive deviant organizations.

Findings

We identified organizational characteristics including using electronic medical records, using quality improvement systems, making investments in quality of care, having physician ownership, and being in California. These factors were then used as sampling criteria in the qualitative phase. Two non-adopter sites and two positive deviant sites were included in interviews. All sites shared similarities in culture that resembled the laggard characteristics described by Diffusion of Innovation, including aversion to change. The main differences identified in qualitative analyses between non-adopter and positive deviant sites were if they considered diabetes management to be within their scope of practice and if they described support from outside organizations with CMPs.

Implications for D&I Research

Non-adopters and positive deviants had cultural similarities in addition to being similar on quantitative measures. While non-adopters may require more outside support to adopt diabetes CMPs, they may also be non-adopters for key strategic reasons, such as focusing solely on specialty care. Lessons learned from positive deviants may be key in building strategies to combat variations in care, and more attention to these organizations is warranted.

Primary Funding Source

S35

Using implementation theory to evaluate the impact of technology on nurses' knowledge and use of best practices in acute care

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Background

Advances in health information technology (HIT) and the use of electronic clinical decision support (CDS) tools to support nurses to know and use evidence-based practices (EBP) hold great promise, but relatively untested in acute care.

Methods

This pre/post mixed methods study was conducted to evaluate the impact of embedding EBP recommendations into policy and the electronic health record (EHR) to support nurses to know and use best practices to improve patient outcomes. The Dissemination of Evidence-based Policy Framework (Dobson, Brownson, & Weiss, 2012) was adapted and guided the study, proposing that the impact of an EBP innovation is influenced by how it is deployed. The study was conducted with consenting inpatient nursing units (N = 28 units) from 3 diverse facilities where the policies and technology were deployed. Non-participant observations, audits, nurse surveys, patient surveys, process and outcome metrics were gathered to describe context, nurse knowledge, use of EBP behaviors, and achievement of nurse-sensitive patient outcomes. A multimodal implementation intervention was delivered with audit/feedback, optimization training, and support for unit-based implementation related to 6 nurse-sensitive phenomena: pain, falls, pressure ulcers, medication adherence, delirium, and depression/suicide over a 6 month period.

Findings

Baseline findings revealed a supportive culture, functioning technology, with gaps in knowledge (N = 536, Mean Score = 56.3% correct, SD 8.4) and use of EBP practices using dissemination-based deployment conditions. Baseline results were used to create the feedback-based optimization training curriculum. Training Sessions (n = 57) were attended by 89% of staff and 100% of leaders with high ratings for goal achievement and commitment to implementation. Units were observed to have limited capacity to monitor and maintain EBP behaviors during the implementation phase. Post assessment revealed some improvement in knowledge (N = 523, Mean Score = 61.8% correct, SD, 8.8, $p < 0.001$) and use of EBP behaviors with little change in patient outcomes.

Implications for D&I Research

Gaps in knowledge and use of technology-supported EBP were identified and addressed with a multimodal implementation intervention. Despite high training participation and commitment, units had limited capacity to implement and maintain best practices over time. These findings suggest that the impact of EBP-based technology will be limited when deployment is based on dissemination training alone.

Primary Funding Source

S36

Integrating emergent mhealth apps into pediatric practice: a mixed methods implementation project

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Background

The explosion of digital/mHealth tools for consumers coupled with their increased integration into health care systems has prompted the need for systematic organizational processes to evaluate and determine which tools should be provided or recommended. The iAPP (Integrating Apps into Pediatric Practice) initiative was created to develop a strategy to integrate evidence-based health apps for patients and families into pediatric care.

Methods

This 2-year project includes: an implementation framework-guided environmental scan of leading pediatric hospitals, parent surveys , provider surveys, development of a decision framework and governance process, and validation through a number of strategically selected pilot projects. This abstract focuses on the environmental scan (including surveys and interviews) results and the resulting implementation tools (decision tree, driver diagram, and process documents) to guide mHealth integration. Leading pediatric hospitals (N = 7) were recruited based on their reputation in innovation and mHealth. The appropriate contact (Director-level) completed a brief online survey prior to the interview. The interview guide, developed based on four implementation frameworks (e.g. TAM, Rodgers' Innovation) included questions on strategic leadership, culture, regulatory, economic, technical, legal and governance factors within the context of mHealth tools for patients and families.

Findings

Findings from both the survey and interviews highlighted that although these hospitals are entering the digital health/mobile health space (90% using digital health tools), only 3 had policies either in development/implementation or relied on external organizations (e.g. HIMSS) for guidance. The most frequent topics for these mHealth tools were patient education and chronic disease management and most are deployed through the app store or institutional websites. Respondents indicated that the 3 top factors to determining whether to use a 3rd-party app were cost, credibility and level of clinician support.

Implications for D&I Research

This presentation focuses on the findings of this environmental scan that have applicability to the integration of mHealth into practice as well as our resulting decision making and implementation process tools addressing the evidence of efficacy, perceived clinical utility/impact on quality, interest of clinicians and families in using a particular app, the fit of the app in workflows, age appropriateness, and sensitivity to culture, cost and the potential for adverse consequences/safety.

Primary Funding Source

S37

Promoting change in the genitourinary care of postmenopausal women through clinician education and electronic health record tools: a cluster randomized trial

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Background

Data from our health care system (2011-2012) suggested that the genitourinary syndrome of menopause (GSM), an easily treated condition that progresses in severity with age, was underdiagnosed in our patient population (observed 4%, expected 20-45%). To promote greater detection and treatment of GSM, we created a clinician-focused intervention which included a suite of evidence-based electronic health record (EHR) tools and clinician education. We

conducted a cluster-randomized trial to test the efficacy of the intervention.

Methods

We randomized Primary Care (PC) and Gynecology (GYN) clinics to intervention (8 PC, 3 GYN) or control (8 PC, 3 GYN). From September to November 2014, we provided training about GSM diagnosis, treatment, and the EHR tools through face-to-face presentations at each intervention clinic and through an on-line video. Control clinicians received no training or notification about the tools. Our primary outcome was the proportion of well visits with GSM-related diagnoses and prescriptions from 11/15/14 through 11/15/15. We also assessed use of the electronic tools. There was PC and GYN departmental support for the intervention but no prioritization within the health care system to drive new performance measures or incentives for change related to GSM care.

Findings

There were 199 intervention and 208 control clinicians who performed 15,062 well visits for women aged 55 and older. Among intervention clinicians, 107 (53.7%) completed educational training. Intervention clinicians were more likely (p < .001) to use the Smart Set (2.8 vs 0.1 uses) and Smart Text (1.1 vs 0.1 uses). However, the proportion of visits that included a GSM-related diagnosis (9.2% vs 8.2%) or prescription (6.5% vs 5.8%) did not differ between study arms. There was a significant interaction for PC and Gyn, suggesting an increase in GSM diagnosis in Gyn but not PC intervention clinics (OR = 1.57, p = .01).

Implications for D&I Research

EHR tools are more likely to be used if clinician education is included as part of their implementation. However, without simultaneous departmental and organizational initiatives to promote, enforce, or sustain a clinical practice change, the overall efficacy of EHR tools and education alone for improving patient care is limited and competing patient care priorities may take precedence.

Primary Funding Source

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S38

Provider-developed clinical decision support and education to optimize and sustain timely and accurate treatment of hypoxic ischemic encephalopathy in the neonatal intensive care unit

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Background

Neonatal brain injury due to hypoxic ischemic encephalopathy (HIE), or birth asphyxia, is the leading cause of all neonatal deaths worldwide. Therapeutic hypothermia (TH) is standard of care for moderate to severe HIE. However, significant practice variation and the potential for inappropriate treatment persist. Timely identification for appropriate treatment is critical to survival, outcome, and cost. Although knowledge on the use of TH is substantial, it is not always aptly applied. Using the Promoting Action on Research Implementation in Health Services (PARiHS) framework and human factors principles, our interdisciplinary team of providers, nurse/physician leaders, informatics analysts/specialists and family partners developed and deployed provider education and an evidence-based electronic clinical decision support (CDS) tool in the electronic health record (EHR) to reduce practice variation and improve teamwork, consistency and appropriateness of treatment.

Methods

A pre-post study design was used and an interdisciplinary team formed to test the CDS integration into provider workflow. Prior to implementation, we conducted usability testing with a standard 'think aloud' approach for iterative evaluation and provider education using a 10-item pre-post knowledge test. Following implementation, we measured provider satisfaction with the Computer System Usability Satisfaction Questionnaire (CSUQ; score range on each item: 1 = strongly disagree to 7 = strongly agree) and fidelity with an electronically abstracted adherence score. Appropriateness of treatment was determined by the percentage of infants treated with TH across the mild, moderate and severe encephalopathy categories.

Findings

Usability testing identified and corrected many issues in the functionality of the CDS prior to implementation. Provider knowledge increased from a median total score of 44.44 at baseline to 74.33 at follow-up (p < 0.001). Overall, providers were extremely satisfied with the tool and found it to be helpful (mean item score, 6.4). Fidelity with the CDS was high (>90%) with 98% of the infants being appropriately treated with TH.

Implications for D&I Research

Implementation science informed deployment of a provider-developed CDS tool integrated into clinical workflow and provider education decreased practice variation and improved interdisciplinary teamwork, consistency and appropriateness of treatment for hypoxic-ischemic encephalopathy. These findings have been sustained for 15 months. Further investigation of broader application is warranted.

Global Dissemination & Implementation

S39

Building capacity for implementation science in global health: four years of experience with the University of Washington's PhD in implementation science

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Background

Limited capacity for implementation science (IS) in low and middle-income countries (LMICs) contributes to poor coverage of evidence-based intervention. Though a range of IS training options are needed to meet the diverse needs for IS practitioners, there is an acute shortage of doctoral-level trainees with adequate skills to lead IS from in-country universities, Ministries of Health, and partner institutions. To respond to the need for advanced IS skills in LMICs, the University of Washington Department of Global Health developed a doctoral-level training program to prepare future IS leaders, emphasizing students based at leading institutions conducting research, developing policy and strategy, and driving implementation in LMICs.

Methods

Development of the PhD program in Global Health Metrics and Implementation Science began in 2011, enrolling the first cohort in the 2012-2013 academic year. The program has two areas of emphasis – Metrics and Implementation Science. This presentation shares the experience with student recruitment and retention, curriculum and skills-based training, and dissertation research within the Implementation Science area of emphasis.

Findings

The PhD program has continues to demonstrate high demand for IS training at the doctoral level. There are consistently over 60 applicants per year from over 30 countries for the implementation science area of emphasis, with 5-10% of applicants admitted to the program. A total of 13 IS students enrolled in the first four cohorts, 11 (85%) from LMICs (including Kenya [4], China [3], Rwanda [1], Uganda [1], Sudan [1],

Mozambique [(1)]). Support for trainees has been primarily from research and teaching assistantships, with dedicated training funds for students from Kenya and China. Students include junior faculty in LMIC universities or research institutions (5;38%), non-governmental organizations (3;23%), the Ministry of Health (1;8%), and a number who were not based at a specific institution (4;31%). To date, one student has graduated. This presentation will also describe the curriculum pathway and dissertation topics for implementation science students.

Implications for D&I Research

Doctoral-level IS training is needed to develop a global workforce with skills to design, evaluate, and disseminate effective strategies to implement and scale-up evidence-based interventions. Our novel PhD program provides a model for others designing novel advanced IS training programs.

S40

Adapting an adherence support workers intervention: engaging traditional healers as adherence partners for persons taking antiretroviral therapy in rural Mozambique

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Background

Systematic adaptation of evidence-informed interventions to increase retention in care and improve adherence to antiretroviral therapy (ART) will help disseminate innovation in rural sub-Saharan Africa. We selected and adapted an adherence support worker intervention employed in Malawi for use in rural Mozambique. Given the levels of trust and dependence previously expressed by patients for traditional medicine, we adapted the program to engage traditional healers within the allopathic health system.

Methods

Adaption followed a theoretically-driven approach to intervention adaption, the Assessment-Decision-Administration-Production-Topical Experts-Integration-Training-Testing model (ADAPT-ITT). Three rounds of performance-feedback based on theater presentations of the adapted intervention for stakeholders and idea generation were completed with 12 groups to develop the final model from March - July 2016. We offered healer support to 153 newly diagnosed HIV-infected patients.

Findings

Traditional healers, clinicians, and interested community members suggested novel strategies to tailor the Adherence Support Worker intervention, revealing a local culture of HIV-denialism, aversion to the health system and dislike of health care providers, as well as a preference for traditional treatments. Proposed changes to the intervention included modifications to the training language and topics, expanded community-based activities to support acceptability of an HIV diagnosis and to facilitate partner disclosure, and accompaniment to the health facility by healers to encourage delivery of respectful clinical care. Patients, healers, and clinicians deemed the intervention socially acceptable during focus groups. We subsequently recruited 153 newly diagnosed HIV-infected patients into the program; 146 (95%) accepted.

Implications for D&I Research

Systematic translation of interventions, even between regions with similar social and economic environments, is an important first step to successful program implementation. Using theater-based performances to demonstrate delivery of the intervention generated discussion about social norms, community concerns, and the merits of an acceptable strategy to improve retention and adherence to ART.

Primary Funding Source

National Institutes of Health - NIMH K01 award

S41

Evaluating partners in health's mental health integration program in Burera district, Rwanda

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Implementation Science 2017, **12**(Suppl 1):S41

Background

Integrating mental health care into primary care could reduce the high global burden of mental disorders. In 2012, Partners In Health and the Rwandan Ministry of Health adapted an evidence-based program of supported supervision based on task shifting for HIV/AIDS care (Monitoring and Enhanced Supervision at Health Centers, MESH), to include care of severe mental disorders within primary care settings, specifically at rural satellite health centers. The aim of this study was to evaluate implementation processes and outcomes for patients seeking care at health centers participating in the MESH mental health program in one rural district of Rwanda.

Methods

All qualifying adults diagnosed with a neuropsychiatric disorder at four selected health centers were enrolled in the study over a nine-month period (n = 146). Assessments of clinical and functional status were conducted at baseline, two, and six month follow-up, using a single group cohort design. An evaluation of implementation efficacy was performed using service utilization data to assess mental health service uptake at eleven participating district health centers over a six month period, and using MESH mental health supervision checklists to determine whether primary care nurses adequately assessed and treated patients receiving care at select health centers.

Findings

Over six months, a total of 2293 mental health visits occurred at district health centers participating in the MESH MH program. The proportion of initial mental health evaluation questions performed correctly by primary care nurses at select health centers improved from 0.35 to 0.8. There were significant improvements in patient scores on the General Health Questionnaire (25.0 [95% CI: 23.6–26.3] to 11.8 [95% CI: 10.8-12.9], p < 0.0001) and the WHO-DAS Brief (25.5 [95%CI: 23.6-27.3] to 8.0 [95% CI: 6.7-9.4], p < 0.0001).

Implications for D&I Research

In this study, we demonstrate that primary care nurses in resource-limited settings can provide effective mental health care to patients living with severe mental disorders using an evidence based supported supervision program. We also show that effective implementation of the MESH Mental Health program results in significant clinical and functional improvement for patients.

S42

A multi-modal intervention to improve care of the severely ill in western Uganda: a prospective implementation study

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Background

In low-income countries with a high burden of HIV-infection, the prevalence of severe illnesses such as hemodynamic shock and severe respiratory distress is high. In such settings, optimal management of severe illness remains challenged by infrequent vital sign monitoring and lack of standardized treatment practices. We sought to determine the impact of adding a structured implementation-support intervention to a standardized clinical training program on the identification and management of severely ill patients in western Uganda.

Methods

We conducted a prospective cohort study of clinician practices before and after introduction of a complex, multi-modal education and training intervention using a quasi-randomized, stepped-wedge, implementation design at 4 inpatient health facilities in Kabarole District, western Uganda. Training interventions were based on World Health Organization guidelines for management of severe illness in resource-limited settings.

Findings

From August 2014-May 2015, 6,028 patients were enrolled; 1,698 in the pre-intervention cohort and 4,330 in the intervention cohort. In-hospital mortality was significantly higher among HIV-infected vs. HIV-negative patients (14.6% vs. 3.1%; $p < 0.001$). Among all patients, rates of shock and severe respiratory distress were high, identified on 15.7% and 4.7% of all patient-days, respectively. Compared to the pre-intervention cohort, patients in the intervention cohort were more likely to have ≥ 3 vital signs collected (42.3% vs.4.3%; $p < 0.001$). For patients diagnosed with shock and severe respiratory distress, those in the intervention cohort were more likely to receive intravenous fluid resuscitation (53.6% vs. 36.6%; $p < 0.001$) and supplemental oxygen (61.1% vs. 16.4%; $p < 0.001$) within 24 hours, respectively.

Implications for D&I Research

Standardized clinical training programs plus post-training implementatuin support can improve identification and management of severe illness in resource-limited settings. Further prospective assessment of such interventions using validated implementation frameworks is needed.

Primary Funding Source

Other (please specify below) - An anonymous private foundation based in the Netherlands supporting work to improve care of patients with HIV/AIDS

S43

Context matters: adapting the Model for Understanding Success in Quality Improvement (MUSIQ) for low and middle income countries

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Background

The importance of incorporating local context in designing quality improvement (QI) initiatives has received increasing attention in implementation and improvement fields. The environment where change occurs has been highlighted as an explanatory factor for why some interventions work in some settings, but not in others. This observation led to the development and refinement of the Model for Understanding Success in Quality (MUSIQv2.0) to define what context is and how it interacts with implementation and improvement efforts. However, MUSIQ was developed and refined in high resource settings and the applicability of the results to low and middle income countries (LMICs) is unknown.

Methods

To explore the application of MUSIQ in LMICs, a dialogue collaborative process was utilised to draw on the authors' individual experiences and understanding of context and to generate, through iterative development, a group understanding of context applied to improvement initiatives in LMICs. Authors of MUSIQv2.0, JR and HK have experience of studying context in high income countries and RR, SS and GP have experience of improvement in both settings. The process consisted of iterative discussions and refinement on how the MUSIQ findings applied to low resource settings.

Findings

Initial findings demonstrate that the three types of context, identified through MUSIQv2.0 for high income settings, were found to be relevant to LMIC: the care delivery where a QI intervention is introduced; the QI team conducting a QI project; and the wider context supporting general QI. The collaborative dialog revealed that while these categories are applicable for LMICs, their manifestation differed. For example, the QI team, often consisting of 6-8 personnel in HICs may have no more than one or two people in LMICs. This dialog resulted in recommendations for a simplified version of MUSIQ 2.0 applicable to LMICs which will be completed by November 2016.

Implications for D&I Research

This work articulates how interpretation of contextual factors affecting implementation can vary by setting, especially between HICs and LMICs. Insights from such comparisons can support design and modification of improvement initiatives and their evaluation as they are spread across a variety of countries.

S44

Integrating evidence-based pediatric behavioral health services into primary and community settings: pragmatic strategies and lessons learned from literature review and global implementation projects

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Background

Promoting pediatric health in low-resource and low-and-middle-income-country (LMIC) settings face numerous challenges in global health research. Children growing up in these settings tend to live in environments characterized by extreme poverty and violence. Toxic stressors combine to yield suboptimal child behavioral health. Although numerous evidence-based interventions (EBIs) are relevant for efforts to promote child behavioral health in low-resource settings, research on disseminating EBIs to these settings is extremely limited. Major challenges include: 1) lack of systematic review on pediatric behavioral health services from dissemination and implementation (D&I) perspectives; and 2) lack of general guidance for pediatric researchers on strategies to initiate D&I research. This paper addresses these gaps by focusing on two implementation objectives: 1) synthesizing pediatric D&I and behavioral health literature by identifying gaps and solutions (in multilevel contexts) that have been studied in primary and community service settings; and 2) generating a list of pragmatic guidance for pediatric researchers based on lessons learned from our global implementation projects (e.g., US, Uganda, Nepal).

Methods

The review of the study is guided by the Consolidated Framework for Implementation Research. A systematic review of US and global health pediatric health literature over the past 10 years has been initiated. Pragmatic strategies and research lessons have been generated based on co-authors' D&I project experiences in diverse community settings.

Findings

Preliminary results from the ongoing literature review identified several common barriers at the consumer, service provider, implementer, and system/policy levels (e.g., low health literacy, poor provider competency). Also, several D&I strategies have been found to be effective in addressing these implementation gaps (e.g., patient education models, policy stakeholder capacity building approaches). Guidance on conducting D&I research has been generated from lessons learned in multiple projects, such as applying effectiveness-implementation hybrid design in intervention study and characterizing inner and outer pediatric service contexts.

Implications for D&I Research

This study addresses important pediatric D&I research gaps by synthesizing literature. Considering the complexity of practice health research, this study also generates useful D&I guidance from multiple implementation projects to inform future pediatric behavioral health research in LMIC and US settings.

Primary Funding Source

Health Policy Dissemination and Implementation

S45

Distortion of implementation techniques in health care: the case of "facilitation"

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Background

When applied to solving real-world problems of health care, service improvement approaches are likely to evolve over time in response to the context of their implementation. The temporal dynamics of this evolution and its underlying processes, however, remain underresearched. To address this gap, we explore the evolution of *facilitation*, an implementation approach that can be broadly defined as enabling the processes of learning in group contexts and is often deployed to mobilize research knowledge into clinical practice.

Methods

The prospective longitudinal case study was conducted in a five-year UK-based collaborative research programme involving a university, a tertiary-care hospital and a number of local general practices. The programme aimed to increase the identification of chronic kidney disease (CKD) and improve the management of blood pressure in CKD patients by facilitating the mobilization of existing health research in day-to-day clinical practice. A purposive sampling strategy was used, with 40 research participants drawn both from the programme 'core' team and participating general practices. 45 semi-structured interviews (30-95 minutes in duration) served as the main method of data collection and were conducted (face-to-face or by phone) in three rounds (2010-2011, 2012-2013 and 2013-2014) to enable longitudinal analysis.

Findings

We argue that an uncritical and uncontrolled adaptation of implementation techniques may lead to their gradual *distortion,* undermining their promise to positively affect organizational learning processes and masking the unsustainable nature of the resulting improvement outcomes captured by conventional performance measurement. We describe the following three parallel and overlapping micro-processes underpinning the gradual distortion of facilitation over time: [1] prioritization of (measurable) outcomes over the (interactive) process; [2] reduction of (multiprofessional) team engagement and [3] erosion of the facilitator role.

Implications for D&I Research

Our findings emphasize the lack of attention to the sustainability of change once the short-term outcomes of facilitated implementation projects have been attained, measured and reported. An exploration of new ways of maintaining context-sensitive adaptation of implementation techniques without losing their core elements could provide a useful direction for future empirical inquiry.

S46

Measuring the cost of patient-centered medical home implementation

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Background

The 2010 Patient Protection and Affordable Care Act (ACA) and a number of state-based initiatives have significantly increased the incentives for primary care practices to become patient-centered medical homes (PCMHs). Currently, the cost for individual practices to become more patient-centered is not well recognized.

Methods

The objectives of this study are to develop a methodology to inventory the costly activities involved in implementing the PCMH model and apply that methodology to practices that had transformed to PCMHs. A convenience sample of eleven small and medium sized primary care practices in southeastern Pennsylvania that had previously attained NCQA PCMH recognition enrolled in our study. We assess the cost of PCMH transformation by categorizing the clinical activities required to attain PCMH recognition. We apply the economic principles of production to the primary care practice in order to develop an economic taxonomy for the costs of clinical activities.

Findings

In our taxonomy, the cost of each PCMH-related clinical activity can be classified as either 1) an NCQA activity category, 2) recognition as a PCMH, or 3) a change in practice culture. Cost offsets including financial incentives, pay for performance bonuses, and productivity improvements can be used to offset the cost of the PCMH model. We demonstrate the applicability of this method by applying it to medical and and nurse-led PCMH practices.

Implications for D&I Research

Small and medium sized practices may experience particular difficulty in separating PCMH and non-PCMH activities. Tools for planning the transition to PCMH could facilitate adoption of the model in a cost-effective manner.

Primary Funding Source

S47

Successful strategies for implementing patient centered care in VA medical centers

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Background

The Veterans Health Administration (VHA) Office of Patient-Centered Care and Cultural Transformation (OPCC&CT) spearheads VHA's effort to transform facility culture to embody patient-centered care (PCC). As part of this effort, OPCC&CT sought to identify optimal strategies used by facilities to successfully implement PCC. Drawing on prior work, this study examined the impact of key areas on PCC implementation at VA medical centers including the role of leadership, Veteran engagement, staff enculturation efforts, strategies to foster PCC innovation; staff roles and priorities; and organizational structures.

Methods

Semi-structured interviews were conducted with individuals leading PCC transformation at 31 geographically diverse VA medical centers, representing 18 of VA's 21 official regions. These facilities were identified by regional PCC leaders, and were categorized by the regional leader as high, medium, or low performing with respect to perceived success with PCC implementation. Participants were asked about barriers, facilitators, and contextual factors that influenced implementation of PCC initiatives. Using a content analysis, transcripts were analyzed iteratively with both a priori and emergent codes grounded in interview data. We drew on the previously identified key areas critical for patient-centered transformation as sensitizing concepts for our analysis, and compared data across high, medium, and low performing facilities.

Findings

Key differences between high, medium, and low facilities were identified in the areas of leadership, Veteran engagement, staff enculturation, strategies to foster innovation, and organizational structures to support PCC. High performing facilities described receiving concrete leadership support, formally engaged Veterans in program development and implementation, and developed PCC programing from ideas generated by multiple stakeholder groups. They also developed infrastructure to support PCC programming and sustained staff enculturation efforts. Low performing facilities trained less staff in PCC principles, and had limited staff resources to champion PCC. Staff buy-in and competing priorities were challenges for all facilities.

Implications for D&I Research

As healthcare systems implement policies to promote patient-centered care in medical centers, attention should be given to actively engage leadership, patients, and staff at all stages of PCC implementation. Creating organizational infrastructure to support PCC is critical to the success of cultural transformation efforts.

Primary Funding Source

S48

Mapping a method for rapid dissemination and implementation: the primary care extension program

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Background

Primary Care Extension Programs (PCEP) were authorized, but not funded, through the Affordable Care Act in 2010. PCEPs are envisioned as a network of primary care practices, academic institutions, and state, federal, and community-based health extension agents that would institutionalize a resource, akin to the US Agricultural Cooperative Extension System, that would facilitate quality improvement of primary health care. In 2015, AHRQ funded EvidenceNOW so that seven regional Cooperatives would help move this extension-development forward. These Cooperatives were each tasked with covering a single state or multi-state contiguous region and each engaging 250 small primary care practices to rapidly disseminate and implement evidence related to cardiovascular disease prevention.

Methods

An EvidenceNOW National Evaluation was also funded by AHRQ to conduct a mixed methods evaluation of these interventions, using a range of tested and novel data collection approaches. Cross-case analyses of the infrastructure and resources across the diverse contexts of the seven Cooperatives were conducted to identify existing extension elements and variation in their design and function for regions at various stages of network development.

Findings

EvidenceNOW Cooperatives are using a combination of practice facilitation, expert consultation, HIT support, peer learning, and data feedback with benchmarking to support widespread dissemination and implementation of cardiovascular prevention services to practices in their regions. Cooperatives mobilized existing infrastructure (e.g., trained workforces, centralized data extraction capacity, and connections to local programs), capitalizing on partnerships to advance and explore PCEP potential. We identified variation in the PCEP models and show how these are influenced by regional resources, local politics, and unique visions for how to optimize and build networks. Our findings show that states considering developing a PCEP need a finite set of elements to support rapid dissemination and implementation.

Implications for D&I Research

Regional leaders who wish to develop a PCEP need to identify and engage the resources in their region in order to develop key partnerships and invest in building critical infrastructure. The goal of building PCEPs is to optimize health and health care by facilitating dissemination and implementation of evidence-based practices into

primary care throughout the country, and support ongoing quality improvement on a national scale.

Primary Funding Source

S49

Department of Defense (DoD) practice based implementation network: an optimized framework for provision of behavioral health interventions to the Military Health System (MHS)

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Background
In 2014, the Institute of Medicine reported that two decades may pass before psychological health research findings become part of routine clinical practice. The DoD in conjunction with the Department of Veterans Affairs (VA) developed a Practice Based Implementation (PBI) Network to rapidly translate psychological health research findings into clinical practice by facilitating practice change. In 2015, 14 military treatment facility sites were engaged to pilot the implementation of outcomes monitoring of PTSD treatment, and alcohol misuse screening and by 2016 the Defense Health Agency sustained the PBI Network.

Methods
Based upon the Promoting Action on Research Implementations in Health Services and the VA Quality Enhancement Research Initiative frameworks, the initial pilot effort presented Evidence Based Practices (EBPs) to clinicians through trainings that respect clinic culture and context while providing continuous support and facilitation to pilot sites to try to increase provider knowledge and accountability, promote coordination and information sharing, and potentially reduces cost by testing implementation initiatives prior to broader dissemination throughout the enterprise. Simultaneously a website was developed to serve as repository of shared resources and lessons learned.

Findings
Strong leadership engagement was associated with increased participation and an engaged clinic staff was associated with increased site commitment to develop and implement solutions. Feedback indicated increases in usage of outcome measures and positive PTSD Check List use to monitor treatment progress as well as consistent method to track care planning and delivery. Finally, increased leadership prioritization of outcome measure use as necessary for practice changes but access and ability to provide care tended to be ongoing barriers to comprehensive utilization of EBPs.

Implications for D&I Research
The PBI Network sustainment project is poised to provide ongoing training and clinician informed survey research feedback from an active Implementation Science informed knowledge dissemination network within one of the largest U.S. healthcare systems. This presentation will relate the processes and science that have served as foundation for more rapid adoption of behavioral health practice changes within the U.S. military.

Primary Funding Source

S50

Testing un-learning and substitution strategies to de-implement antipsychotics in nursing homes

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Implementation Science 2017, **12(Suppl 1):**S50

Background
Medical overuse (i.e., treatment that provides no benefit and/or harm) represents 10%-46% of care depending on setting and practice. Use of antipsychotic medications to manage behavioral and psychological symptoms of dementia (BPSD) in nursing homes is an example of overuse. Antipsychotics in this setting are frequently used to manage dementia patients' BPSD. Despite limited evidence of efficacy and significant evidence of risks including mortality, 1 in 4 dementia patients in the Veterans Health Administration (VHA) Community Living Centers (CLCs—i.e., nursing homes) is prescribed antipsychotics. We developed a planned action model founded on the utility of two distinct, synergistic processes: 1) unlearning; and 2) substitution. Building on prior work, our objective is to operationalize and test unlearning and substitution strategies in the de-implementation of antipsychotic use in 8 VHA CLCs.

Methods
This project tests unlearning and substitution via a stepped-wedge design. Academic detailing (i.e., unlearning) promotes change in prescribing habits through awareness of the limited effectiveness and significant adverse effects of antipsychotics. The WeCareAdvisor™ is an on-line tool for use by frontline CLC staff that contains the DICE (Describe, Investigate, Create, Evaluate) Approach for assessment and management of BPSD via an ecobiopsychosocial model (i.e., substitution). The tool guides them through assessing CLC residents' symptoms and context and prompts them with individualized ways to address BPSD and underlying causes through behavioral and environmental interventions. This project includes a mixed-methods evaluation, including an interrupted time seriesanalysis of changes in prescribing and a quantitative and qualitative evaluation of the process of testing these strategies.

Findings
We will provide concrete guidance on operationalizing and measuring unlearning and substitution strategies in nursing home setting. We hope to help other researchers identify the necessary conditions to determine which strategy is more or less effective, or more or less easily deployed. We will also catalogue unintended consequences, particularly related to clinician morale, and outline potential mitigators.

Implications for D&I Research
We propose concrete ideas on operationalizing and testing unlearning and substitution strategies. Lessons about the unintended

consequences of implementing these de-implementation strategies will also add to the practical and conceptual knowledge about de-implementation

Primary Funding Source
Department of Veterans Affairs

characteristics of PDMP implementation associated with best outcomes, and maximizing the utility of PDMP policy to reduce opioid-related public health burden.

Primary Funding Source
Air Force Research Laboratory FA8650-15-C-6588

S51

A scoping review to evaluate the impact of prescription drug monitoring program implementation

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Background
Prescription drug monitoring programs (PDMPs) have been implemented in 49 out of 50 states in an effort to mitigate opioid-related misuse, abuse, and mortality, yet the literature evaluating the impact of PDMP policy implementation remains limited. We conducted a scoping review to: [1] describe available evidence regarding impact of PDMPs in the United States; and [2] propose a conceptual model to inform future PDMP implementation and evaluation efforts.

Methods
Scoping review following Arksey and O'Malley's (2005)'s methodology. Of the 121 articles identified from the initial PubMed database search of English-language studies published between 1/1/2000-5/31/16, eleven articles were identified as relevant based on the inclusion criteria defined a priori, specifically: peer-reviewed; presents original research; provides direct assessment of outcomes related to impact or effectiveness of PDMP implementation. We extracted data from each article following a structured template, then conducted thematic analysis to synthesize results.

Findings
Thematic analysis revealed studies of opioid-related outcomes associated with PDMPs typically point to a shared logic for how PDMPs are expected to function: i.e., implementation of PDMPs will increase reporting and monitoring of controlled prescriptions, leading to reduced opioid prescribing, opportunities for opioid diversion and misuse, and opioid abuse and mortality. However, extant evidence for the impact of PDMPs as an opioid risk mitigation tool remains mixed, with studies reporting evidence that both supports and contradicts their efficacy. We identified four domains of opioid-related outcomes frequently examined in original studies evaluating PDMP implementation: [1] opioid prescribing; [2] opioid diversion and supply; [3] opioid misuse; and [4] opioid-related morbidity and mortality. These domains inform a proposed evaluation framework that highlights significant gaps in empirical research across each of these domains.

Implications for D&I Research
There is currently no standard of best practices or guidelines regarding implementation or use of PDMPs for their intended purpose, and evidence for their impact remains mixed. We propose a conceptual model for evaluating the complexities of PDMP implementation with the goals of clarifying PDMP mechanisms of impact, identifying

S52

Baseline clinician interviews of two de-implementation projects: four factors that might inform de-implementation strategies

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Implementation Science 2017, **12(Suppl 1):**S52

Background
Medical overuse, or the provision of care that provides no benefit or where harms outweigh benefits, accounts for 10% to 46% of care, depending on the clinical practice and setting. In 2015, the VA funded a multisite program to develop evidence-based strategies to de-implement ineffective or harmful clinical practices. The goal of this program is to systematically study de-implementation in multiple clinical settings and for different clinical practices. As part of this effort, we assessed provider perceptions of two practices targeted for de-implementation: inappropriate follow-up of incidental lung nodules on computed tomography (CT) scans of the chest, and use of inhaled corticosteroids (ICS) for treating exacerbations among patients with mild-to-moderate chronic obstructive pulmonary disease (COPD).

Methods
We have conducted 26 baseline interviews (PCPs, Pulmonologists & Radiologists) at three VA Healthcare Systems using a semi-structured interviewer guide across two on-going quality improvement projects. Broad themes were identified based on representative interview responses and grouped under higher order headings to describe distinct aspects of participants' experiences using content analysis.

Findings
We found four emergent themes across the two clinical practices. Perceived patient resistance. Even when providers say they explain risks to patients, e.g., from further CT scans, they report some patients resist doing less. Concern over patient resistance may be a significant factor in de-implementing some practices whether or not patients actually express resistance or it is merely assumed by providers. Limited primary care provider (PCP) capacity for staying abreast of current research. Given the scope of primary care practice there may be variation and clear gaps in PCPs awareness of evidence and current recommendations. Substitutions. Some providers had identified substitutes, e.g., putting a patient with COPD on tiotropium as a substitute that facilitated discontinuing ICS. Shared provider responsibility. Participants perceived multiple providers, e.g., PCPs, pulmonologists, and radiologists, to be responsible for the decision for further follow-up of incidental lung nodules. This kind diffusion of responsibility may be challenging for de-implementation of some practices.

Implications for D&I Research
Across two very different clinical practices and settings, we identified 4 themes that could be taken into account in designing de-implementation strategies.

Primary Funding Source
Department of Veterans Affairs - QUERI

S53

How do implementation strategies impact efforts to integrate evidence-based interventions into tobacco retail policy?

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Implementation Science 2017, **12**(Suppl 1):S53

Background
The US tobacco industry spends $8.7 billion annually on marketing at the point of sale (POS), a practice that promotes tobacco use. Evidence-based interventions (EBIs) are available to counter POS tobacco marketing (e.g., limiting retailer density). Integrating EBIs into policy is challenging, however, and involves leveraging and accommodating local resources, existing policy, and stakeholders (allies and adversaries) throughout an uncertain and often long policy change process. Little is known about how best to support POS EBI policy integration. The present study builds on a theory-based evaluation model. Kingdon's multiple streams theory of policy change is applied to specify five core components of the EBI policy integration process: [1] document local problems, [2] formulate evidence-informed solutions, [3] engage strategic partners, [4] raise public awareness, and [5] persuade decision makers to enact new policy. Building on Leeman's theory of capacity-building, the model further posits that implementation strategies affect EBI policy integration through their effects on two intermediate outcomes: team-leader self-efficacy to facilitate and team performance of the five core components of the EBI policy integration process.

Methods
Implementation strategies (training, tools, and technical assistance) were delivered for one year to 30 community teams in one state. Surveys were conducted at baseline and 12 months to assess impact on team leaders' self-efficacy and teams' progress toward enacting new policies. In-depth interviews were conducted at 6 and 12 months to assess teams' performance and barriers encountered across the five core components of EBI policy integration. Analysis included descriptive and bivariate statistics and content analysis.

Findings
Following one-year's exposure to implementation strategies, team leaders' self-efficacy increased significantly, and a greater number of teams were making progress towards enacting policies in four of six domains. Teams' performance of 16 activities varied, with the greatest number of activities performed within the core component "document local problem."

Implications for D&I Research
Additional research is need to assess implementation strategies' impact beyond one year. Findings can inform delivery of implementation strategies and tests of their effectiveness at promoting EBI policy integration. The study's conceptual model and measures may also contribute to research testing implementation strategies for other EBIs that require changes to local policy.

Primary Funding Source
Centers for Disease Control and Prevention - Centers for Disease Control and Prevention (CDC) and the National Cancer Institute/NIH, through Cooperative Agreement Number U48 DP005017-SIP to the Center for Health Promotion and Disease Prevention at the University of North Carolina at Chapel Hill.

S54

Framing and disseminating research information to legislators and advocates involved in cancer control policy change

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Implementation Science 2017, **12**(Suppl 1):S54

Background
Evidence-based policy plays an important role in prevention of cancer and other chronic diseases. Dissemination strategies should be informed by the needs of actors involved in policy decision-making. This study examines the differences between state legislators and advocates in how they seek and use information and what their preferences are for how research information is framed and used.

Methods
We carried out a cross-sectional comparison of US advocates (n = 77) and state legislators (n = 265) working on issues related to cancer control.

Findings
The advocates differed significantly from the legislators on all demographic characteristics. Advocates reported seeking and using information overall more frequently than legislators, though legislators used legislative research bureaus more often (0.45 point difference, p = .004). Both legislators and advocates prioritized the presentation and timeliness of research information similarly, but reported different preferences for source of research information. Legislators emphasized information delivered to them by someone they trust (0.33 point difference, p = .004), while advocates rated objectivity (-0.26 point difference, p = .03) and relevance to constituents (-0.28 point difference, p = .004) more highly. Both groups put a similar priority on research information that supports the position they hold.

Implications for D&I Research
Our study provides leads for development of dissemination strategies to enhance evidence-based policymaking for cancer control that are tailored to state-level legislators and advocates. For example, as legislators prioritize having information delivered to them by someone they trust, dissemination strategies should include partnering with individuals and groups that have existing personal relationships with legislators and their staff. Also, as advocates put a higher priority on information that is unbiased and relevant, ensuring that the research evidence is generalizable to their constituencies and including local data and success stories in dissemination materials targeted at advocates are important. These and other strategies should be tested for effectiveness in future research. In addition, though a growing knowledge base exists on how to disseminate research to policymakers, few studies identify strategies for dissemination to advocates or examine the process of building stronger partnerships between research and advocacy groups. Future research efforts should examine how these key actors in the policymaking process can be more effectively engaged to promote evidence-based policymaking.

Primary Funding Source
National Institutes of Health - This research was funded in part by the National Cancer Institute, the National Institute of Diabetes and Digestive and Kidney Diseases, and Washington University Institute of Clinical and Translational Sciences.

S55

Using decision analysis to understand policy-makers' use of research and local evidence for evidence-informed policies

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Implementation Science 2017, **12**(Suppl 1):S55

Background

Initiatives to promote evidence use in policymaking increasingly force state-level policy-makers to make decisions about whether and how to prioritize, implement, sustain, and/or discontinue evidence-informed policies. To provide the best possible services, policymakers must consider not only the research evidence, but also the socioeconomic and politic context, absorptive capacity of relevant entities, and stakeholder-identified needs.

Methods

In medicine, decision analysis offers a range of methods to support rational decision making, informing everything from cost-effectiveness analyses to shared decision making with individual patients. Using a decision analysis model of physicians' use of diagnostic tests as a guide, we constructed a decision-tree to depict policymakers' use of research and local evidence to inform decisions regarding the implementation of EBPs. To illustrate this approach, we draw on a case example that investigates how state-level policy-makers make decisions about psychotropic medication oversight policies for children in foster care. We conducted semi-structured qualitative interviews with 72 state child welfare policymakers, with at least on respondent from each of the 50 states and DC. For analysis, we employed the five systematic and visible steps of framework analysis.

Findings

Qualitative results suggest policymakers often rely on both research and local evidence to inform decisions about policy options. Serving as an interpretative frame, the decision-tree model highlights several aspects of such decisions that motivate local evidence use, including uncertainty regarding the effectiveness of specific policies to local population, uncertainty regarding policy costs, and expected comparative effectiveness with respect to existing policies. Our model also highlights how the collection and interpretation of local evidence—especially early in the decision making process when relevant data are often scarce—may bias decisions about potential policy options.

Implications for D&I Research

Decision analysis reveals how the influence of an array of factors makes even rational decision-making dynamic, complex, and fraught with uncertainty. To understand the application of research evidence across diverse contexts, implementation science should address the actual decisions policymakers face in negotiating the complex fit between available evidence and the variety of community settings. Our model implies that not just whether but how decision-makers employ local evidence may be critical to evidence-informed decisions and deserves closer examination.

S56

A longitudinal investigation of knowledge brokering as a mechanism for integrating research evidence into health policymaking

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Implementation Science 2017, **12**(Suppl 1):S56

Background

Evidence-based decision making is critical to the formulation of effective health policy and practice, but use of research evidence in the policymaking process continues to be infrequent, inconsistent, and often misinformed despite efforts to increase the availability and accessibility of research to policymakers. This study examined the potential utility of knowledge brokering as a mechanism for increasing policymakers' use of research evidence in the context of U.S. federal policies to curb childhood obesity over the past 15 years.

Methods

A comprehensive set of Congressional and U.S. Government documents (transcripts of Congressional bills and hearings, floor debates, and Congressional reports) concerning federal policies to decrease childhood obesity from 2000-2014 (N = 1,041 documents) were retrieved and coded manually by the research team for variables measuring the scope, type, context, and timing of research evidence use. All excerpts containing explicit reference to research evidence were analyzed quantitatively and qualitatively using Dedoose. A two-mode network of suppliers and users of research evidence was created based on the actors (legislators, government officials, witnesses, etc.) referenced in each document and was used for tracking the flow of research evidence among actors at different phases of the policymaking process.

Findings

Analysis of the textual data demonstrates that conceptual use of research evidence was the most common at each phase of the policymaking process, but instrumental use (i.e., using evidence to choose among policy alternatives) was more likely when evidence was presented as authoritative and the policy proposed was relatively uncontroversial or unopposed. The social network analysis of these data show clustering of use of research evidence by policy and topic, with a distinct group of legislators serving knowledge brokering functions, including knowledge transfer, knowledge exchange, and knowledge advocacy (calling for investments in research).

Implications for D&I Research

There is a significant opportunity to increase use of evidence in health policymaking by identifying knowledge brokers regarding a particular issue and routinely supplying them with updated, high-quality, and relevant evidence.

Primary Funding Source

Models, Measures, and Methods

S57

Defining and developing a pragmatic construct for implementation measurement

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Implementation Science 2017, **12**(Suppl 1):S57

Background

Implementation measures largely remain a scientific phenomenon, rarely employed by stakeholders to make clinical program changes. Two likely reasons are: (1) stakeholders typically are not trained to use quantitative measures; (2) measures are typically not designed for use outside of the research context (e.g., often high participant burden, low clinical relevance). If measures are not made to be more pragmatic, stakeholders will remain limited in their ability to make

implementation decisions and the gap between implementation science and practice will grow. Glasgow and Riley articulated a definition for the pragmatic construct, indicating that pragmatic measures are (a) important to stakeholders, (b) of low burden for respondents and staff, (c) 'actionable,' and (d) sensitive to change. This definition was not informed by stakeholders, nor did it systematically integrate previous literature. Although there is clear face validity to their dimensions, it is possible that key dimensions were overlooked and/or that stakeholders may prioritize dimensions differently than scientists. The present study aimed to conduct: (1) a systematic literature review and (2) stakeholder interviews to reveal pragmatic measures dimensions.

Methods
PsycINFO and PubMed were the databases used to identify dimensions of the pragmatic construct. Simultaneously, an international stakeholder panel was interviewed to obtain their perspectives of pragmatic measures.

Findings
Combined results from the literature review and stakeholder interviews revealed a final list of 47 short statements (e.g., low cost, brief), which will allow for the development of a rigorous, stakeholder-driven conceptualization of the pragmatic measures construct and will aid in measure development to support implementation practice.

Implications for D&I Research
Combined results from the literature review and stakeholder interviews revealed a final list of 47 short statements (e.g., low cost, brief), which will allow for the development of a rigorous, stakeholder-driven conceptualization of the pragmatic measures construct and will aid in measure development to support implementation practice.

Primary Funding Source

S58
Stakeholders' perceptions of criteria for pragmatic measurement in implementation: a concept mapping approach
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Implementation Science 2017, **12**(Suppl 1):S58

Background
There is a need for valid and reliable measures that can aid in prospectively assessing barriers and facilitators to implementing evidence-based practices; developing, selecting, and tailoring implementation strategies; and evaluating implementation outcomes. However, practitioners are unlikely to use these measures if they are not pragmatic (i.e., relevant and feasible for use in real-world settings); thus, there is a need to develop stakeholder-informed criteria by which to assess the extent to which measures are pragmatic. A previous study generated 47 criteria for pragmatic measures (e.g., easy to interpret, low cost, uses accessible language) through a structured literature review and semi-structured interviews with

implementation stakeholders. The current study engaged stakeholders with expertise in implementation practice in order to 1) generate conceptually distinct clusters of criteria for pragmatic measures, and 2) to assess stakeholders' perceptions of each criterion's clarity and importance.

Methods
Twenty-four stakeholders with expertise in implementation practice were engaged in a concept mapping process, which involved structured sorting and rating tasks intended to organize the initial list of 47 criteria into conceptually distinct categories and to derive ratings of their clarity and importance. Data collection and analysis were completed using Concept Systems Global Max©, and involved the use of multidimensional scaling, hierarchical cluster analysis, and descriptive statistics

Findings
The 47 criteria were meaningfully grouped into four distinct categories: 1) *useful* (e.g., "able to inform decision making"), 2) *compatible* (e.g., "one that is the output of routine activities"), 3) *easy* (e.g., "brief"), and 4) *acceptable* (e.g., "offers relative advantage over existing methods"). Average ratings of clarity and importance at the category and individual criteria level will be presented.

Implications for D&I Research
This study illustrates how concept mapping can be leveraged to obtain stakeholder consensus, and advances implementation science by providing criteria that can be used to identify pragmatic measures. Next steps will include a Delphi process to develop consensus on the most important criteria, after which we will develop quantifiable pragmatic rating criteria that can be used to assess measures.

Primary Funding Source

S59
Psychometric assessment of three newly developed implementation outcome measures
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Implementation Science 2017, **12**(Suppl 1):S59

Background
Implementation outcome measures are essential for monitoring and evaluating the success of implementation efforts and comparing the effectiveness of alternative implementation strategies. Yet available measures lack conceptual clarity and have questionable reliability and validity. We systematically developed and psychometrically assessed three new measures of implementation outcomes: acceptability, appropriateness, and feasibility.

Methods
Following domain delineation and item generation, we assessed substantive and discriminant content validity by asking 36 implementation scientists and 27 mental health professionals to assign 31 items to the 3 constructs and rate their confidence in their assignments. We used the Wilcoxon one-sample signed rank test to determine

whether items represent their intended constructs more so than the other constructs. We used exploratory and confirmatory factor analysis (EFA and CFA) and Cronbach α to assess the validity of our conceptual model. To assess structural validity, reliability, and known-groups validity, we asked 321 mental health counselors to read one of six randomly assigned vignettes depicting a therapist contemplating adopting an evidence-based practice (EBP). Participants used 15 items to rate the therapist's perceptions of the acceptability, appropriateness, and feasibility of adopting the EBP. Structural validity was assessed using CFA. Reliability was assessed using Cronbach α. Known-groups validity was assessed using analysis of variance (ANOVA).

Findings
Median weighted assignments for all but five items were significantly greater than zero, indicating that participants judged the items to reflect to a significantly greater degree the constructs they were intended to measure than the other constructs. A trimmed CFA with 5 items per construct exhibited good model fit, as evidenced by CFI = 0.98 and RMSEA = 0.08 [CI, 0.04-0.11], with factor loadings between .79 and .94. The α's for the trimmed scales were between .87-.89. Structural validity and reliability data has been collected and is presently being analyzed.

Implications for D&I Research
The three newly developed measures demonstrate promising psychometric properties. They are also brief. In planned work, we will assess their predictive validity.

Primary Funding Source

S60

Strategies for assessing fidelity to evidence-based interventions: a comparison of feasibility, accuracy, and associations with clinical outcomes

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Implementation Science 2017, **12**(Suppl 1):S60

Background
Fidelity is a key implementation outcome, but measurement is challenging due to time and costs associated with observation-based fidelity assessments. Potentially scalable forms of fidelity assessment, such as self-report or interview data, may be less accurate due to a variety of response biases, and clinical notes may be subject to similar biases. Work samples such as clinical notes or "products" generated during the intervention are promising alternatives for some interventions. However, the relative feasibility and predictive validity of these approaches is unknown. This study compared self-reported, interviewer, assessed, observer-rated and work-sample rated fidelity in a sample of clinicians delivering an evidence-based psychotherapy for PTSD.

Methods
Monthly fidelity assessment in the form of self-report and adherence checklists embedded in clinical notes, ratings of clinical worksheets, interview-reported fidelity, and observer-rated fidelity were assessed in a sample of 45 clinicians and 90 clients. Correlations between these forms of fidelity assessment were examined. Response rates, clinician burden (time) and time required for ratings were compared

for the different modes of data collection were assessed and compared.

Findings
Preliminary data indicates that self-reported adherence was moderate, (m = 2.28/4; sd = .71; and observer rater adherence was high (m = .89/1; sd = .17). Observer and self-reported adherence were correlated (r = .48, p = .04). Compliance rates were highest for provision of audio recordings and self-report monthly surveys, and lower for clinical notes, perhaps because certification was contingent on provision of audio recordings and direct access to clinical records was not provided. Clinician burden for providing interviews, self-report and worksheet were perceived to be higher than audio recordings, although none were perceived to be significant burdens. Rater time was most intensive for observer ratings (60 minutes per session), followed by interview (10 minutes for relevant portions) and worksheets (5-7 minutes). Associations between fidelity scores and clinical outcomes will be examined (all data are collected).

Implications for D&I Research
Lower-burden forms of measurement strategies may be feasible and valid. Timing fidelity ratings to avoid temporal confounds with symptom change is necessary when examining associations between fidelity and outcomes. Certain types of fidelity assessment may be more feasible and appropriate for these analyses. Strategies for adequate data capture are discussed.

Primary Funding Source

S61

An investigation of the impact of accuracy and frequency of self-report on observed fidelity

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Implementation Science 2017, **12**(Suppl 1):S61

Background
Fidelity data is used to inform strategies designed to improve uptake of evidence-based practices (EBPs). Fidelity can be assessed through direct observation or using self-report. Direct observation methods are perceived as more reliable but are more expensive. Self-report methods require less resources and may contribute to continued improvements in use of EBPs. The purpose of this study was to (a) test the convergence between direct and indirect measures of fidelity to a nutrition curriculum among early educators (N = 34) and (b) examine the relationship between accuracy and frequency of self-report and changes in observed fidelity.

Methods
Observational and self-report fidelity measures were developed to assess adoption of EBPs. Monthly, for 8 months, trained observers rated a WISE lesson and recorded the use of EBPs using a 1 (Not at All) to 4 (Very Much) scale. Educators submitted self-report fidelity assessing practices, also on a 4-point scale. Observation and self-report fidelity scores were created by averaging across corresponding items. Then, an average across months was computed. Correlations were positive (indicating convergence) for two practices, role modeling (r = .43, p = .02) and use of the mascot (r = .50, p = .005). Self-report and observed ratings of hands on exposure were negatively correlated (r = -.39, p = .04). A self-report accuracy score was created for each component by subtracting the self-report school-year average from the observed school-year average (i.e., negative value = educator overestimated fidelity). Finally, we conducted linear regression

analyses predicting residualized change in fidelity across the school year with accuracy, number of submitted self-report forms, race, and years of experience as predictors.

Findings

Frequency of self-assessment of fidelity did not predict improvement in observed fidelity. However, accuracy of self-report was a significant predictor of improvement in observed fidelity for two core components, role modeling [$\beta = .89$, t(22) = 4.78, p < .001] and hands on exposure [$\beta = .66$, t(22) = 2.82, p = .02].

Implications for D&I Research

Overall, results suggest that some EBPs may be more accurately self-assessed than others. Further, accurate self-reports can contribute to improved fidelity over time.

Primary Funding Source

National Institutes of Health - NIMH R01 106506; Canadian Institute of Health Research

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S62

A pragmatic fidelity measurement strategy for integration into community practice settings

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Implementation Science 2017, **12**(Suppl 1):S62

Background

Several methods have been developed to measure fidelity to evidence-based treatments (EBTs), with an extensive research base supporting observational coding systems as the 'gold standard,' largely due to their ability to provide objective assessments of therapist behavior. Unfortunately, observational coding is labor and cost intensive, curtailing its feasibility and integration into community practice settings. Alternatively, therapist self-reports are potentially more feasible, but rarely evaluated psychometrically. While adherence is a frequently measured element of fidelity, few studies target treatment *competence,* the skill with which providers deliver elements of an EBT, likely due to significant challenges in defining and measuring this construct. This study examined therapist-reported competence to Trauma-Focused Cognitive Behavioral Therapy (TF-CBT), a components-based EBT targeting trauma-related behavioral health symptoms in youth.

Methods

Data were analyzed from a recently completed, statewide initiative that involved $n = 516$ clinical providers from mental health, child welfare, and juvenile justice service systems, participating in one of 11 learning collaboratives focused on TF-CBT. To complete training, therapists were required to complete TF-CBT with a minimum of 2 cases ($M = 4.58$; $SD = 2.34$; $N = 2,361$). Therapists reported weekly whether they had seen one of their training cases and if so, which of the 11 TF-CBT components they had delivered and their perceived skill and competence in delivering them (rated on a 5 point scale from 'Less than adequate skill' to 'Expert skill').

Findings

Rasch measurement models were performed, using the weekly therapist reports, with results indicating variability in self-reported competence across components (e.g., lowest ratings on exposure-based components; highest on psychoeducation, parenting skills and relaxation). Growth models performed for each of the 11 TF-CBT components indicated that 6 components increased significantly over time. Finally, mixed-effects regression models for pre- to post-treatment change on child-reported post-traumatic stress

(PTS) symptoms indicated that those who received services from therapists with higher self-rated competence on some of the components had greater improvements in PTS symptoms pre-to-post treatment.

Implications for D&I Research

Findings suggest therapist-reported competence may offer a valid, feasible and pragmatic fidelity measurement strategy that can be integrated and sustained in community practice settings. Limitations and future directions will be discussed.

Primary Funding Source

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S63

Criteria for selecting implementation frameworks and theories among implementation researchers and practitioners

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Implementation Science 2017, **12**(Suppl 1):S63

Background

Conceptual frameworks and theories can guide the selection and examination of implementation determinants, processes, and outcomes. However, there is a lack of guidance for selecting an appropriate framework or theory amongst the increasing number in the field. These challenges may contribute to the default use, underuse, or misuse of frameworks and theories. The objective of this study was to understand the criteria that researchers and practitioners use to select implementation frameworks and theories.

Methods

We triangulated a narrative review of the literature and expert review to identify a preliminary set of criteria for selecting appropriate frameworks and theories (e.g., analytic level, disciplinary approval, outcome of interest). We then conducted a self-administered web-based survey of implementation researchers and practitioners regarding their use of these and other criteria for selecting appropriate frameworks and theories. Potential respondents were recruited at the 2015 Annual Dissemination and Implementation Conference and via several listservs (e.g., Nordic Implementation Network; European Implementation Collaborative; Implementation Network).

Findings

143 implementation researchers and practitioners in 12 countries responded to the survey. They reported using a wide range of the criteria that we identified a priori (Table 2), and also identified an additional 49 criteria. While many of the respondents reported using criteria that reflects a pragmatic approach to selecting frameworks and theories (e.g., analytic level, outcome of interest, empirical support), many also endorsed criteria that suggest a lack of clarity about how to select frameworks and theories for their work (e.g., familiarity; habit; mentor or funder expectations).

Implications for D&I Research

Implementation researchers and practitioners use an unwieldy number of criteria for selecting frameworks and theories, and the criteria are more idiosyncratic than systematic. Implementation researchers and practitioners may benefit from a tool that guides framework and theory selection. However, the optimal content and format of such a tool is unclear. Future research should develop a stakeholder-informed, pragmatic tool to guide framework and theory selection.

Table 2 Number of criteria respondents used to select models (n = 143)

Criteria used	Frequency
<=5	30
6-10	79
> = 10	50

S64

Readiness in context: a framework and literature synthesis comparing operationalization and measurement of organizational readiness and context

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Implementation Science 2017, **12**(Suppl 1):S64

Background
Despite theoretical overlap between concepts of context and organizational readiness in practice implementation, prior work has primarily addressed these as distinct constructs with unclear boundaries. To assist implementers, we sought to clarify this conceptual muddiness by describing the overlap between domains and measures used for organizational readiness and context in healthcare.
Methods
We identified four key publications (CFIR, Damschroder 2009; Patient Safety Culture, Taylor 2011; MUSIQ, Kaplan 2012; Evidence into Practice, McCormack 2002) describing elements of context relevant to healthcare. Synthesizing from these publications, we identified five domains central to context in healthcare: innovation characteristics; internal context; external environment; individuals involved; and implementation/ improvement strategy or process. We then mapped items from these tools to the context domains identified. Following this, we mapped items from readiness assessments identified by a systematic review (Gagnon 2014) to the same five context domains, in order to (a) assess the degree of concept overlap and (b) populate a list of context and readiness items for use in future projects. All mapping was conducted via independent coding followed by discussion to consensus where discrepancies emerged.
Findings
We found that items from both context and readiness measures could be categorized effectively using context domains. Of the 26 tools from the organizational readiness systematic review, we included the five measures (308 items) that were broadly relevant to healthcare settings and were both valid and reliable. When mapped to the five context domains, 26 items assessed innovation characteristics (8.4%), 195 were internal context (63.3%), 4 were external environment (1.3%), 44 were individuals involved (14.3%), 34 were implementation/ improvement strategy or process (11.0%), and 5 were not relevant to readiness or context (1.6%).
Implications for D&I Research
Our process suggests that readiness may well be nested within context domains, with nearly two-thirds of readiness measures included in one domain: internal context. The nesting of readiness within context raises the question of whether other constructs, such as adaptive reserve, may be similarly nested. In addition, given the relative paucity of readiness items in certain context domains, a broader pool of context measures might be useful in readiness assessment beyond those currently found in readiness instruments.

Primary Funding Source

S65

Three key analytic processes that emerged while using the Consolidated Framework for Implementation Research (CFIR) to evaluate broad-scale system change

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Implementation Science 2017, **12**(Suppl 1):S65

Background
Implementation studies seek to understand factors influencing a program and their underlying relationships. A theoretically-driven approach to evaluation offers comprehensive, context-specific results with actionable recommendations for programmatic leaders. The Consolidated Framework for Implementation Research (CFIR) provides an organized, flexible structure and a common language to facilitate knowledge-building and generalizability of findings across implementation science studies. Patient-Centered Care (PCC) is personalized health care that considers a patient's circumstances and goals. While the Department of Veterans Affairs (VA) is working towards implementing PCC throughout its healthcare system, comprised of many interventions with the long-term goal of cultural transformation, little is known about the factors influencing its implementation. We discuss three key analytic processes that emerged while using CFIR to evaluate a broad-scale system change and demonstrate how use of CFIR resulted in methodologically-sound, comprehensive, rapid, and actionable results to key leadership for use in future efforts.
Methods
A qualitative study design, guided by CFIR, was used to examine PCC implementation. Semi-structured interviews were conducted with senior management, middle-management, and front-line employees (n = 107) four VA Medical Centers. An interview guide was developed using CFIR and a mixed deductive-inductive approach was used for coding. CFIR constructs provided the primary deductive coding structure and thematic coding was used to inductively capture themes.
Findings
Application of CFIR to this broad-scale evaluation demonstrated important insights including: [(1)] the need for adapted definitions for CFIR constructs (especially due to new application to broad-scale change), [(2)] the value in using a mixed deductive-inductive approach with thematic coding to capture emergent themes not encompassed by CFIR, and 3) the advantages offered by its use for expedited analysis and synthesis for rapid delivery of findings to operational partners.
Implications for D&I Research
This work is among the first to describe use of CFIR to guide the evaluation of a broad-scale transformation, as opposed to discrete interventions. This evaluation demonstrates the flexibility offered by

CFIR while offering important insights that should be considered in future evaluations using CFIR. Researchers should consider development of study-specific definitions of the constructs, methods that capture thematic ideas not covered in CFIR, and synthesis of findings to provide meaningful, actionable recommendations.

Primary Funding Source

S66

Organizational readiness for implementing a new program, policy or practice: measurement and results
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Implementation Science 2017, **12**(Suppl 1):S66

Background
Making large-scale gains at the population level requires tools, measures, and methods that can be used across diverse settings. Organizational readiness refers to the extent to which an organization is both *willing* and *able* to implement an innovation (program, policy, or practice that is new to its setting). Readiness is a dynamic concept that changes with shifts in the implementation setting. The ability to measure and monitor readiness for an innovation can yield rapid-cycle insights into implementation barriers and facilitators, and increase readiness for implementation. We will describe an implementation science heuristic for organizational readiness involving the (a) motivation to implement an innovation, (b) general capacities of an organization, and (c) innovation-specific capacities needed for a particular innovation; or $R = MC^2$ (Readiness = Motivation x General Capacity x Innovation-Specific Capacity).

Methods
The $R = MC^2$ implementation science approach for organizational readiness is based on an extensive organizational readiness literature. It was operationalized into an assessment tool using an inductive process for item generation and administered longitudinally to 39 communities across the U.S. as part of a national community health improvement initiative (Spreading Community Accelerators through Learning and Evaluation) project led by the Institute for Healthcare Improvement and funded by the Robert Wood Johnson Foundation. Readiness data was collected longitudinally over two years.

Findings
The reliability statistics (Cronbach alpha's) for the subcomponents of the readiness assessment ranged from .73 to .95. Readiness scores were found to be significantly higher in communities received the full SCALE support model (i.e. coaching, webinars, trainings, peer groups) when compared to newly enrolled (Pathway-to-Pacesetter) communities (Hedges' g ranged from 0.21 (Ability to pilot) to 1.56 (Implementation Climate). This session will describe how data was used to inform all stakeholders about changes in readiness within and across communities throughout the SCALE initiative.

Implications for D&I Research
The $R = MC^2$ implementation science heuristic and questionnaire is a practically useful approach and tool for measuring and monitoring readiness for implementing a new innovation. This approach appears able to discriminate between different levels of readiness. Consequently, individualized community readiness "profiles" can be generated from the readiness data and used to inform targeted coaching in health improvement strategies.

Primary Funding Source

S67

Ten years of evolving methods in implementation research
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Implementation Science 2017, **12**(Suppl 1):S67

Background
Enhancing the routine uptake of research findings remains strategically important for efforts to improve the organisation, delivery and quality of healthcare. Implementation research is the scientific study of methods to promote the systematic uptake of evidence-based interventions into practice and policy and hence improve health. It includes the study of influences on professional, patient and organisational behaviour in healthcare, community or population contexts. As a field, Implementation Science is inherently interdisciplinary and embraces a broad range of methodological approaches and research paradigms.

Methods
Drawing on 10 years of journal contributions, the Editors of Implementation Science will reflect on the current state of implementation science as a field of enquiry.

Findings
This will include reflection on: the development and evaluation of increasingly complex interventions; the increased focus on the pursuit of 'good enough evidence' and with it the emergence of adaptive, hybrid and stepped wedge designs as researchers seek to produce timely and appropriate evidence; and the challenges of adequately studying mechanisms of action, identifying contextual factors that moderate their effects and providing meaningful insights into process of implementation.

Implications for D&I Research
The panel will reflect on these issues and consider the need for methodological development in areas of increasing interest including the de-implementation of practices of low or no clinical benefit, the need for efficient designs to evaluate implementation in health systems and global public health, and the cost effectiveness of implementation efforts generally.

S68

Theory and frameworks in implementation research: current and future challenges
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Implementation Science 2017, **12**(Suppl 1):S68

Background
Historically, poor theoretical underpinning has been a feature of implementation research with researchers rarely providing clear rationales for the choice of interventions deployed in studies. Over the last decade, *Implementation Science* has led calls for the greater use of theory to advance the science of implementation research, and an increasing number of research papers have used theoretically derived frameworks to support robust implementation intervention development. Use of theory can improve intervention design and description, help understanding of likely mechanisms of action and the influence context, as well as providing an explicit generalizable

framework for analysis to explain how and why implementation succeeds or fails.

Methods

Drawing on 10 years of journal contributions, the Editors of *Implementation Science* will reflect on the growth of theories and frameworks relevant to implementation, and explore both current and future challenges surrounding their use.

Findings

Specifically we will discuss the need for continued comparative empirical testing of theories either alone or in combination, the need to balance theoretical fidelity with the questions to be addressed as well as the challenges of how, when and to what end theory alone or in combination, should be applied.

Implications for D&I Research

The Editor in Chief will lead discussion on the methodological developments of the last decade and discuss how *Implementation Science* can continue to play an important role in advancing use of theory in implementation research

Precision Medicine

S69

The current state of implementation science in genomic medicine: opportunities for improvement

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Implementation Science 2017, **12**(Suppl 1):S69

Background

Increasingly, genomic information is being applied to disease prevention, diagnosis, and management. However, the speed of translation of evidence to improved health has been relatively slow compared to the speed of discovery. Implementation science can address the challenge of integrating genomics into real-world practice settings. The objective of this literature review is to identify trends and gaps in the field of implementation science in genomic medicine.

Methods

We conducted a literature review using the Centers for Disease Control and Prevention's Public Health Genomics Knowledge Base to identify the literature in 2014 in the field of implementation science in genomic medicine. We selected original research articles based on specific inclusion criteria. We abstracted information about study design, genomic medicine and implementation outcomes. Trends and gaps in the literature were described.

Findings

Our final review included 283 articles, the majority of which described uptake (35.7%, n = 101) and preferences around genomic technologies (36.4%, n = 103). Most of the research was in the oncology setting (35%, n = 99). Key study design elements, such as racial/ethnic composition of study populations, were widely underreported in studies. Few studies incorporated implementation science theoretical frameworks, sustainability measures, or capacity building.

Implications for D&I Research

While genomic discovery provides the potential for population health benefit, the current knowledge base around implementation is limited. Current evidence gaps demonstrate a need to apply implementation science principles to genomic medicine in order to deliver on the promise of precision medicine.

Primary Funding Source

National Institutes of Health - Intramural National Cancer Institute funds

S70

Challenges and strategies for implementing genomic services in diverse settings: experiences from the Implementing Genomics in Practice (IGNITE) Network

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Implementation Science 2017, **12**(Suppl 1):S70

Background

Precision medicine represents a rapidly growing field, and healthcare systems must be prepared to incorporate evidence-based applications into routine health care; however, there is variability in uptake of clinically actionable recommendations. We compare and contrast implementation challenges across six projects within an NIH-funded network, IGNITE (Implementing GeNomics In pracTicE), using the Consolidated Framework for Implementation Research (CFIR) and associated strategies mapped to the Expert Recommendations for Implementing Change (ERIC) typology. IGNITE projects focus on implementations of diverse interventions (pharmacogenomics, family health history, genetic testing for disease diagnosis/risk assessment) in varied settings (outpatient clinics, university health systems, federal safety net).

Methods

We employed a qualitative case study approach to explore how these diverse projects are implementing genomic services into routine care and a matrix-driven, cross-case synthesis to identify common challenges and highlight the CFIR constructs they represent. Using the ERIC typology, we determined which strategies best addressed these challenges; the strategies used across the diverse projects are described.

Findings

Common challenges were: 1) integrating programs with the electronic health record (EHR) in the face of other health system priorities (CFIR construct: relative priority): strategies to address this vary across the projects, with one project targeting structural changes at the health system level to adopt new data standards and sharing protocols while other projects are targeting change at local levels, adapting to the current environment using data warehousing techniques to integrate records or data experts to inform management on data usage; 2) clinician knowledge of genomics (CFIR construct: knowledge and beliefs): all projects developed educational materials and conducted educational meetings for clinicians, though specific strategies varied; 3) recruiting patients (CFIR construct: engaging stakeholders): three projects actively involved patients in implementation (e.g., a patient advisory board to develop educational materials) and three projects developed materials to inform patients about

questions to ask their clinician or payer. Thus, though projects are diverse, they share challenges at the system, clinician, and patient levels.

Implications for D&I Research
Collaborative evaluation of six diverse genomics projects highlight challenges and strategies to address those challenges – information that is essential for precision medicine to achieve its potential for improving the health and well-being of patients.

Primary Funding Source
National Institutes of Health - U01

S71

Insurance coverage policies for guideline-recommended genetic testing for cancer targeted therapies: preliminary results

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Implementation Science 2017, **12**(Suppl 1):S71

Background
Modern medicine is transitioning from empirical treatment to treatment on the basis of the underlying biology of the disease through the use of genomics-based technologies. Genomic tests are the fastest growing sector of medicine and medical science and have the potential to improve clinical practice. This study examined differences in patient access to guideline-recommended genetic tests that guide cancer treatment.

Methods
We reviewed publicly available coverage policies for 22 gene-cancer drug pairs (e.g., HER2, EFGR, BRAF tests), including 10 large private insurers and 12 Medicare contractors. We searched gene and drug names and key terms including gene, genomic, and biomarker. We reviewed and extracted the following features: type of policy (gene specific, drug specific, generic policy for genetic testing); medical condition for which the test is covered; requirements for prior authorization; test methods & test result definition; and evidence basis for coverage.

Findings
Across 10 private insurers, we identified 18 gene-specific policies, 63 drug-specific policies, 36 prior authorization requirements (for genetic test, drug, or both), and 16 general policies for groups of genetic tests. Overall, some insurers have established gene-specific coverage policies that guide use of such tests, while most relied on policies guiding coverage of genetic testing more generally that may or may not include guideline-recommended genetic tests of interest. A few insurers only have drug coverage policies and some of these did not recommend use of evidence-based genetic testing. Further analysis of policies is underway.

Implications for D&I Research
Substantial variations in how insurers are addressing guideline-recommended genetic tests exist. These preliminary findings underscore the need for a better understanding of barriers to implement genetic testing that have potential to improve cancer care and outcomes.

Primary Funding Source
National Institutes of Health - R21HG008510, Genomics-based Technologies: Access and Reimbursement Issues

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S72

Implementing a Genomefirst(TM) approach to precision medicine

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Implementation Science 2017, **12**(Suppl 1):S72

Background
For the promise of precision medicine to be realized, genomic information must be effectively incorporated into routine clinical care. Geisinger Health System (GHS) has implemented a GenomeFIRSTÔ protocol to return results for 76 genes associated with 27 medically actionable conditions to participants in the MyCodeÒ Community Health Initiative biobank. Here we report on the development and implementation of the GenomeFIRST program, including barriers, facilitators, and lessons learned in the process of integrating genomic medicine in routine care.

Methods
GHS patients are approached at any clinic visit to participate in MyCodeÒ. Consent includes participation in the biobank, consent to have blood drawn for whole exome sequencing (WES), and to be recontacted if medically actionable genomic information is found. The return-of-results protocol includes patient notification that a genomic result is available and an offer to discuss the results and recommended management with a genomics or non-genomics clinician. Results are placed in patients' electronic health record. Messages notifying primary care providers of the patient's result include a link to an online CME module and clinical guidance for management and identification of family members.

Findings
WES has been completed in 52,726 of the 110,000 MyCode participants. Results have been returned to 147 individuals for 11 conditions (comprising 21 genes) thus far. Implementing genomic medicine within a routine care is complex and relatively uncharted territory; therefore an iterative implementation process was necessary to address unanticipated issues as they arose. During the return of the first 100 results, changes were made to the process of notifying providers, notifying patients, and facilitating clinical follow up for patients and their at-risk relatives. Such changes involved adding a primary care liaison, streamlining interactions with non-genomic clinicians, and streamlining patient processes and follow-up options.

Implications for D&I Research
Implementation of precision medicine programs incorporating genomic data into clinical practice can be done in the context of a healthcare system utilizing clinical processes for sample collection and follow up after return of results. Processes for returning results and collaborating with primary care physicians may need to be tailored to the context of individual healthcare systems and must be adaptable to the rapidly changing environment of genomics.

Primary Funding Source
Other (please specify below) - this work is supported in part by a research grant from the Regeneron Genetics Center

Prevention and Public Health

S73

A scoping study of program adaptation frameworks for evidence-based interventions

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Implementation Science 2017, **12**(Suppl 1):S73

Background
Evidence-based public health translation of research to practice is essential to improving the public's health. Dissemination and implementation researchers have explored what happens once practitioners adopt evidence-based interventions (EBIs). Organizations sometimes make changes, or adaptations, to the original EBI to fit their needs. Researchers have developed models and frameworks

to provide a process for adapting EBIs. This scoping study identified and summarized these adaptation frameworks and was guided by the following questions: 1) What are adaptation frameworks used in research and practice? and 2) What are the common adaptation steps suggested across the adaptation frameworks?

Methods

We followed the six recommended steps of a scoping study: 1) identifying the research question; 2) identifying relevant studies; 3) selecting studies; 4) charting the data; 5) collating, summarizing, and reporting the results; and 6) consulting with experts. We identified frameworks when searching PubMed, PsycINFO, PsycNET and CINAHL databases for published and grey literature, and from reference lists of framework articles. One researcher coded the frameworks and their steps into Excel and grouped common steps. Two researchers then reviewed and created the suggested names and descriptions for the final included adaptation steps.

Findings

Thirteen adaptation frameworks were found, including two from the grey literature and 11 from the published literature. Eleven program adaptation steps were identified and grouped into the following categories: 1) assess community, 2) understand the EBI(s), 3) select intervention, 4) consult with experts, 5) consult with stakeholders, 6) decide on needed adaptations, 7) adapt the original EBI, 8) train staff, 9) test the adapted materials, 10) implement the adapted EBI, and 11) evaluate. Eight of these steps were recommended by more than five frameworks: #1-3, 6-7, and 9-11.

Implications for D&I Research

This study is the first to identify common adaptation frameworks or models for EBIs. It contributes to the literature by consolidating key steps in the approach to program adaptation of EBIs, describing the associated tasks in each step, and recommending standard steps suggested by the frameworks. We also identify research gaps in understanding how to perform adaptations and contributions of these frameworks to the science of translation of EBIs.

Primary Funding Source

National Institutes of Health - National Cancer Institute

S74

Addressing the adherence-adaptation debate: lessons from the replication of an evidence based sexual reproductive health program

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Implementation Science 2017, **12**(Suppl 1):S74

Background

Whether high adherence to programs is necessary to achieve program outcomes is an area of great debate; and, determining if adaptations reduce program effects is critical to moving the implementation science field forward. The objectives of this study were 1) to determine the frequency and type adaptations made in the implementation of an evidence based program, and 2) to determine program outcomes (i.e. knowledge and behavioral intent) for intervention program participants, as compared to comparison participants, by the level of adaptations made in the classroom (high/middle/low adaptation).

Methods

A mixed methods approach was used to study the implementation of a sexual reproductive health curriculum in 45 classrooms, with a total of 1,608 participants. Frequency calculations from developer-

created fidelity logs were used to describe % adaptation by classroom. Thematic qualitative analysis was used to categorize types and rationales for adaptation. Program outcomes by level of adaptation were determined using logistic regression analyses and mean differences

Findings

Adaptations ranged from 2%- 97% across classrooms, with mean adaptation of 46%. Thematic analysis revealed that the adaptations made were related to delivery of content, rather than to the content itself and in response to participant needs and setting constraints. Program outcomes comparing the intervention condition to the comparison condition for the low, middle, and high adaptation groups were as follows: SRH knowledge score difference between intervention vs control [low = +14.3%, middle = +17.4% , high = 17.8%], intent to use birth control in next 6 months [low: OR = 2.29 (1.28-4.09), p = .01; middle: OR = 2.36 (1.09-4.13), p = .01; high: OR = 5.67 (2.51-12.85), p = .00]; intent to abstain from sex [low: OR = 1.63 (.80-3.30), p = .17; middle: OR = 1.43 (.79-2.61), p = .23; high: OR = 1.34 (.69-2.63), p = .37]; intent to use condoms in the next 6 months [low: OR = 2.04 (1.11-3.76), p = .04; middle: OR = 2.36 (1.09-4.13), p = .04; high: OR = 5.67 (2.51-12.85), p = .04].

Implications for D&I Research

Program outcomes did not appear to be reduced for the high adaptation subgroup. Understanding both rationale (intent) and type of adaptation made is crucial to understanding the complexity of adaptations. These finding also support the argument for allowing facilitators some flexibility and autonomy to adapt the delivery of prescribed content of EBPs to participant needs and setting constraints.

S75

Online decision support to facilitate adoption of sexual health curricula for AI/AN communities

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Implementation Science 2017, **12**(Suppl 1):S75

Background

There are few evidence-based sexual health programs for American Indian/Alaska Native (AI/AN) youth and even fewer tools available to assist AI/AN communities with adopting, implementing, and maintaining such programs despite documented sexual health disparities. iCHAMPSS (Choosing And Maintaining effective Programs for Sex education in Schools) is an innovative, theory- and web-based decision-support-system that provides tailored step-by-step guidance needed to overcome dissemination barriers and increase reach and fidelity of evidence-based programs (EBPs), specifically for the promotion of sexual health in schools. The goals of this study are to: 1) pilot-test iCHAMPSS for usability and psychosocial impact with adult stakeholders working with AI/AN communities; and 2) determine whether it would be acceptable to adapt iCHAMPSS for AI/AN communities based on usability results.

Methods

Adult stakeholders working in AI/AN communities across the country were recruited (N = 36) and asked to review selected tools accessible through the iCHAMPSS website for 2 weeks. Pre- and post-surveys were administered to measure usability parameters and short-term psychosocial outcomes. Data were analyzed using descriptive statistics, the Wilcoxon Signed-Rank test and McNemar's test.

Findings

iCHAMPSS was perceived as more helpful than current resources (75%), credible (86-94%), appealing (81-86%), impactful of EBP adoption, implementation, and maintenance (89-94%), and impactful of individual and organizational determinants of EBP adoption (64-89%). Compared to current practice, when choosing, implementing, and maintaining EBPs, iCHAMPSS was rated as significantly more thorough, efficient, and facilitative of improved communication with schools and communities (all p < 0.05), and was rated easier and faster for choosing and maintaining EBPs (p < 0.05). Conversely, iCHAMPSS significantly increased participants' perceived barriers to adopting an EBP (*p* < 0.05). Selected iCHAMPSS tools were reported to be acceptable (78-94%), easy to use (78-94%), useful (64-100%), and appealing (81-86%). Qualitative feedback revealed that some users were overwhelmed by the amount of information, though the majority appreciated the organization and content.

Implications for D&I Research

Overall, adult stakeholders working with AI/AN communities responded positively to iCHAMPSS. This usability study supports that iCHAMPSS is an acceptable innovative decision-support system that could be adapted for AI/AN communities to expand the dissemination and implementation of sexual health EBP's in Indian country.

Primary Funding Source

Funding was awarded to enhance school and community capacity to implement an innovative comprehensive teen pregnancy, HIV/STI prevention program for early adolescent AI/ANs.

S76

Go NAP Sacc: testing an online, interactive tool to improve nutrition environments at child care

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Implementation Science 2017, **12**(Suppl 1):S76

Background

As part of the nation's call to action to fight childhood obesity, the Institute of Medicine recommends that childcare centers (CC) implement evidence-based strategies to promote healthier eating and physical activity habits in children. Translation of evidence-based interventions into real world CC settings often encounter barriers, including costs, time constraints, and needs for training and technical assistance. This study describes translation of an evidence-based program (NAPSACC) into an online format (Go NAPSACC), implementation of the online program by CC directors, and evaluation of its impact on CC nutrition environments.

Methods

Go NAPSACC retained core elements of the original program, but translated tools into an online, self-directed format using extensive input from the practice community. Local CC quality improvement agencies facilitated recruitment of 33 CC programs which were randomized to immediate access (IA, n = 17) or delayed access (DA, n = 16) groups. CC directors received an initial training on Go NAPSACC tools from agency staff trained by the researchers. Directors were then encouraged to implement Go NAPSACC independently with minimal additional assistance. Online tools included a self-assessment of CC nutrition provisions, practices, and policies followed by automated feedback that encouraged change thinking. Goal selection and action planning tools guided directors in setting priorities and creating an action plan for change. The tips and materials library provided a curated collection of resources to support changes. The Environment and Policy Assessment and Observation (self-report), collected prior to and following the 4-month intervention period, assessed impact on CC's nutrition environments.

Findings

Demographic characteristics of IA and DA centers were similar. One CC from each group did not engage in any implementation activities. Comparing baseline to follow-up among centers with teacher stability (29/31), IA centers improved overall nutrition scores (effect size = 0.83), as well as scores for foods (0.77), beverages (0.51), environment (0.47), and menus (0.63) compared to DA, controlling for CACFP participation and quality rating.

Implications for D&I Research

Core elements of NAPSACC were effectively translated into online tools and successfully implemented by CC directors. The online program retained its ability to drive change in CCs' nutrition environments using a streamlined, self-directed, and flexible implementation approach.

Primary Funding Source

The Robert Wood Johnson Foundation - This project was funded by Healthy Eating Research (Round 8) and was an evaluation of Go NAP SACC: A web-based tool based on the NAP SACC program.

S77

The promise and challenge of building practitioner networks to support implementation of evidence-based programs in community settings

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Background

Insufficient capacity to use evidence-based programs (EBPs) limits the impact of community-based organizations (CBOs) to improve population health and mitigate health disparities. To address this capacity gap, a team of practitioner-leaders and researchers conducted PLANET MassCONECT, a community-based participatory research project based in three Massachusetts communities. The team co-created an intervention to build capacity among CBO staff members to systematically find, adapt, and evaluate EBPs. In addition to investing in human capital, the project supported development of social capital in the form of social networks among trainees.

Methods

Cohorts of trainees were enrolled from June 2010 to April 2012. We conducted sociometric, or whole-network, analyses in each of the three partner communities in late 2013, using a web-based survey. The network relationship of interest was communication regarding the systematic approach to program planning presented in the intervention.

Findings

For Communities A, B, and C, 38/59, 43/61, and 51/ 59 trainees responded, respectively. Only the response rate in Community C was sufficient to support a network analysis. The density of the Community C communication network (or proportion of potential connections realized) was 10% and the average degree (number of connections with other trainees) was 5.73. We found a statistically significant association between degree, used here as a marker of network engagement, and use of EBPs in practice in the six months preceding the assessment, adjusting for important covariates (β = 0.11, p = 0.002; adjusted R^2 = 0.34). We also found that trainees shared intervention content with networks of colleagues outside the program.

Implications for D&I Research

The results prompt further research into the potential for infrastructure development (here, in the form of practitioner networks) to support use of research evidence in community

settings. Careful study of and adjustment for contextual factors, including availability of relevant resources, turnover rates within CBOs, and community complexity will be critical for intervention success and building the science of using research evidence to create change in communities.

Primary Funding Source
National Institutes of Health - R01CA132651

S78

TEACH: Operationalizing the Knowledge to Action framework to promote practice change

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Background
TEACH (Training Enhancement in Applied Cessation Counselling and Health) is a knowledge translation (KT) project offering Canada's first interprofessional, university-accredited certificate program in tobacco dependence treatment. Recognizing that KT is an iterative and dynamic process, the Knowledge to Action Framework, was used to operationalize the development and application of TEACH as a Continuing Medication Education (CME) Program.

Methods
TEACH KT activities follow the Knowledge-to-Action cycle. TEACH developed a 43.5 hour certificate program (both in-person and online) by synthesizing best-practice approaches in cessation interventions, implementing revisions on an iterative basis. Pre- and post-course learning assessments helped practitioners to identify/review/select knowledge by setting clinically relevant practice objectives. Practitioners adapted knowledge to their local context through the application of content to their own practice (i.e. case examples, reflections), and barriers to knowledge use were assessed through 3- and 6-month follow up surveys, post-training. To facilitate and sustain KT post-training, a menu of continuing education supports were developed to form a TEACH Community of Practice (CoP). Supports included (1) an email Listserv fostering information exchange between TEACH-trained practitioners and subject matter experts (2) adhoc coaching and consultation with TEACH faculty (3) monthly accredited educational rounds on complex clinical issues (4) clinical video vignettes and resources, and (5) train-the-trainer toolkits to build capacity in organizations and local communities.

Findings
Since 2006, over 5000 practitioners have attended TEACH trainings. Learning assessment data showed significant increase in self-reported feasibility, importance and confidence of changing practice and 94% set practice goals. At 6 month follow-up, 71.9% reported offering cessation interventions, and 90.5% reported KT activities in their organizations/communities. 730 individuals are currently subscribed to the TEACH Listserv, over 750 toolkits have been disseminated to practitioners and 92 webinars have been offered to date.

Implications for D&I Research
Few CME programs have been developed through the operationalization of a KT theoretical model. Findings suggest that using a model to inform the development of a CME program can facilitate and sustain practice change.

Primary Funding Source
Ontario Ministry of Health and Long Term Care

S79

A thematic content analysis of practitioners' inquiries about public health research and interventions: implications for enhancing dissemination

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Background
Improving communication and strengthening collaboration between researchers and public health practitioners is critical for effectively disseminating and implementing evidence-based interventions. To this end, NCI's Research to Reality (R2R) online community of practice convenes researchers and practitioners around a shared commitment to implement evidence-based, cancer-related (e.g., physical activity, tobacco control, screening, prevention) interventions in public health settings. Several dynamic approaches are used to facilitate dynamic communication and collaboration, including monthly webinars, question and answer (Q&A) sessions, and discussion posts.

Methods
This study explored the programmatic considerations most important to R2R community members through a content analysis of webinar Q&A sessions and related discussions. We used deductive coding for segments of text related to implementation strategies (Powell et al 2015; Wang 2016) and intervention adaptation (Wiltsey-Stirman et al, 2012), and inductive coding to explore thematic patterns from participants' questions. Team members coded, sorted, and analyzed the data. Interrater reliability was ensured by having the team members code 9 documents and compare applications of the codes to ensure consistent use. The final coding schema was applied to 62 transcripts of webinar presentations (Q&A section only) and the related online discussions over a 6-year period (2010-2016).

Findings
Several themes emerged from the content analysis, including inquiries around financial and institutional support, program sustainability, program tools and resources. Community members requested additional information from presenters about contextual variables of research studies (e.g., the role of partnerships in implementing initiatives and adapting programs to reach underserved populations) as well as evidence-based programs and tools (e.g. evaluation measures). Practitioners consistently sought to better understand variables that made an intervention effective and often requested guidance on the most appropriate implementation strategies for their programs.

Implications for D&I Research
While a number of resources are designed to implement evidence-based health programs, the strategies and programmatic considerations most salient to practitioners are difficult to elicit but essential to address. These data highlight additional information researchers should include in their intervention presentations, summaries and publications when communicating with practitioners. By addressing the priority concerns of practitioners, researchers may be able to improve communication and subsequently enhance the dissemination and appropriate use of evidence-based public health interventions.

Primary Funding Source
National Institutes of Health

S80

Preventing and mitigating the effects of adverse childhood experiences by building community capacity and resilience: appi cross-site evaluation findings and collective capacity measurement

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Implementation Science 2017, **12**(Suppl 1):S80

Background
ACEs (adverse childhood experiences) are a complex population health problem with significant detrimental outcomes. In 2013, the

ACEs Public-Private Initiative (APPI) was formed to study effective interventions to prevent and mitigate ACEs, increase resilience, and facilitate fieldwide learning. APPI sponsored a rigorous mixed methods evaluation of five community-based initiatives. The evaluation's findings were issued in July 2016.

Methods
The evaluation conducted by Mathematica Policy Research and Community Science sought to understand the sites' strategies, the extent to which the sites developed collective community capacity to initiate program, policy and systems change addressing ACEs, and assessed the impact of their efforts. The mixed methods evaluation included qualitative (1) site visits, (2) key informant interviews, and (3) reviews of site documents. The quantitative methods included: (1) an analysis of county-level trends of 30 ACEs-related indicators that compared the sites to the rest of the state; (3) development and implementation of the valid and reliable evidence-based ARC3 survey, measuring ten domains of site capacity at four levels (coalition, network, community solutions and communitywide impact); and (4) quantitative analyses of individual-, program-, and organization-level changes associated with 11 selected site activities, using rigorous quasi-experimental methods.

Findings
The evaluation found that six of the 11 site activities were associated with positive and statistically significant changes in targeted outcomes, including (1) maternal and child outcomes in the Nurse Family Partnership program, (2) decreased alcohol use among youth in the Positive Social Norms Campaign, (3) improved school attendance of children referred for truancy to the Community Truancy Board, (4) 40% communitywide awareness of ACEs concepts in an ACEs and Resilience Awareness Campaign, (5) improved community conditions in the Commitment of Community initiative, and (6) reduction in suspensions and increased graduation rates among students in an alternative high school. The APPI sites that were more successful in addressing ACEs and toxic stress and building resilience aligned three factors: (a) collective community capacity, (b) community network characteristics, and (c) effective community change strategies.

Implications for D&I Research
The evaluation provides new valid and reliable capacity measurement methods and rigorous outcome evaluation methods for evaluating the success of community prevention initiatives.

Primary Funding Source
The evaluation and collective capacity survey were funded by the APPI consortium of foundations

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S81

Investigating implementation of a partnership approach for community-based health promotion: a mixed methods evaluation of the Massachusetts prevention and wellness trust fund

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Background
Utilizing partnerships is a promising approach for integrating evidence-based prevention interventions within clinical and community-based settings. In 2012, the Massachusetts legislature funded The Prevention and Wellness Trust Fund (PWTF), which provides more than $42 million over four years, to address hypertension, pediatric asthma, elder falls, and tobacco use via nine local partnerships throughout the state. We seek to leverage implementation science, social network analysis, and a mixed methods design to understand these how these partnerships function and what contextual factors are most influential on successful implementation. The

aim of this abstract is to describe the multi-phase explanatory mixed methods study design embedded in a large evaluation being used to investigate PWTF implementation.

Methods
This study is grounded in the Consolidated Framework for Implementation Research. First, 1.5-hour semi-structured qualitative interviews were conducted with two leaders from each partnership to document partnership development and function, intervention adaptation and delivery, and the influence of contextual factors on implementation. These results informed adaptation of a validated quantitative survey to assess the implementation experiences of approximately 175 staff from clinical and community-based settings and a social network analysis to assess changes in the relationships among 90 PWTF partner organizations. The quantitative survey data was used to select 24 staff from 4 "high implementation" partnerships who were interviewed to explore the most successful and challenging experiences of implementing evidence-based interventions for the four conditions. Individuals surveyed and interviewed included clinical staff of varying levels, practitioners in community-based settings, and community health workers.

Findings
This study describes how a mixed methods approach can be used to incorporate the investigation of context, allow for exploration of unanticipated consequences and systems changes, and integrate end-users voices into an existing evaluation.

Implications for D&I Research
Data from the study will speak to a range of constituents—from scientists to policymakers to public health and clinical practitioners. Description of the study design, measures, and theoretical framework will help researchers plan mixed methods research to investigate the implementation of complex evidence-based interventions. Results will help communities in Massachusetts and throughout the country who want to learn about the implementation of community-clinical partnerships for the promotion of population health.

S82

Implementing evidence-based resources on childhood obesity in Medicaid managed care

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Implementation Science 2017, **12**(Suppl 1):S82

Background
Roughly one-third of children over two years are overweight or obese, reaching as high as 39 percent for low-income children enrolled in federally funded health programs (e.g., Medicaid). Current systematic reviews demonstrate a lack of evidence to assess the efficacy of non-school based interventions, like those implemented by Medicaid managed care organizations (MMCOs), in preventing childhood obesity, especially among those disproportionately impacted by the social determinants of health.

Methods
We used a mixed methods study design to explore barriers and strengths of current implementation strategies around childhood obesity prevention and treatment (CHOPT) initiatives that included a national survey of 39 MMCOs and the collection of five case studies of innovative CHOPT initiatives. We also conducted interviews with 28 families who participated in one of the five case study initiatives to gain an understanding of the impact of the social determinants of health on a family's ability to sustain healthy lifestyle changes. Finally, we developed an implementation toolkit based on findings from the questionnaire, case studies, and family interviews that includes a validated AHRQ readiness assessment and CMS implementation tools to guide MMCOs through the design, implementation, and evaluation of CHOPT initiatives.

Findings
Survey responses were collected from 39 MMCOs, representing 38 states and DC. Survey respondents identified clinical and policy

barriers (e.g., reimbursement mechanisms, sustainability challenges, lack of clinical guidelines) that need to be addressed to maximize successful implementation of CHOPT initiatives. Furthermore, the family interviews identified interconnected factors (i.e., time, motivation, access, and support) that impact the efficacy of the obesity prevention and treatment initiatives and influence a family's ability to participate. Currently, MMCOs address some of these barriers by relying on critical relationships with community resources and key stakeholders.

Implications for D&I Research
This study represents the first opportunity for clinicians, MMCOs, and families to identify the barriers to implementing and participating in CHOPT interventions and highlight lessons learned in program design and community resource development and strategies to reduce the impact of social determinants of health. The CHOPT toolkit increases awareness of MMCO-led childhood obesity interventions and provides the foundation for policy solutions that will maximize implementation of CHOPT initiatives.

Primary Funding Source
The Robert Wood Johnson Foundation - The Agency for Healthcare Research and Quality (AHRQ) and the Center's for Medicare and Medicaid Services (CMS)'s Office of Minority Health collaborated on this project.

S83

Using community-based participatory research to develop a state-wide model for health promotion program implementation in Minnesota

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Background
Evidence-based Health Promotion Programs, such as the Diabetes Prevention Program and the Chronic Disease Self-Management Program, support people's efforts to manage their health. They improve outcomes and reduce costs. Because they are offered in community settings and by lay leaders outside the traditional healthcare system, they are challenging to implement.

Methods
We conducted a mixed-methods, community-engaged and participatory research project focused on CDSMP implementation in an 11-county region in Southeast Minnesota and informed by the PRECEDE implementation planning framework. As part of this, we developed 5 inter-silo working groups of healthcare, public health, and community stakeholders that focused on brand development, community capacity building, clinical integration and referral procedures, strategy and sustainability, and research. The research working group interviewed and surveyed groups of primary care clinicians and non-clinician stakeholders across the region. Insights from this research were iteratively integrated with the activities of the other working groups and developed into a cohesive implementation strategy.

Findings
The integrated quantitative and qualitative data identified a "missed opportunity" for clinic-community collaboration for improving population health. Major themes—Two Systems, Two Worlds; Not My Job; and Use Your Imagination—emerged from the interaction of the PRECEDE codes (e.g. Predisposing, Reinforcing, Enabling, Administrative, and Policy factors) with each other and across clinician (n = 220) and stakeholder respondents (n = 93). We used this insight to develop a regionally-confined and replicable framework for creating a "community system" for evidence-based programs. Key components of the associated implementation strategy were targeted clinician education, establishment of a "community system," and the partnering of multiple

community-based organizations under a single brand and mission. This framework and strategy is now being integrated into a funded, 3-year project focused on state-wide implementation. Key components of the scalability strategy were engagement of stakeholders at the state level and in pre-existing networks from the outset, and the use of common and replicable infrastructures.

Implications for D&I Research
Our study suggests that, through proactive engagement of stakeholders, it is possible to develop scalable implementation strategies for health promotion that meet the timelines of a rapidly changing policy environment.

Primary Funding Source
National Institutes of Health - NCATS funding through Institutional CTSA

S84

Use of group model building to develop implementation strategies for early childhood obesity prevention

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Background
Interventions during early childhood (EC), birth to 5 years, can help establish healthy behaviors that may contribute to healthy weight trajectories throughout life. Despite known effectiveness of existing interventions, communities struggle to implement them within naturalistic settings, and with sufficient reach and scale to achieve population level impact. Group model building (GMB), a participatory method grounded in system dynamics, has been cited as a promising approach for designing and adapting intervention strategies that take into account the inherent complexities of implementation.

Methods
This study used GMB within a community-based participatory research (CBPR) context with a multisector steering committee of 16 community and EC providers. The committee was mobilized in October 2015 to guide the design and implementation of a pilot intervention in Somerville, MA. During Year 1, committee members attended eight meetings that included structured GMB activities or 'scripts' combined with other CBPR methods (e.g., engagement of committee members in all aspects of intervention development). Research staff planned and facilitated each meeting based on committee feedback, evolving group cohesion, and GMB best practices to promote insight sharing, consensus, and effective intervention design.

Findings
Meeting attendance averaged 11.5 committee members (72% attendance rate). For those absent, 94% attended make-up meetings. During meetings, GMB was used to a) establish group expectations for activities and community impact, b) identify EC health priorities and connections between them, c) assess feasibility and impact of evidence-based interventions, and d) propose key messages, activities and resources to disseminate a cohesive, whole-of-community obesity prevention campaign. These activities facilitated committee members' awareness of their unique roles in the community, connection between roles, and enhanced collaborative multisector efforts to prevent EC obesity. The committee plans to implement locally- and culturally-appropriate interventions (i.e., programs, practices, and policies) during Year 2 that aim to impact healthy weight trajectories of young children.

Implications for D&I Research
Using GMB within a CBPR context supports efficient and effective development of implementation strategies. By prioritizing a highly

participatory research design with buy-in from key stakeholders, community-based interventions can be equipped to tackle complex and dynamic public health problems and offer sustainable solutions.

Primary Funding Source

S85

Power up for 30 collaboration and implementation strategies

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Background

Physical activity (PA) has many benefits for children including improved cardiovascular fitness, muscular fitness, and decreased levels of body fat. The school is an ideal setting to offer PA since the majority of children aged five to seventeen spend up to half of their waking hours in school. Current PA opportunities include in-classroom PA, physical education (PE), recess, and before and after school programs.

Methods

We will describe the collaborative approach between academic researchers, a community organization, and governmental agencies to adapt and disseminate the evidence-based Comprehensive School Physical Activity Program for the elementary school setting across the Implementation Stages.

Findings

Power Up for 30 (PU30) sought to maximize these PA opportunities by assisting, engaging, and empowering school administrators, PE teachers, and classroom teachers to integrate PA using the Stages of Implementation (exploration, installation, initial implementation, full implementation). The Exploration and Installation Stages occurred during initial PU30 training: The Exploration Stage involved assessment of barriers and facilitators to PA and a baseline assessment of current PA opportunities and environmental characteristics unique to each school. During the Installation Stage, at least one administrator, one grade level chair, and one PE teacher from each school formed a school health team and attended a seven-hour PU30 training. At this training, the implementation team (HealthMPowers) used data from the Exploration Stage to help the school health team explore best practices to overcome barriers to PA specific to each school; draft an action plan; and examine resources to facilitate PA throughout the school day. The Initial Implementation Stage was reinforced by provision of additional resources, ongoing communication, and technical support to school staff to facilitate PA throughout the school day.

Implications for D&I Research

The implications for D&I research and the current transition to Full Implementation will be discussed, including: lessons learned from instrument development and process/outcome evaluations; next steps to improve dissemination and ensure sustainability through school-wide trainings, development of a pre-service PU30 certification for PE and early childhood educators, and middle school-focused PU30; and the use of a virtual training to balance of costs and feasibility.

S86

Impact of Power up for 30 on physical activity opportunity changes: a quasi-experimental study

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Background

To increase physical activity (PA) in the elementary school setting, the Georgia Departments of Public Health and Education along with HealthMPowers adapted the Comprehensive School Physical Activity Program (CSPAP) into the Power Up for 30 (PU30) initiative. This study aimed to [(1)] describe the adoption of PU30 across the state and [(2)] assess the fidelity of PU30 comparing 79 PU30-trained and 80-untrained schools.

Methods

To evaluate adoption of PU30, number of trained schools was compared to number of eligible schools in the state. To evaluate fidelity, a quasi-experimental study was conducted to compare minutes of PA in a subsample of 79 PU30-trained and 80 untrained schools. Survey items indicating frequency and duration of PA opportunities (PE, recess, and classroom-based PA, and before and after school PA) were converted into continuous variables of weekly PA time. Unadjusted analyses and analyses adjusted for baseline PA and school demographics compared PA at follow-up.

Findings

As of July 2016, 876 (66%) elementary schools have pledged to integrate 30 minutes of PA into the school day and of these, 726 (54%) are PU30-trained. Within the study sample of 159 schools, trained schools provided 44 more minutes of PA opportunities weekly compared with untrained schools (99% Empirical Interval (EI): 40-48 minutes): Increased PA among trained schools at follow-up was due to trained schools having 16 additional PA minutes in class (99% EI: 16-17), 11 additional minutes before school (99% EI: 10-11) and 9 additional minutes after school (99% EI: 8-9) each week compared with untrained schools. After adjusting for baseline PA and school characteristics, trained schools provided 37 more minutes of PA opportunities weekly compared with untrained schools (99% EI: 32-41), mostly due to in-class PA (mean: 11 additional minutes; 99% EI: 10-11), before school PA (mean: 9 additional minutes, 99% EI: 8-9) and recess (mean: 9 additional minutes, 99% EI: 6-12).

Implications for D&I Research

We advance the D&I field by reporting the successful adoption and implementation of PU30, an adaptation of the CSPAP model. One of the first to assess CSPAP in the elementary school, we report increased time for PA during recess, in class, and before school, which will inform other states adapting the CSPAP model.

S87

The exploration of barriers and facilitators of Power up for 30 initiative: a qualitative evaluation

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Background

The CDC's evidence based Comprehensive School Physical Activity Program (CSPAP) is a multi-component approach to maximize physical activity (PA) opportunities in the school, but few studies have adopted and evaluated the CSPAP model. This study aimed to examine the barriers and facilitators impacting acceptability, reach, feasibility, and appropriateness of the CSPAP-adapted Power Up for 30 (PU30) initiative among elementary schools across the Atlanta metropolitan area.

Methods

Six elementary schools in the metro Atlanta area were recruited from 79 PU30 trained and 80 untrained schools participating in a quasi-experimental study. Principals, physical education (PE) teachers and grade-level chairs were recruited to participate in 30 to 45-minute in-depth individual interviews. Thematic analysis was used to identify and examine patterns related to the acceptability, reach, feasibility

and appropriateness of the PU30 initiative. Line-by-line coding, using a combined inductive and deductive approach allowed a comparison of barriers and facilitators between schools. Coding rounds were completed independently by a two-person coding team to ensure inter-coder reliability.

Findings

Several barriers and facilitators were identified through the 16 interviews. Barriers impacting acceptability, reach, feasibility and appropriateness included [1] lack of communication and dissemination of training information between trained and untrained school staff, [2] difficulty creating "buy-in" from enough teachers to properly sustain the initiative, [3] limited time for physical activity before, during and after school, and [4] competing priorities, such as academic standards placed on teachers. Facilitators impacting acceptability, reach, feasibility and appropriateness included [1] administrative and district-level support, [2] importance of the students' health and wellbeing, and [3] appropriateness of PU30 resources.

Implications for D&I Research

This study improves our understanding and knowledge of developing and implementing appropriate and feasible physical activity initiatives in the school system. These findings have directly improved the PU30 initiative and will inform other schools adapting CSPAP by identifying the need for a school-wide training, the importance of continued administrative and district-level support and the significance of prioritizing time for physical activity at school. More research needs to be conducted to better understand how to reduce the barriers and reinforce the facilitators to continue to increase physical activity at school.

Promoting Health Equity and Eliminating Disparities

S88

Going off-script: modifications to Cognitive Processing Therapy (CPT) in a community mental health clinic

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Background

In community settings, evidence-based treatments (EBTs) often face implementation challenges. One such challenge is fidelity to the treatment protocol; yet, fidelity alone is not sufficient to understand the effects of changes made during treatment implementation. Recent research has focused on systematically identifying modifications providers make when delivering EBTs. The present study aimed to utilize this coding framework to characterize provider modifications to an EBT for PTSD (Cognitive Processing Therapy; CPT) in a community health setting.

Methods

Using a modification coding framework, we rated audio-recorded CPT therapy sessions for modifications to the treatment protocol. After achieving reliability, coders rated modifications as absent or present, and described the nature of these modifications (e.g., removing/skipping elements).

Findings

Participants included providers (n = 27), who were 78.1% female, 76.9% white, and 12.3% Hispanic. These providers treated clients (n = 77), who were 71.3% female, 31.9% white, and 64.9% Hispanic.

Across 174 sessions, 1012 modifications were identified. The most common modification was tailoring/tweaking/refining (n = 254, 25%), followed by loosening the session structure (n = 174, 17%) and shortening time spent during therapy visit (n = 111, 11%). These results differed significantly from adaptations found in a Canadian, English-speaking community mental health sample (n = 15 therapists, n = 32 clients).

Implications for D&I Research

Modifications appear to differ across populations. They might often increase provider satisfaction (i.e., acceptability) with an intervention, which may increase sustainability of CPT and improve patient outcomes. Additional research is needed to understand how EBTs are modified to fit clients' immediate needs, and how they influence long-term implementation and client outcomes.

Primary Funding Source

National Institutes of Health

S89

Differential cultural adaptation designs: a relevant methodological approach to empirically test the differential implementation feasibility and efficacy of cultural adapted interventions

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Implementation Science 2017, **12**(Suppl 1):S89

Background

The cultural adaptation of evidence-based parenting interventions constitutes a promising alternative to reduce mental health disparities in the US. Implementation scholars have also emphasized the need to integrate implementation science and cultural adaptation studies. In this study, we aimed to examine whether a culturally-enhanced adapted parenting intervention with culture-specific sessions, had a significantly higher effect on feasibility and efficacy outcomes, compared to a culturally adapted intervention focused exclusively on parenting components.

Methods

This NIMH-funded investigation compared and contrasted the impact of two differentially culturally adapted versions of the evidence-based parenting intervention known as Parent Management Training, the Oregon Model (PMTO™). Participants were allocated to one of three conditions: (a) a culturally adapted version of PMTO (only included PMTO core components), (b) a culturally-enhanced version of PMTO (core PMTO components and culturally-focused themes were included in this intervention), and (c) a wait-list control condition. Measurements were implemented at baseline (T1), treatment completion (T2) and 6-month follow up (T3). Initial efficacy of the adapted interventions was examined by analyzing quantitative outcome data from 190 parents. A multilevel modeling approach was utilized to analyze parenting (i.e., quality of parenting skills) and child outcomes (i.e. children's externalizing and internalizing behaviors).

Findings

Findings indicate high implementation feasibility of both interventions, with an overall 86% retention rate of families, including 84% of fathers. Multilevel modeling findings indicated contrasting findings with regards to initial efficacy. Specifically, whereas parents in both adapted interventions showed statistically significant improvements on their quality of parenting skills when compared to parents in the wait-list control condition, only mothers in the culturally-enhanced intervention had statistically significant improvements on children's internalizing symptoms when compared to the two alternative intervention conditions. Similarly, only fathers allocated to the culturally-enhanced intervention had statistically significant reductions on children internalizing and externalizing symptomatology when compared to the original adapted intervention and the wait-list control condition.

Implications for D&I Research

Data illustrate the benefits of implementing differential cultural adaptation designs. Furthermore, contrasting findings according to level of adaptation, indicates possibilities for relevant lines of research focused on integrating cultural adaptation and implementation science.

Primary Funding Source

S90

Implementation and dissemination of the Sikh American families oral health promotion program

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Background

The *Sikh American Families Oral Health Promotion Program* used a community-based participatory approach to develop, implement, evaluate, and disseminate a culturally-tailored oral health/healthy living curriculum for the Sikh—South Asian community. Here we examine the impact of community engagement throughout the process of program implementation in five Gurdwaras (places of worship) in New York and New Jersey, and dissemination of the findings through targeted venues and the curriculum via e-Health resources.

Methods

An interactive curriculum was developed (consisting of four core and three special topics) based upon a community-led needs assessment, adaptation of evidence-based oral health curricula, guidance from professional dental and medical associations, and input from Community Advisory Board (CAB) members. The Consolidated Framework for Implementation Research guided a mixed methods evaluation, consisting of both process and outcome measures.

Findings

Five trained community educators delivered a total of 42 educational sessions. Improved oral hygiene behaviors and self-efficacy were found among program participants. For participants with no dental insurance prior to program enrollment (n = 58), 81.0% credited the program with helping them obtain insurance for themselves or their children. Further, for participants with no dentist prior to program enrollment (n = 68), 92.6% credited the program with helping them or their children find a local dentist. Short videos in Punjabi were created in response to feedback received from community educators and CAB members to reach men, especially.

Implications for D&I Research

Community engagement was key to successful program implementation and dissemination, from the implementation leaders (community educators) to the opinion leaders and champions (CAB members). Demonstrations of brushing and flossing techniques delivered by trusted community educators in familiar settings may be effective in promoting oral health for individuals, families, and communities. The expansion of Medicaid under the Affordable Care Act provided a mechanism for Sikh—South Asian program participants to obtain dental insurance for themselves and their children, and program resources helped link families to local dentists who accepted their dental insurance. Integration of community-based participatory research and implementation science approaches may prove effective in translating evidence-based practices into culturally-tailored programs that are delivered by trusted community leaders in local settings.

Primary Funding Source

S91

Mapping the social context of food procurement: identifying leverage points for disseminating healthy eating messages among a low-income population

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Background

Diet-related behaviors are structured by both the physical and social food environment. Within the social food environment, social capital - resources, support, and information attained through social connections or ties - has important implications for health behaviors and outcomes. Little is known about the nature of social connections at food procurement places among low-income populations. Our analysis focused on social connections supporting food procurement behaviors among parents/caregivers receiving Supplemental Nutrition Assistance Program (SNAP) benefits.

Methods

A mixed-methods approach was used including participatory social network mapping and semi-structured interviews conducted with 30 parents/caregivers receiving SNAP in Cleveland, Ohio in 2015-16. Data collection focused on food procurement places and staff with whom participants hold a social connection. Two-mode social network analysis was used to examine the ties between procurement places and participants and core-periphery analysis to identify the most common food procurement places among the sample.

Findings

In all, 27 types of food procurement places were identified by the 30 participants. Ten of these places were central indicating they are most frequented by participants. Most participants (70%) held a social connection with a staff person at one or more procurement place. Convenience stores and food pantries were the most socially connected food procurement places with 60% and 55% of participants, respectively, holding a relationship with staff in these venues while none of the participants held a connection with farmer's market staff. Qualitative analysis focused on three types of social connections: purely social, information exchange, and material benefit. Purely social connections included social interactions not related to food procurement. Information exchange included identifying deals at the store or indicating how to prepare a new food item. A few social connections offered material benefits in the form of setting aside sale items or price reductions for repeat customers.

Implications for D&I Research

Findings highlight that social connections with staff at food procurement places may be leveraged to disseminate healthy eating messages among SNAP recipients. Changes to the physical food environment may yield limited benefit without implementation of complementary interventions to either create new or catalyze existing social capital within these food procurement spaces.

Primary Funding Source

S92

Building system-wide capacity to reach those in need of intervention: a collaborative partnership approach to understanding uptake and sustainability of physical activity promotion in a statewide and national system

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Background

Cooperative Extension (CE), which is available in every state and territory in the U.S., is a trusted source for education on food, agriculture, and youth development in the communities they serve. CE programming reaches a variety of underserved populations including, but not limited to, rural residents, older adults, families from low-income households, and immigrants. In 2014, physical activity was added as an objective to the CE strategic plan. Therefore, the system is now primed to translate the broad reach and impact CE professionals have had in agriculture to disseminate and implement physical activity promotion programs.

Methods

A collaborative partnership—defined as those in which researchers and community stakeholders work together on projects designed, initiated, and managed by the research team—was developed to train, support, and evaluate physical activity efforts in the state of Virginia. The partnership is founded on the meta-volition model constructs that 1) behavior change positively impacts the organization and 2) the shift from focusing on individual-level targets (self-efficacy, effectiveness) to population-level shifts (i.e., meta-volition).

Findings

Two years after the development of the partnership, there are eight active community health educators who represent both Family and Consumer Sciences and 4-H. Members are predominantly female (87%) and Caucasian (75%). Two physical activity promotion programs were chosen, adapted, and delivered across the state: 1) a statewide walking and fruit/vegetable consumption program and 2) a strength-training program for older adults. A strategic planning meeting will occur in August of 2016 to continue to guide structure, goals, and feedback among members of the partnership.

Implications for D&I Research

Identification of organizational culture, needs, and resources is imperative to ensure program uptake and sustainability. Building a collaborative partnership allows community health workers to contribute to the development and design of interventions that may be tailored for the audiences the serve; without the added time and resource burden of leading the efforts. Future research is needed on the collective impact the partnership and its efforts will have on population-level physical activity changes.

S93

Using formative evaluation to improve the quality of a support system for healthy community coalitions

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Implementation Science 2017, **12**(Suppl 1):S93

Background

There is an increasing interest in capacity-building interventions for improving community health. In the Interactive Systems Framework for Dissemination and Implementation, the support system is primarily responsible for building capacity in the delivery system (e.g., hospitals, FQHCs, community coalitions) using strategies such as tools, training, technical assistance (TA) and quality improvement. Formative evaluation of capacity-building interventions can help determine the effectiveness of support strategies so that they can be more efficient. In this presentation, we present support system results from the formative evaluation of a multi-site, national initiative designed to build community coalitions' capacity to apply quality improvement principles to community health.

Methods

A mixed method, multi-informant approach was used to assess quality implementation (i.e. responsiveness, dosage, fidelity, adaptation, etc.) of support system activities. Funded by the Robert Wood Johnson Foundation to the Institute for Healthcare Improvement (IHI), twenty U.S. community coalitions were selected to participate based on levels of readiness for conducting community health improvement work. The support system included bi-annual trainings (Community Health Improvement Leadership Academies (CHILAs)), regular coaching from quality improvement specialists, regular monthly webinars, and regular meetings with peer groups (groups of peer communities matched with a community identified as having high readiness called "mentors").

Findings

The majority of communities (77.3%) reported that the CHILA events and specific tools (e.g. "Switch Thinking") were very useful for developing community health plans to structure their improvement projects. Individual coaching was also rated highly, with over half (54.6%) of communities indicating that coaching support was very useful for developing plans. Only 18.2% of communities rated mentor communities as very useful. In terms of their community health plans, the majority (65.2%) had completed aims/driver diagrams (i.e. their theory of what changes will lead to an improvement) in comparison to 17.3% who had completed plans to measure the results of their tests of change. Examples for how evaluation findings were used by the support system to improve implementation of capacity-building strategies will be shared.

Implications for D&I Research

We demonstrate how a formative evaluation approach may be used to strengthen the support system by providing ongoing feedback for improving delivery of capacity-building activities.

Primary Funding Source

S94

Designing EHR tools for collecting, summarizing, and acting on patient-reported social determinants of health data, in community health centers: results of a stakeholder-driven process

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Background

Social determinants of health (SDH) are environmental / social factors that influence patients' ability to act on recommended care, and thus directly impact the implementation of healthcare interventions and care guidelines. Collecting and presenting patients' SDH data in electronic health records (EHRs) could help community health center (CHC) teams systematically identify and attempt to address SDH-related barriers to the delivery of guideline-concordant care. As

approaches to capturing and presenting SDH data in CHCs' EHRs have rarely been developed or tested, we developed EHR tools for collecting, presenting and acting on patient-reported SDH data in CHCs.

Methods
We built on the Institute of Medicine's recommendations for collecting SDH into EHRs, and a protocol for asking SDH questions developed by a national CHC coalition. We then partnered with stakeholders from a national network of CHCs to design SDH-related EHR tools, via a six-month, iterative design process. Stakeholders included CHC staff (Community Health Workers, Behavioral Health Specialists, Social Workers, Care Coordinators, Referral Staff, Medical Assistants, Nurses, Primary Care Providers) and clinicians from the CHC network's Clinical Operations Research Committee (total n ≈ 40 CHC staff).

Findings
We developed four EHR-based SDH data tools. The tools were integrated into existing EHR structures, and designed to enable care teams to collect and summarize patient-reported SDH data, act on identified SDH needs, and track referrals made to address these needs. We will describe the process used to develop these SDH data tools (data collection flowsheets, a summary report, social service referral preference lists, and a referral tracker) and present preliminary results on their adoption between 7/1/16-12/1/16; weekly data collection is underway.

Implications for D&I Research
Systematic identification of the SDH that impact primary care patients' health, and automated methods for care teams to act on these SDH, could mitigate an important barrier to the implementation and dissemination of proven interventions and care guidelines. We will describe the process used to develop these tools, and present the tools themselves, to inform others seeking to address SDH-related barriers to implementation of diverse healthcare innovations in CHCs.

Primary Funding Source
National Institutes of Health - National Institute of Diabetes and Digestive and Kidney Diseases, 1R18HL095481-01

S95

Feasibility of implementing a community clinic based interactive health kiosk about HPV vaccination targeting African American young adult women attending Planned Parenthood

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Background
This study aimed to adapt a research tested intervention program (RTIP) promoting HPV vaccination for a community clinic setting (Planned Parenthood; PP) targeting African-American women ages 18-26. The intervention, Women's Stories: The HPV Project (WS), was a narrative video intervention embedded within an interactive health kiosk to be used for waiting or exam rooms that aimed to increase HPV vaccine uptake in the target population.

Methods
Key informant interviews ($N = 26$) were conducted to identify culturally grounded vaccine decision narratives to inform video scripts. Participants ($N = 12$) offered feedback on scripts and adjustments were made prior to video production. After the kiosk was built, a usability study was conducted consisting of: (a) use of the kiosk by participants from the clinic population ($N = 16$) who provided feedback and (b) a waiting room observational

study to see how patients interacted with the available health kiosk unprompted.

Findings
Four scripts were developed that emerged from interviews: general HPV information, doctor-patient interactions, a conversation between female peers on consequences of HPV, and male-female dialogue on male HPV transmission. Pilot testing revealed women found the scripts to be realistic, practical, and helpful. Edits to script language were made to be consistent with the target population vernacular. In part A (the usability study), participants rated the kiosk videos as engaging and interesting, with overall positive feedback about the health kiosk. During part B (waiting room observational study), no women used the kiosk in the waiting room unless prompted by PP staff.

Implications for D&I Research
Although WS was developed in collaboration with the target audience and well-received when use of the kiosk was directed, results from the observational study suggested placement in the waiting room would not result in use of the intervention. This critical information led to discussion with PP staff and determination that WS needs to be better incorporated into PP procedures. Next steps include a large scale randomized control trial in which we will compare two modes of delivery: incorporating WS into tablet-based check-in procedures vs. tablet-based intake conducted in the exam rooms (both compared to control).

Primary Funding Source
National Institutes of Health - R43CA192437

S96

Telehospice 2.0: Implementation lessons from rural hospice care with mobile tablets

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Background
In underserved rural communities, hospice personnel travel great distances to reach patients, resulting in unique challenges to maintain access, quality, cost-effectiveness, and safety. To address these geographic disparities, the University of Kansas Medical Center piloted the country's first telehospice (TH) service in 1998. A number of implementation barriers limited widespread adoption, including technology limitations, attitudes towards technology, and costs/reimbursement. An updated academic-community project utilizes secure mobile videoconferencing to support TH implementation in Kansas' rural/frontier communities.

Methods
Leveraging lessons learned from this early work, a secure cloud-based videoconferencing solution was chosen for ease of use. To maximize limited resources, the selection of hospice partners was guided by Gustafson's Organizational Change Manager (OCM). The OCM also informed implementation gaps. Mixed methods evaluation, including cost, continues as more hospices join over the next year.

Findings
Across the first six months of the pilot (February-July 2016), 50 rural TH encounters have occurred, encompassing 331 attendees and reflecting 31,591 minutes of videoconferencing. The most frequent TH uses to date have been: 1. Administrative (e.g., connecting hospice staff across a 16 county region); 2. Professional-to-professional (e.g., connecting hospice nurses at the home to additional TH professionals); and 3. Family support (e.g., connecting adult children outside the community with loved ones). Initial use of videoconferencing for administrative purposes developed a

comfort level in videoconferencing for clinical and family support purposes. For staff meetings alone, the rural hospices have saved approximately $2,500/month in travel, with TH staff noting increased morale driven by the increased team communication. Next steps include videoconferencing between palliative medicine and other specialists directly to the rural homes to enhance symptom management and care coordination, as well as bereavement services over videoconferencing.

Implications for D&I Research

Compared with early work, technology advances and a community-engaged approach have increased TH adoption. With decreasing budgets as well as rural hospice closures, innovative, cost-effective, and community-driven approaches such as TH are needed to decrease rural disparities. As dissemination occurs within national hospice organizations, continued research is needed to understand best fit within rural/frontier hospices, to inform future urban applications, and to address reimbursement barriers.

S97

Tailored small-media message intervention versus physician letters for addressing colorectal cancer screening disparities within an integrated healthcare system: a comparative effectiveness study

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Background

Colorectal cancer (CRC) is the third leading cause of cancer death in the U.S. About 90% of CRC are treatable, when detected early through routine screening. However, significant CRC screening disparities exist, especially among Hispanics in California. The purpose of this study was to examine the effectiveness of a tailored small-media message intervention compared with a physician letter usual care intervention for increasing CRC screening rates among a non-adherent Hispanic patient population, within an integrated healthcare system client reminder program.

Methods

Both client reminders and small media are evidence-based strategies recommended by the Community Preventive Services Task Force, The Community Guide. Tailored small-media client reminders were mailed to eligible patients (n = 21,690), and compared to a retrospective group of patients (n = 21,671) whom received the physician letter usual care intervention. Tailored small-media client reminders included 2 postcards, 1 fecal immunochemical test (FIT) kit with a fotonota, and an automated outreach phone call. The tailored small-media materials was developed in the fotonota-style to illustrate a patient dialogue and address health literacy from the original FIT kit outreach. These materials were tested with 42 Latino men and women, ages 50-75, Spanish-speaking and English-speaking, to help refine the end-product before disseminating broadly to patients. Both intervention groups were matched based on the same eligibility criteria for CRC screening, using Healthcare Effectiveness Data and Information Set (HEDIS) criteria. Differences in difference analysis was used to mitigate the average effect change over time between the two groups.

Findings

Preliminary results suggest there was a significant difference in FIT screening rates at follow-up assessment between the tailored small-media message intervention (70.6%) and the usual care physician letter intervention (66.9%) using a 2-sided test, the difference from 0 = .0306 with a p-value < 0.01.

Implications for D&I Research

A tailored small-media message intervention designed to increase CRC screening rates among Hispanic patients in an integrated healthcare system client reminder program was significantly effective compared to usual physician letter client reminders.

Primary Funding Source

Internal operating funds

Poster Slam

S98

Tailoring knowledge in evidence based medicine: incorporating patient values and preferences into knowledge tools

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Background

Evidence based medicine (EBM) is the integration of best research evidence with clinical expertise and patient values. There are few methodologies on how to design evidence based programs and resources to include patient values. The latter is an important aspect of patient centred care, and is essential for patients to trust the recommendations and empower them as consumers to make informed choices. The challenge is to create a dynamic process that integrates the best research evidence with patient values to create recommendations that will be widely adopted by the population and will achieve the best outcomes. This is especially difficult for changing health behaviours such as helping smokers attempting to quit to simultaneously reduce or stop their consumption of alcohol.

Methods

We utilized the Canadian Institute of Cultural Affairs snow card consensus method (a process designed to enable all participants to listen to each other, identify important values and work toward a common resource) to design a program (along with resources) that integrates Screening, Brief Intervention and Referral to Treatment (SBIRT) for alcohol into an existing clinical program for smoking cessation, so that they would be both evidence informed as well as culturally sensitive/patient centered. The process consisted of five steps: 1. setting the stage; 2. brainstorming; 3. clustering ideas; 4. naming the cluster; 5. naming the resources.

Findings

Engagement event participants (n = 18) designed an evidence informed and community sensitive resource consisting of five sections: 1. immediate crisis supports; 2. internal/external supports; 3. self-awareness strategies; 4. strategies for success; and 5. risks of drinking and smoking. In April 2016, 221 Ontario primary care clinics started offering this resource to eligible patients. The adoption rates are much higher than those reported in other studies which offered evidence based (but not community sensitive) resources for reducing alcohol (15% vs, 3%).

Implications for D&I Research

EBM has a well-developed method to summarize existing knowledge through the development of guidelines, meta-analyses and systematic reviews. This model describes a method to include patient values with preliminary evidence that such adaptation increases the adoption of such resources.

Primary Funding Source

Canadian Cancer Society

S99

"Meet them where they are at" improving knowledge translation of health economics research on substance use disorder, HIV and HCV for policy

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Background

Economic evidence to inform substance use disorder (SUD), hepatitis C (HCV), and HIV treatment coverage and investment decisions has grown in importance in today's rapidly evolving healthcare system. With expanded opportunities to access evidence-based treatment for SUD, HCV, and HIV through insurance coverage expansions, parity laws, and system reforms, targeted and informed dissemination of research evidence to decision makers is critical for implementation of best-practice policy.

Methods

As part of the research program embedded within the policy and dissemination core for a NIDA center of excellence on the health economics of SUD, HCV and HIV treatment, investigators conducted an in-depth assessment of research end-users focused on identifying the needs for economic research to make informed decisions for these conditions. Taking advantage of the center's policy board, snowball sampling was used to enroll 18 informants. An interview guide, informed by Mitton's knowledge transfer framework of evidence based policy, was designed and piloted to explore the barriers and facilitators to the adoption and use of economic research for the treatment of these conditions within the context of the evolving broader healthcare system. 18 semi-structured interviews of end-users (from sectors including government, integrated health systems, private health insurance, pharmaceutical industry, advocacy, and clinical care) were conducted by interviewers trained in qualitative research methods. Interviews were recorded, transcribed, and analyzed using qualitative analysis software (NVivo 11, QSR International).

Findings

7 nodes were identified, through iteration, to emerge from the interviews: 1) process for economic research to reach policy makers, 2) the impact of health reform, 3) cost effectiveness of various treatments, 4) terminology and challenges with framing results, 5) differences between various clinical conditions, 6) structural barriers to knowledge transfer and use, 7) structural facilitators to knowledge transfer and use. Investigators have deemed the interviews to have reached near thematic saturation. Additional interviews and full thematic analyses are underway and will be completed by Sept 2016.

Implications for D&I Research

Producers and users of health economics research can engage in specific "push" and "pull" activities to respectively translate and use research evidence to improve policies related to the treatment of SUD, HCV and HIV.

Primary Funding Source

National Institutes of Health - Funded by a National Institute of Drug Abuse Center of Excellence Grant (P30DA040500)

S100

Orthoguidelines: innovative dissemination to incorporate evidence-based recommendations into the episode of care

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Background

In orthopaedics, mobile technologies were not being optimized to disseminate evidence-based initiatives. Clinical practice guidelines (CPGs) were only accessible as reports; recommendations could not be searched, and multiple guidelines could not be accessed concurrently. These large PDFs were not easily viewed on mobile devices or during the episode of care. An AHRQ grant funded project created a new dissemination strategy for CPGs that allows users to access the recommendations and evidence-based information in a quicker, more concise manner.

Methods

A new platform, OrthoGuidelines, was created. The AAOS membership was surveyed prior to and following the platform launch to gauge the receptiveness of the orthopaedic community to mobile technologies, as well as web and smart-phone use, CPG use, and perceptions of CPG utility. The platform was also evaluated for utility via surveying and focus group; improvements were made based on member, leadership, and resident feedback.

Findings

We developed OrthoGuidelines to house all AAOS quality products. Users can navigate all guideline recommendations by orthopaedic disease, strength of evidence, and stage of care. The platform is laid out to enable quick navigation, comprehension, and clinical use. Users can also search all AAOS recommendations, rationales, and appropriate use criteria with a single keyword search. There have been over 5,000 app installs and over 62,000 website hits since launching in March of 2015. The membership survey results showed improvement across multiple metrics. Respondents were more likely to find what they were looking for in CPGs (41.5% to 48.5%), more likely to have accessed a CPG via smart-phone app (33% to 16.1%), more likely to find smart-phone apps for CPGs useful (79.6% to 93.6%), and more likely to have accessed a CPG online within the last month (28.7% to 33.3%).

Implications for D&I Research

OrthoGuidelines enables quicker and more widespread dissemination while also offering data collection opportunities as to where, when, and how often the recommendations are being accessed. The survey results demonstrate a change in behavior among AAOS members after the implementation of a new dissemination strategy. The results suggest that dissemination and implementation strategies influence not only how often CPGs are accessed, but also how useful they are to AAOS members.

Primary Funding Source

Agency for Healthcare Research and Quality - Development and testing of the tool discussed were funded by AHRQ Grant # 1R18HS021954-01

S101

Improving data quality across 3 sub-Saharan African countries using the Consolidated Framework for Implementation Research (CFIR): results from the African Health Initiative

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Implementation Science 2017, **12**(Suppl 1):S101

Background

High-quality data are critical to inform, monitor and manage health programs. Over the seven-year Doris Duke Charitable Foundation's African Health Initiative, three of the five country Partnerships supported by the initiative introduced strategies to improve the quality and evaluation of routinely-collected data at the primary health care level, and stimulate its use in evidence-based decision-making.

Methods

Using the Consolidated Framework for Implementation Research (CFIR) as a guide, this paper 1) describes and categorizes data quality assessment and improvement activities of the Partnerships in three sub-Saharan African countries (Mozambique, Rwanda, Zambia), and 2) identifies core intervention components and implementation strategy adaptations introduced to improve data quality in each setting.

Findings

Across the three countries, data quality audits and mentorship/supportive supervision were identified as core intervention components. The projects were introduced in different contexts with unique data quality challenges and priorities so implemented activities were classified along a continuum from core to peripheral, reflecting the degree of applicability across the three settings. Activities that both assessed and improved data quality (including data quality audits, mentorship and supportive supervision, establishment and/or strengthening of electronic medical record systems), received higher ranking scores from respondents. These higher ranking activities were also identified as effectively engaging MOH partners to varying degrees in their design, data collection and analysis.

Implications for D&I Research

This study, which applied the CFIR in three sub-Saharan African settings, enabled extraction of cross-intervention learnings which can inform implementers working to improve health information systems in resource constrained environments as a critical step to increasing data utilization for decision making, and ultimately the effectiveness of health care delivery.

Primary Funding Source

DDCF African Health Initiative

S102

Barriers and facilitators of adherence to a standardized handoff intervention according to different clinician types: findings from a hybrid effectiveness-implementation study of operating room to intensive care unit handoffs

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Implementation Science 2017, **12(Suppl 1):**S102

Background

Hospitalized patients whose care is transferred from one team to another experience a "handoff", during which patient information and accountability are transferred. Despite the Joint Commission's assertion that handoffs should be standardized to decrease harm, standardized handoffs remain uncommon. We sought to understand facilitators and barriers to adhering to a standardized handoff for patients being transferred from a surgical operating room (OR) to the intensive care unit (ICU).

Methods

In 2014, as part of the Handoffs and Transitions in Critical Care (HATRICC) study, we conducted interviews, focus groups, and collected surveys to elicit barriers and facilitators of adhering to a standardized handoff process. We analyzed qualitative data according to grounded theory and characterized quantitative data with descriptive statistics.

Findings

We conducted 63 interviews, 3 focus groups (19 participants), and collected 133 surveys from clinicians participating in OR to ICU handoffs, including physicians, nurses, and advanced practitioners. All of these clinicians agreed that checklists or protocols could be useful for improving handoffs, but concern about the difficulty of achieving change was common. Surgeons and anesthesia clinicians identified checklist/protocol simplicity, relevance and flexibility as facilitators and excessive length as a barrier to checklist or protocol adherence. Nurses expressed skepticism that physicians would adhere to a protocol or checklist. For all clinicians, competing priorities were perceived to threaten adherence to a candidate protocol or checklist. For nurses, these priorities included direct patient care and monitoring. For OR physicians and nurse anesthetists, there was perceived time pressure to leave the handoff episode to care for other patients. When asked what type of data would prompt them to change their handoff practice, the greatest number of respondents selected evidence supporting improved outcomes with a different process (117/133, 88.0%), followed by data showing improved communication (95/133, 71.4%) and data showing that patients in our health system had been harmed during handoffs (84/133, 63.2%).

Implications for D&I Research

Different clinician types perceive distinct barriers and facilitators of adherence to standardized handoffs. Evidence linking handoffs to outcomes was most valued as a catalyst to spur change. Handoff process development should include different clinician perspectives and address clinicians' desire for supporting evidence.

Primary Funding Source

Safety Scientist Career Development Award

S103

The Standards for Reporting Implementation Studies (StaRI)

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Implementation Science 2017, **12(Suppl 1):**S103

Background

Implementation studies are often poorly reported making it difficult to identify relevant studies and to synthesize the evidence base to inform practice.

Methods

A systematic literature review and international eDelphi exercise identified candidate items for inclusion in the StaRI reporting standards. A consensus workshop convened with15 international multidisciplinary delegates reviewed candidate items and produced a draft checklist. Discussions were informed by the outcome of the e-

Delphi exercise, other published reporting standards, the wider literature, and the panel's IS expertise. The initial draft statement and documents were subsequently discussed and developed iteratively by e-mail.

Findings
The StaRI checklist identifies standards for reporting implementation studies that evaluate implementation efforts to enhance the adoption and sustainability of evidence-based interventions across the range of study designs used in implementation science (IS). Two defining concepts underpin the StaRI reporting standards: (i) the dual strands of describing the implementation strategy and the clinical, healthcare, or public health intervention

being implemented; and (ii) unlike most reporting standards that apply to a specific research methodology applied in range of contexts, StaRI standards pertain to the broad range of study designs employed in implementation science. The presentation will review the 27checklist items.

Implications for D&I Research
Implementation science is a rapidly evolving field with no clear consensus on quality standards for reporting. The StaRI is an evolving document and potentially a catalyst for discussing and defining how implementation studies are planned and reported.

Primary Funding Source

S104

Clinician-stakeholders' perspectives on using patient portals to return genetic screening results

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Implementation Science 2017, **12**(Suppl 1):S104

Background
Genetic tests have traditionally been returned by genetic counselors who can explain their implications. Electronic Health Record (EHR) patient portals may increase the efficiency of results return, and could activate patient follow-up for conditions such as Lynch Syndrome (LS), an inherited colorectal cancer syndrome. Universal colorectal cancer tumor screening (UTS) for LS is recommended, but patients who screen positive and their at-risk relatives exhibit low uptake of genetic services. Stakeholder input is necessary to determine acceptability and appropriate implementation of patient portals to improve follow-up outcomes of UTS.

Methods
Twenty interviews were conducted with clinicians from six specialties. Participants were recruited using purposive and snowball sampling and represented urban and rural settings ranging from academic medical centers to local clinics and hospitals. Data were analyzed using directed content analysis and thematic analysis across content categories.

Findings
Genetic specialists felt that genetic-related testing (screen or sequencing), should not be returned electronically. Others (gastrointestinal clinicians, oncologists, pathologists, primary care providers) felt results could be returned through portals if supplemented by a conversation, because genetic results are "sensitive." Several mentioned that routine screening information or a consent process would enable patients to anticipate the possibility of positive screen results. Some stated that patient preferences for communication modes should be respected, whether in-person, phone, or electronic, and that the timing of the return of results in the context of a cancer

diagnosis was critical. Portal results should include tailored content including links to reputable information, an explanation of the limitations of a screen, the need for confirmatory genetic testing, and contact information for a genetics specialist or notice of a referral.

Implications for D&I Research
Often patient portals are designed without patient or clinician input. With precision medicine, opportunities increase for patients to manage their health information electronically and for clinicians and healthcare organizations to leverage patient-centered information technology. LS screening is a well-evidenced application of genomic medicine: using patient portals to communicate screening results can inform electronic return of results for other clinical implementations of genomic medicine. Next steps include exploring patient views, and evaluating their likelihood of acting based on results received through the patient portal.

Primary Funding Source

S105

Healthlinks: increasing small, low-wage worksites' implementation of evidence-based interventions

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Implementation Science 2017, **12**(Suppl 1):S105

Background
The worksite is a powerful venue for reaching adults with evidence-based interventions (EBIs) to prevent chronic disease. Small worksites are less likely to have wellness programs with EBIs than larger worksites. The University of Washington and the American Cancer Society developed HealthLinks to disseminate EBIs to small worksites in low-wage industries. The core components of HealthLinks include an assessment of wellness EBIs, a tailored recommendations report, a set of toolkits for recommended EBIs, and monthly check-ins and technical assistance. We conducted a three-arm, site-randomized trial to test whether HealthLinks increased EBI adoption at small worksites, and whether having a wellness committee facilitated EBI adoption.

Methods
We recruited 78 worksites and retained 72 through the 15-month follow-up. Worksites were randomly assigned to one of three arms after completing baseline data collection: standard HealthLinks (n = 26), HealthLinks plus wellness committee (n = 25), or delayed control (n = 21). Worksites in the two HealthLinks arms received the HealthLinks intervention from a trained interventionist. The interventionist delivered HealthLinks to a key contact at the worksite, usually the human resources manager. In the HealthLinks plus wellness committee arm, worksites also received toolkits and interventionist support to create a wellness committee. The assessment of wellness EBIs was administered again at 15 months; these assessments are the source of the baseline and follow-up data. We scored worksites' implementation of policy, program, and communication EBIs on a 0-100% scale.

Findings
EBI implementation increased in both HealthLinks arms compared to the delayed control arm, p < .001. Worksites in the standard HealthLinks arm increased from 17% at baseline to 49% at follow-up,

worksites in the HealthLinks plus wellness committees arm increased from 19% at baseline to 48% at follow-up, and worksites in the delayed control arm had 20% EBI implementation at baseline and 23% at follow-up. The two HealthLinks arms did not differ in EBI implementation at baseline or follow-up.

Implications for D&I Research

Small worksites that participated in HealthLinks more than doubled their EBI implementation. Future HealthLinks research will focus on sustainability of EBI implementation after worksites complete HealthLinks, as well as work with the American Cancer Society to study different methods of taking HealthLinks to scale.

Primary Funding Source

National Institutes of Health - R01 funded by the National Cancer Institute

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S106

A qualitative investigation of a nationally disseminated, evidence-based Lay Health Advisor (LHA) Program for African American women: advancing understanding of the implementation and sustainability of LHA programs in community settings

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Implementation Science 2017, **12**(Suppl 1):S106

Background

Lay Health Advisor (LHA) programs have made strong contributions towards the elimination of health disparities, and are increasingly being implemented to promote health and prevent disease. Developed in collaboration with African American survivors, the National Witness Project (NWP) is an evidence-based, community-led LHA program that improves cancer screening among African American women. Over the past twenty years, NWP has been successfully disseminated, replicated, and implemented nationally in over 40 sites in 22 states in diverse community settings, reaching over 15,000 women annually. We sought to advance understanding of barriers and facilitators to the implementation and sustainability of LHA programs in community settings from the viewpoint of the LHAs, as well as the broader impact of the program on African American communities and LHAs.

Methods

In-depth telephone interviews were conducted among 76 African-American LHAs at eight NWP sites at baseline and 12-18 months later, between 2010 and 2013. Transcripts were analyzed and coded independently by two coders using Dedoose software for qualitative analysis. A thematic content analysis was conducted to identify key themes and illustrative quotes.

Findings

Qualitative data provides insight into inner and outer contextual factors (e.g., community and organizational partnerships, site leadership, program champions, funding), implementation processes (e.g., initial and ongoing training), as well as characteristics of the intervention (e.g., perceived need and fit in African American community) and characteristics of LHAs (e.g., motivations, burnout) that are perceived to impact the continued implementation and sustainability of NWP.

Implications for D&I Research

We highlight the implications of findings to: 1) refine theoretical frameworks in Dissemination & Implementation Science; and 2) inform strategies to support the continued implementation and sustainability of evidence-based LHA interventions in community settings. In addition, building off of these qualitative findings and our prior quantitative research from this study, we present the Lay Health Advisor Sustainability Framework, a multi-level framework proposed for researchers to study the long-term implementation and sustainability of LHA programs in community settings.

Primary Funding Source

National Institutes of Health - R03 study funded by the National Cancer Institute

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S107

De-implementing prescription of opioid medication for chronic pain in rural health clinics

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Implementation Science 2017, **12**(Suppl 1):S107

Background

Prescription opioid abuse, overdose and death are epidemic in rural settings. Addressing this epidemic requires "de-implementation" of the longstanding strategy of prescribing opioids for chronic pain. Asking providers and patients to reduce or eliminate an existing treatment is a challenge. The Team-Based Opioid Management Project developed a "de-implementation framework" of Six Building Blocks to safer opioid prescribing to create a structure for rural clinic organizations in changing their opioid prescription practices. We describe the Six Building Blocks, and how organizations' self-assessment of their performance in these six domains informed their de-implementation strategies.

Methods

The Building Blocks were based on opioid prescription management system changes identified during visits to thirty exemplar U.S. primary care clinics that had implemented team-based workforce innovations. We developed a 20-item survey to assess organizations on the Building Blocks; asked providers, staff and administrators from the six organizations to complete the survey at baseline; and calculated survey measure frequencies by organization.

Findings

The Six Building Blocks include: 1) leadership support, 2) registry use to proactively manage patients, 3) revision of policies, treatment agreements, and workflows, 4) patient-centered visits, 5) resources and support for complex patients, and 6) measuring and monitoring success. In two thirds or more of the organizations, either leaders or clinical staff ranked their sites as most challenged in: 1) using data for care improvement, 2) formal policies and standard work related to opioid prescribing and prescription monitoring program use, 3) patient education materials, 4) patient involvement in decision-making, 5) care plans for chronic pain management, and 6) behavioral health services. All organizations began de-implementation by revising their opioid management policies, workflows, and treatment agreements. Next, organizations simultaneously began planning to use data for care improvement, to educate patients about opioid risks and clinic efforts to reduce these, and to integrate care plans into patient visits. Improving behavioral health services was a key gap but a hurdle too big for early stages of de-implementation.

Implications for D&I Research

A structured de-implementation framework with a self-assessment survey helped clinic organizations prioritize system changes as they worked to reduce opioid prescribing for chronic pain.

Primary Funding Source

Agency for Healthcare Research and Quality

S108

Improving methods for implementing computer-based mapping in VA home-based primary care practices nation-wide

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Implementation Science 2017, **12(Suppl 1):**S108

Background

This work develops and evaluates implementation of Geographic Information System (GIS) mapping for the Veterans Affairs Home-Based Primary Care (HBPC) program. HBPC provides comprehensive primary care to Veterans who have complex, chronic conditions and face significant barriers to accessing clinic-based services. HBPC practices can benefit from secure, shareable maps to improve efficiency of practice management. While initial pilot work showed GIS can be feasible and useful, further work was needed to develop implementation strategies that fit contexts of diverse local sites.

Methods

This quality improvement study uses several methods in combination to support local implementation. The multi-disciplinary co-ordination team works with selected HBPC sites to learn and use GIS mapping. Implementation facilitation is used to adapt activities to specific site needs. Evaluation combines quantitative, survey, and interview data to assess extent of adoption, facilitators and barriers. Formative feedback is used to refine a toolkit that includes training, technical support, and other materials. HBPC sites participate voluntarily. Selection included pre-implementation assessment of readiness. Participation spread from a single site in 2012 to 17 sites in 2015, including small, medium, and large practices, in various geographic areas nationwide.

Findings

It is feasible for local HBPC sites to learn and use GIS maps in practice management, given adequate staff skills, training, and time. By October 2015, 15 of the 17 sites were making maps, and using them in practice management; the other two sites were still training. The most common uses included assigning patients to providers, managing territories and day-to-day travel, program expansion, and emergency preparedness. Sites were generally satisfied, and perceived that the maps helped improve patient assignment, providers' travel time, and number of visits to patients' homes. They also reported challenges related to staff turnover in key mapping-related positions, as well as competing demands on time. The majority strongly recommended ongoing training and technical support, to hone their map-making skills and carry out more complex tasks.

Implications for D&I Research

The combination of implementation methods that could be adapted to specific needs of sites was an asset. Various organizational stake-holders at the national level will need to collaborate for further spread and ongoing sustainability in regular operations.

Primary Funding Source

Department of Veterans Affairs - Operational special project

S109

Re-conceptualizing facilitation in the implementation of mission-vet in VA homeless services

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Implementation Science 2017, **12(Suppl 1):**S109

Background

Maintaining Independence and Sobriety through Systems Integration, Outreach, and Networking- (MISSION) is an evidence-based intervention that uses peer and case managers to engage homeless Veterans with co-occurring mental health and substance use disorders in care. MISSION is being implemented in VA Greater Los Angeles' (GLA) patient-centered medical home for homeless Veterans (Homeless Patient Aligned Care Team, HPACT), comparing implementation as usual (IU) to implementation enhanced with Facilitation. Using a mixed-methods formative evaluation (FE) to identify perceived barriers to implementation, we developed an innovative Facilitation strategy to overcome organizational barriers.

Methods

We administered an organizational readiness to change (ORCA) and implementation climate survey to staff (N = 42) trained in MISSION. ORCA measures were analyzed and mapped to the Consolidated Framework for Implementation Research (CFIR) constructs. We also conducted a purposive sample (N = 14) of semi-structured qualitative interviews of staff receiving MISSION training. Deductive content analysis was guided by the CFIR and triangulated with quantitative findings.

Findings

Survey and interviews identified potential barriers and facilitators to integrating MISSION into practice. The most salient CFIR constructs were 'outer setting' and 'characteristics of individuals'; staff felt responsible for improving patients' treatment engagement. Staff believed there was leadership support for MISSION, but sought more guidance on implementation expectations. Survey data on 'inner setting' indicates it was not immediately amenable to change. When mapped with interview data, it emerged that HPACT case managers and peers had no organizational pathways to work with each other on MISSION since peers are not on GLA's HPACT Teams. Consequently, we re-conceptualized our planned external + internal facilitation strategy. Typically, there is one Internal Facilitator (IF) per team; our re-designed enhancement of Facilitation will involve the external facilitator working with IFs from each stakeholder group to bridge workflow and organizational/disciplinary silos.

Implications for D&I Research

This project illustrates how FE can identify organizational barriers to adoption of complex clinical interventions and inform innovative adaptations to facilitation strategies to support implementation. This project will test this enhanced Facilitation approach, contributing substantively to a growing literature on facilitation's value in supporting implementation of evidence-based practices in the presence of complex organizational barriers.

Primary Funding Source

S110

Sustainment leadership predicts more positive attitudes towards evidence based practice over time

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Implementation Science 2017, **12**(Suppl 1):S110

Background

Leadership is crucial in shaping organizational climates and worker's perceptions and responses to organizational change. Implementation science frameworks posit leadership as a key component in the implementation and sustainment of evidence-based practices (EBPs). Measures have recently been developed and validated to examine implementation leadership and implementation climate. These measures have also been modified to measure leadership and climate during the sustainment phase of the EPIS (Exploration, Preparation, Implementation, Sustainment) framework. This prospective study examines a mediational model wherein sustainment leadership and sustainment climate predict future attitudes towards EBP. We hypothesized that more positive sustainment leadership would be associated with more positive sustainment climate, which, in turn, would predict more positive attitudes towards EBPs.

Methods

Survey data were collected from 112 allied health service providers in a child welfare system in two states across a two year time period. Providers were nested in 28 teams within 21 organizations. Sustainment Leadership Scale and Sustainment Climate Scale scores in 2014 were used to predict Evidence-Based Practice Attitude Scale scores in 2015. Structural equation modeling (SEM), accounting for the nested data structure was used to examine the impact of sustainment leadership on sustainment climate and their associations with provider attitudes toward EBP. "Rmediation" analysis was used to examine indirect effects. A competing partial mediation model was also examined and compared to the hypothesized model using the Satorra-Bentler (S-B) chi-squared difference test.

Findings

Results provided support for positive relationships linking sustainment leadership to sustainment climate and attitudes toward EBPs. Significant positive relationships were found between sustainment leadership and sustainment climate ($\beta = .63$, $p < .001$), and between sustainment climate and provider attitudes toward EBP one year later ($\beta = .56$, $p < .001$). Results also supported the presence of a mediational relationship (indirect effect = .362, 95% CI [.169, .604]). Result of the S-B chi-squared difference test also supported full mediation (S-B $\chi^2 \Delta = 1.71$, $p > .05$).

Implications for D&I Research

Organizations implementing EBPs may benefit from improving leadership and climate for EBP implementation and sustainment. Training to improve sustainment leadership may improve the efficiency and effectiveness of implementation efforts in allied health organizations and to subsequently increase the public health impact of EBPs.

Primary Funding Source

S111

Extended follow-up of patient outcomes in the multi-center randomized cogent study of in-person versus telephone disclosure of cancer genetic test results

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Background

Alternative delivery models are needed in the era of Precision Medicine given a shortage of genetic providers and increasing utilization of genetic testing across medicine. Telephone disclosure (TD) of genetic test results, including multi-gene panel testing, is non-inferior to usual care in-person disclosure (IPD) for short-term distress but failed non-inferiority for knowledge and longitudinal data is needed.

Methods

970 patients at 5 centers undergoing clinical cancer genetic testing were randomly assigned to usual care IPD (n = 497) or TD (n = 473) of results in the COGENT Study (NCT01736345). Participants completed surveys at baseline, post-disclosure and at 6 months. Primary outcomes were knowledge, state and general anxiety. We used non-inferiority tests for primary analyses, and T-tests and logistic regressions for secondary analyses.

Findings

TD was not worse than IPD for general and state anxiety both post-disclosure and at 6 months, but did not reach the non-inferiority threshold for knowledge at either time point. In secondary analyses, there were no significant differences in anxiety, depression, or cancer worry between arms, but a trend towards lower knowledge gain in

the TD arm (-0.40 v. +0.08 in IPD, p = 0.07). Among those disclosed by TD with a genetic counselor, 195 (50%) returned for the recommended clinical follow-up with a physician to discuss medical management. Not returning for follow-up after TD varied by site and was associated with a negative result, *BRCA1/2* testing only, being male and non-white. Those who did not return for follow-up had significantly less gain in knowledge at 6 months (-0.23) compared to those who had TD and returned for follow-up (+0.36, p = 0.05). Those who had TD and returned for follow-up did not have significant differences in change in knowledge compared to IPD.

Implications for D&I Research
Patient reported distress is not unacceptably worse with TD of results than IPD, but knowledge failed the test for non-inferiority. Knowledge gains were significantly lower for those who did not return for medical follow-up. Telephone disclosure of genetic test results, even MGPT, may be a reasonable alternative to in-person disclosure for patients who agree to return to meet with a provider for medical management recommendations.

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S112

The Participant-Reported Implementation Update and Score (PRIUS): a new method for capturing implementation-related developments over time

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Background
A new "TeleSleep" quality improvement (QI) program was implemented in 2016 at the Roudebush VA Medical Center in Indianapolis that brought the staff of the local Sleep and Telehealth services together for the first time. The Implementation Core (IC) of the VA Precision Monitoring (PRIS-M) QUERI sought to understand how staff in different services and job positions experienced and perceived ongoing implementation of the QI initiative.

Methods
The Participant-Reported Implementation Update and Score ("PRIUS") is a five-minute check-in method developed and piloted by the VA PRIS-M IC designed to elicit how key participants view implementation at different points in time. PRIUS sessions took place approximately every two or three weeks as an in-person or phone conversation between participant and IC member. Participants responded verbally to the question "What are some things that happened over the past 2-3 weeks that seem relevant from your perspective to the implementation of the TeleSleep project"? Participants then verbally scored each reported "update" with a number ranging from +3 to -3. Positive scores indicated a positive influence on the implementation process; negative scores indicated a negative influence; and zero indicated neutral influence. A "3" indicated a strong influence, "2" moderate, and "1" weak.

Findings
Five members of the IC conducted PRIUS sessions with 12 different staff members involved in the Telesleep project over a 6-month period in 2016. There were 62 different PRIUS sessions containing a total of over 225 updates; the average PRIUS session had 3-4 updates. New PRIUS entries were discussed twice a month during IC meetings; major developments and themes were shared with the lead investigator of TeleSleep. PRIUS findings included that Sleep and Telehealth staff reported fundamentally different perspectives on TeleSleep implementation; that the TeleSleep project coordinator played a key boundary-spanning role critical to implementation success; and that a seemingly modest event (a catered "appreciation" lunch for TeleSleep staff) unexpectedly proved to be a turning point in TeleSleep implementation.

Implications for D&I Research
The PRIUS method provides an efficient, structured way to elicit and capture perspectives of diverse participants on local implementation-related developments over time, generating new sources of both qualitative and numerical data for analysis.

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S113

National Institutes of Health Pathways to Prevention program: weighing the evidence, identifying the research gaps, and disseminating to the prevention research community

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Background
Developing informed, comprehensive approaches to disease prevention has many challenges, including conflicting evidence and research gaps. The Pathways to Prevention (P2P) program, sponsored by the NIH Office of Disease Prevention, convenes workshops that help build consensus on a research topic, shape future research agendas, and disseminate action plans for researchers and federal agencies. This process addresses needs identified in the Knowledge Translation for Research Utilization Framework.

Methods
The P2P program identifies research needs for a selected topic through an evidence review, a comprehensive workshop featuring diverse expert perspectives, and an unbiased analysis by a panel of scientists external to the field. A federal partners' meeting is convened to discuss federal agency actions based on workshop recommendations. The identified needs and recommendations are disseminated through published reports: a Systematic Evidence Review, the Workshop Panel's final report, and Federal Partners Meeting report, and other digital communication tools.

Findings
To date, five P2P workshops have been conducted, addressing youth suicide (2016), Total Worker Health® (2015), myalgic encephalomyelitis/chronic fatigue syndrome (2014), opioids and chronic pain (2014), and polycystic ovary syndrome (2012). Workshop findings and recommendations have served as a catalyst to advance these fields. For example, published reports from the P2P workshop on opioids collectively yielded 177 citations and 379 second generation citations (July 2016), and the federal action plan was used by the NIH Pain Consortium to create a new research program addressing the complex challenges of effectively treating chronic pain.

Implications for D&I Research
The dissemination of P2P findings draws attention to scientific topics of broad public health importance and their significant research gaps. The P2P program addresses barriers within the Knowledge Translation for Research Utilization Framework[1], especially within the knowledge creation, knowledge transfer, and research utilization phases. Broader application of the program's evidence-based process can assist research and policy development.

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S114

The good coach: reciprocal influences of outer and inner context on coaching as fidelity support during evidence-based intervention implementation and sustainment

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Background

Evidence-based intervention (EBIs) implementation unfolds within complicated social, political, and economic contexts and is influenced by the attitudes and behaviors of diverse stakeholders situated within these environments. Coaching is commonly regarded as an effective strategy to support service providers in the delivery of EBIs and attainment of high levels of fidelity over time. The purpose of this poster is to address a gap in research concerning factors that influence coaching as a key EBI support strategy.

Methods

Data were collected in eleven child welfare service systems as part of a prospective (> 10 year) mixed-method examination of implementation and sustainment of one EBI to prevent child neglect and related health problems. We conducted individual semi-structured interviews ($n = 166$), small group interviews averaging three participants each ($n = 13$), and focus groups averaging six participants ($n = 80$) with a wide range of stakeholders in all eleven service systems. We use the Exploration, Preparation, Implementation, and Sustainment (EPIS) framework to consider inner-context (i.e., within service delivery organizations) and outer-context (i.e., system level) factors affecting coaching over time. Analyses included open and focused coding to derive predominant themes and issues related to coaching implementation and sustainment.

Findings

The analysis pointed to six interrelated themes: perceptions of coaches by sustainment status; coach as peer; inner-context coaching capacity; EBI developer requirements versus outer-context needs; outer-context support; and inner-context support. Coaches characterized as successful were those who effectively navigated and negotiated changing inner and outer contexts throughout the EPIS Implementation phase and into the Sustainment phase. Coaches were often described by other stakeholders as operating in a boundary-spanning capacity.

Implications for D&I Research

Supportive coaching relationships can be fostered by conscious efforts to integrate and institutionalize the role of coaching in the implementation and sustainment of EBIs. Providers and coaches in the present study identified coaches as boundary spanners who link inner and outer contexts, and facilitate communication pertaining to implementation. However, we caution government and CBO administrators that while it may be valuable for coaches to span the inner and outer context, it may also compromise the integrity of their specific role within EBI implementation and sustainment.

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S115

Use of natural language processing to support prevention of non-elective rehospitalization

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Background

Rehospitalization prevention efforts have been hampered by limitations of existing predictive models. Information on non-clinical factors (e.g., social support, functional status) found in clinicians' free text notes could enhance prediction. We describe data extraction from free text notes using natural language processing (NLP) and challenges to the use of such data for prediction and prevention of rehospitalization.

Methods

Using commercially available NLP software (I2E, Linguamatics), we extracted data from clinician free text notes. Our study cohort consisted of 360,036 adults who experienced 609,393 hospitalizations at 21 Kaiser Permanente Northern California hospitals from 6/1/10-12/31/13. Data were extracted as individual "atoms" ("patient lives with daughter" or "patient lives with spouse") that we combined into "molecules," ("patient lives with family OR spouse OR daughter …") permitting comparisons with groups of patients characterized by other "molecules" (e.g., living alone). We also interviewed 1,152 patients to enable comparison to validated measures of social support and functional status.

Findings

We extracted 6,218,897 free text notes written by physicians, nurses, social workers, discharge planners, and physical therapists. Data were formatted into 376 individual "atoms." Concordance between NLP and interviews was good: 86.4% of patients reporting living with others had confirmatory NLP data. Substantial data collection bias was present: sicker patients were much more likely to have free text information on support or functional status. For example, data indicating that a patient was living with a professional caretaker (nurse, paid helper or caregiver) was found in only 1,740 patients, whose average acute physiology score was 81 ± 36 and whose average comorbidity score was 68 ± 53; in contrast, patients with no information ($N = 41,012$) had scores of 39 ± 32 and 31 ± 38, respectively. When information was available, indicators of social support did enhance ability to predict readmission, although associations varied by patients' acute severity of illness, comorbidity burden, and type of diagnosis.

Implications for D&I Research

Systematic biases in data availability constitute a major limitation to the use of NLP data for rehospitalization prediction and prevention. It is unlikely that NLP data can be used in isolation – counterfactual methods as well as judicious combination with data from formal interviews may be required.

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