Dissemination and Implementation Science to Advance Health Equity: An Imperative for Systemic Change

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Innovations in public health research and evidence-based interventions targeting chronic and infectious diseases are only effective if they reach their target populations. Individuals from low socioeconomic background, racial and ethnic minorities, and sexual/gender minority communities are most susceptible to chronic diseases such as obesity and cancer, and infectious diseases such as HIV and COVID-19. These disparities are driven by social and structural conditions including stigma and discrimination, housing instability and food insecurity, among others. Accordingly, interventions that aim to improve population health must be targeted toward marginalized communities who are often systematically excluded from decision making processes. This article introduces dissemination and implementation science as a key opportunity to advance health equity through integrating measures and metrics that evaluate if an intervention is successful at improving health outcomes in marginalized populations. Implementation science also provides frameworks to help evaluate the key determinants to implementation success which can inform subsequent health outcomes. Examples of how researchers have engaged with community stakeholders are provided, along with strategies in which dissemination has gone beyond traditional practices. Finally, ways in which universities can build capacity for implementation science as a means to address health disparities are provided with the goal of improving the translation of research to practice.

Keywords: implementation science, health equity, community engagement, dissemination

Introduction

Key social and structural drivers of health disparities in infectious and chronic diseases warrant significant attention.[1-3] Such social and structural drivers of diseases include structural racism and discrimination, structural stigma, segregation, incarceration, anti-immigration policies, housing instability, and historical trauma.[4] Systematically excluded racial and ethnic and sexual and gender minorities and those from low socio-economic status are at a greater risk for such diseases and are often excluded from decision-making processes which take place concerning prevention and treatment.[5] Many interventions have been conducted to mitigate increases in rates of diseases, but more research is needed to

understand how and why these interventions succeed or fail in real-world settings. To fully address these issues, researchers and practitioners must address the factors that contribute to enhance equity, effectiveness, scale-up and sustainability of preventive measures, programs, policies, and interventions.

Dissemination and implementation science provides a key set of theories, models, and frameworks to address these issues through a pragmatic approach.[6] This field is driven by the pervasive issues in translating evidence-based interventions and practices into real-world systems and policies. This paper provides an overview of the field of implementation science and its necessary use to advance health

equity through community partnerships. Few pragmatic examples exist in the literature to illustrate how implementation science and community engagement align, so case examples are included on work with communities that serve systematically excluded and marginalized populations with an eye toward stakeholder engagement as a form of ongoing dissemination. Finally, the article concludes by recommending ways to build capacity for rigorous and meaningful implementation science grounded in addressing health disparities and inequities and practicing equitable dissemination and information sharing from the beginning of the research process.

Key Concepts of Implementation Science

Dissemination and implementation science facilitates the process by which evidence-based interventions are implemented and sustained in practice.[6] Table 1 provides a concise overview of key definitions in implementation science. Through this lens, the desired outcome is <u>implementation effectiveness</u> as a means to reach <u>clinical effectiveness</u> (i.e., HIV, COVID-19, obesity prevention). This is achieved by developing implementation strategies which are designed to enhance implementation of evidence-based interventions (EBI).[7] Such strategies can be chosen through a variety of ways, but implementation mapping is a key method to ensure a stakeholder-driven process.[8] Although

implementation science provides systematic approaches for increasing real-world impact of obesity prevention, health equity is not explicitly considered.[9]

Numerous key theories, models, and frameworks provide structural underpinning for implementation science research.[10-12] These can be conceptualized as fitting in to three primary "categories" of 1) implementation determinants; 2) implementation process; and 3) implementation outcomes. A review by Tabak and colleagues provides a strong and comprehensive overview of these various frameworks,[10] those most commonly used are below.

Table 1.
Key Definitions for Dissemination and Implementation Science

Term	Definition
Implementation Research	The study of how best to help clinics/schools/communities implement evidence-based interventions (EBI)
Implementation Determinants	Factors which have been identified as influential to implementation of an EBI
Implementation Outcomes	Measures that inform how well the EBI was executed
Implementation Strategies	Interventions that are developed and tested to improve uptake of the EBI
Implementation Mapping	Stakeholder-driven approach to selecting and tailoring implementation strategies for an EBI

Implementation Processes and Outcomes

The Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) framework is frequently used to guide researchers' development and evaluation of EBIs when implemented in a variety of settings, such as healthcare, communities, schools, and others.[13,14] The word *Reach* pertains to the proposed/actual population that is impacted by a certain EBI as a marker of implementation success, with the notion that the better an intervention is penetrated within a system, the more likely it may be to succeed. *Effectiveness* relates to the perceived or actual efficacy of an intervention to elicit specific outcomes, such as a change in health behavior or an organizational construct (e.g., capacity, retention, climate). *Adoption* is operationalized as the willingness and intentions of key stakeholders within an organization to implement the EBI. *Implementation* relates to a series of specific outcomes that indicate an EBI has successfully been implemented within its target setting. These outcomes can be singular or multifaceted constructs (discussed below) which help to elucidate if an intervention is working and how.

Finally, *Maintenance* places emphasis on the degree to which an EBI has been sustained in practice and the processes needed to ensure such sustainment. The RE-AIM provides an ideal overarching implementation process framework and is perhaps the most commonly used model in implementation science due to its simplicity and pragmatism.

To operationalize key implementation outcomes, Proctor and colleagues led the development of a framework to operationalize eight key indicators of successful implementation.[15] These are: 1) acceptability (satisfaction with EBI), 2) adoption (intentions to implement), 3) appropriateness (degree of fit within institution), 4) cost (financial costs of implementation), 5) feasibility (relative ease of implementation), 6) fidelity (implementation as intended), 7) penetration (relative reach), and 8) sustainment (maintenance over time). This framework is often applied to study how well an EBI has been implemented within a specific setting; numerous measurement tools have been produced to help assess the degree of implementation success.

Implementation Determinants

In addition to knowing whether a specific EBI was implemented successfully, researchers also need to know how/why this occurred. This is especially helpful when an effort has had varying levels of success among multiple settings (e.g., several different healthcare facilities) and investigators need to understand what factors influenced implementation.[16] To help us understand these factors, implementation determinant frameworks are needed which encompass empirically derived factors known to drive these outcomes. One commonly used framework is the Consolidated Framework for Implementation Research (CFIR),[17,18] which provides a comprehensive set of domains to categorize constructs/factors which are commonly understood as influential in implementation of EBIs. These five domains

are: 1) Innovation Characteristics (factors about the intervention itself), 2) Outer Setting (factors outside the immediate implementation setting such as networks and policies), 3) Inner Setting (within-context facets of organizational culture, climate, leadership, and readiness), 4) Individual Characteristics (implementation leadership, self-efficacy, training), and 5) Implementation Process (planning, engaging stakeholders, implementing, reflecting, and evaluating). In its entirety, this framework helps researchers to fully address contextual variables which can impact implementation and provide meaningful, rich data for development of implementation strategies to bolster positive determinants or mitigate negative determinants. Despite existence of multiple frameworks and models, the meaningful integration of health equity is essential to achieve systemic change, and to

understand how systematically and structurally excluded populations may fully benefit from evidence-based interventions.[9]

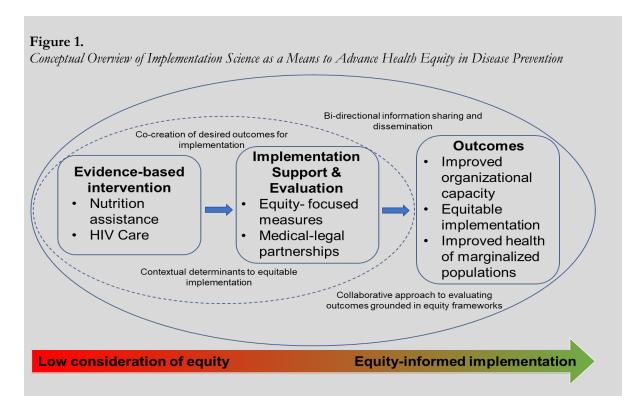## Need for Health Equity as Key Focus of Implementation Science

The field of implementation science has embraced health equity as a key focus for advancing the field, with numerous key commentaries published to advance conceptualization of this integration.[19-22] One particular commentary by Bauman & Cabassa[22] highlights key steps needed to advance this integration using the Proctor implementation evaluation framework as an illustrative example. Specific guidance included a focus on reach from the very beginning whereby interventions and implementation strategies should be tailored to reach the needs of a specific population, conducting a needs assessment to tailor these interventions to the target population, and develop adaptations to adjust nuanced needs over time. In addition, they suggest using an equity lens to evaluate implementation outcomes and build on existing frameworks for such evaluation. Complementary work from other scholars in the field has provided ways to expand frameworks, such as RE-AIM,[13,23,24] to advance health equity through careful integration of each component of the model.[25] Such incremental conceptualization can facilitate dialogue between researchers and stimulate the development of new measures to examine outcomes.

Further, to improve understanding of implementation determinants, frameworks such as the Health Equity Implementation Framework (HEIF) have been developed.[20,26] The HEIF builds on the CFIR and similar frameworks through providing a series of constructs which will help address some of the structural, interpersonal, and policy-related factors heavily linked to equity and equitable implementation. For example, in addition to understanding individual characteristics and inner setting factors, the HEIF emphasizes the need to study provider and recipient characteristics (i.e., race/ethnicity, experience, beliefs) which could impact how interventions are implemented with equity. Woodward et al. expanded on this framework with a pragmatic resource to embed equity constructs into other determinant frameworks and measures, helping researchers and practitioners looking to improve their efforts to address health disparities.[20]

Despite the growth of literature and resources in the last several years, there is a lack of guidance for researchers and practitioners on equitable dissemination to the populations who are the recipients of our EBIs, warranting a deeper dive into these issues. Few illustrative/pragmatic examples are in the published literature on how implementation scientists can meaningfully integrate equitable communication and engagement with the populations they seek to serve through research. Perhaps due to other norms and policies governing academic work, dissemination seems to stop at a peer-reviewed publication and/or conference presentation.[27] While this is a necessary action to succeed in academic fields, researchers may unintentionally be circumventing information without disseminating it to the people who need it most. Further, researchers are more likely to miss important details and insights gleaned through engagement of our most important stakeholders. Accordingly, the next section includes two specific examples of how the authors are working to address this issue and argue that dissemination should be a key focus from the outset of a research partnership. **Figure 1** illustrates a conceptual overview of how the authors envision implementation science support as a means to improve the equity and effectiveness of evidence-based interventions.

Figure 1.

Conceptual Overview of Implementation Science as a Means to Advance Health Equity in Disease Prevention

Pragmatic Examples of Implementation Science and Health Equity Integration

Below are two pragmatic examples of how researchers have built partnerships with organizations to facilitate equity in disease prevention. Through this lens, it is posited that dissemination should be integrated into this collaborative work from the outset and should be a shared process whereby power is equally distributed between researchers, practitioners.

Collaboration with school districts and school policy practitioners to mitigate child food insecurity and obesity

Much work has been conducted to examine the relationships between school health policies and subsequent outcomes at the student level.[28,29] Considerable research points to the various factors that drive implementation of school policies, such as organizational capacity/readiness, leadership, school culture, and outer setting influences such as district policy and external collaborators.[30-32] However, to date there are few working examples of how to build capacity within existing school systems for policy implementation, and how key implementing stakeholders are engaged throughout the research process.

Collaboration with schools and school districts brings a much-needed pragmatism to the research process; involving them from the very beginning is essential to equitable dissemination and allows for dissemination as an ongoing process as opposed to an outcome. One example of this work transpired in 2020 from the onset of the COVID-19 pandemic, whereby a group of school-based health policy researchers and practitioners began to meet regularly about the state of the evidence regarding food security and school meal distribution during the acute onset of school closures. This work necessitated a balance of urgency to meet local and national stakeholder needs with the rigor of scientific inquiry. Two examples of this were a multi-site case study of four of the nation's largest school districts and

their implementation of universal school meals, and a nationwide assessment of policy implementation of USDA waivers and communication practices related to emergency school meals.[33,34] These were conducted as rapid-cycle studies, whereby ongoing dissemination of findings occurred at weekly meetings with the researcher-practitioner group,[35] and findings were presented at the School Nutrition Association (SNA)[36] webinar series to facilitate feedback on the study. Other products included a BBC World Service podcast[37] and numerous press releases.

Presently, the lead author and others are working with the School District of Philadelphia Office of Research and Evaluation (ORE) which is uniquely positioned as the research arm of the district and also the evaluation hub of the Supplemental Nutrition Assistance Program- Education (SNAP-Ed). Over the last year, collaboration has emerged through a) providing evaluation support to the ongoing evaluation for SNAP-Ed, school meal programming, and other policy initiatives, and b) working directly with ORE and local partners such as the equity audit tool working group to develop meaningful metrics and indicators that can be used across the district to advance equitable implementation of various policies and programs. These activities have been in response to ORE staff and district needs for

evaluation support and have provided a meaningful opportunity for our work to be fully embedded within community needs.

Through a grant funded by the Urban School Food Alliance (USFA),[38] researchers are actively working with the equity audit working group which comprises school and district staff, teachers, and administration to develop these measures and metrics to assess equitable implementation and determinants of policies such as universal school meals. Further, we will engage students as key decision makers through organizing a series of listening sessions and collaborative discussion to ensure their voices are included in designing and development. Through such work, researchers are responsive to the needs of practitioners who serve predominantly low-income and marginalized populations, sharing decision-making power regarding research objectives and procedures. Ongoing local and national *dissemination practices* include attending and presenting at regular USFA and ORE meetings and webinars, participating in the school district equity audit working group, and presenting to the Healthy Eating Research/Nutrition and Obesity Policy Research and Evaluation Network COVID-19 working group which comprises researchers and practitioners to share updates about this work and receive feedback from implementation stakeholders.

Medical Legal Partnerships to Enhance Equity in Healthcare

Medical Legal Partnerships (MLPs) offer a structural integrated intervention that could facilitate improvements in psychosocial, medical and social outcomes among systematically and structurally excluded populations.[39-42] Through legal aid, MLPs can ensure that clients are able to access comprehensive services and receive appropriate legal assistance in a culturally sensitive environment (see Table 2). Our preliminary research on MLPs documents the importance of: 1) identifying the level of severity of health-harming legal needs (both general and specific to diseases); 2) initiating action to resolve legal issues early on in the clinical process, highlighting the significance of preventive legal

aid and advocacy; and 3) coordinating with medical, health-social services, and community partners to support patients throughout the resolution process, including clear protocols of communication between health and legal teams. This process facilitates a patient-centered approach to improving healthcare through legal support, enhancing the equity of care delivery.

Four core components of MLPs have been identified, particularly for those which serve people living with HIV which are: (1) support of leadership; (2) provider-patient trust; (3) physical presence of the attorney at health centers; (4) reliable funding streams; and (5) active community engagement and dissemination.[43] An attorney from one of our

studies highlighted the importance of community engagement, they stated "having that ability to help people in a place that they trust and there's consistency and these are the people who live in their community with them, and they are working with us, that is what, it really makes a huge difference to us." This example illustrates how patients' voices are integrated heavily into decision making and care delivery, and the ways in which this drives research inquiry as a response to patient needs. Accordingly, our research with MLPs provides a concrete example of how researchers, legal professionals, clinicians, and patients collaborate in shared decision-making to enhance equity in healthcare. Dissemination must be an ongoing process which is embedded into all aspects of research. Current *dissemination to patient populations* includes serving on two primary committees for the City of Philadelphia which serve sexual and gender minority populations, participating in city-wide webinars and outreach efforts to address health-harming legal needs and advance HIV prevention and care, and actively advocating for enhanced care through community and board engagement.

Table 2.
Added Value of Attorney in Health Care Team

Theme	Evidence-Based Benefits of MLP
Advocacy	Legal partners can address health-harming legal needs
	Prevent issues from becoming legal needs
Education	Provide guidance to clinical staff during the course of patient care
	Present educational "Know Your Rights" workshops for patients and community members
Evaluation	Assist in advancing health equity at the community level

Discussion

The purpose of this article was to introduce implementation science as a lens through which to address structural inequities related to public health. There is a critical need to think about health equity domains when developing, testing and evaluating structural interventions.[22] As previously mentioned, the authors posit that in order to enhance the impact of implementation strategies, it is necessary to engage community members in all stages of research process, including dissemination and designing for dissemination as part of initial conversations. It is essential for researchers and policymakers to focus on the intersectional structures – including anti-immigration rhetoric, discriminatory policies, structural stigma, and racism and discrimination – that continue to drive epidemics/pandemics among structurally and systematically excluded populations.[44] Such incorporation will ultimately enhance the dissemination and sustainability of interventions through meeting the needs of marginalized communities who are most impacted by chronic disease.

The field of implementation science is embracing health equity as a key facet, with numerous recommendations regarding adaptation of existing theories and development of new ones,[21,25] or emphasizing how researchers can better target marginalized populations through adaptation and community engagement.[22] In this article, the authors provide examples of how they have engaged practitioners and community members in research and practice, with a view toward equitable implementation. Further, the authors posit that dissemination, whereby results and information are shared with end users and practitioners, should be *embedded throughout the research process*, and go far beyond a peer reviewed article or conference presentation. By treating dissemination as a *collaborative and bi-directional process*, end users and implementing actors can, in turn, disseminate information back to the researchers and enhance equitable partnership

development. Further, such collaborative practice will enhance researchers' abilities to respond to local needs and initiatives through scientific inquiry.

In order to expand capacity for implementation science and health equity, research institutions need to expand the scope and work of existing implementation science hubs/training centers and establish new ones in socioeconomically deprived jurisdictions. One example is at Temple University which is situated within North Philadelphia, an economically deprived section of the city housing a predominantly racial/ethnic minority population. As Temple is uniquely situated within such a community, building capacity for collaborative work will facilitate greater community impact. The National Institutes of Health has several center-based grants which they fund focused on cancer prevention and control,[45] mental health,[46] and heart, lung, and blood disorders.[47] These grants are housed at various institutions across the nation with the common goal to advance the translation of evidence-based interventions into routine care and practice. Despite this concerted effort to enhance translation and implementation, there is a lack of funding dedicated specifically to address social determinants of health within such centers, which presents an opportunity for innovation in implementation science. Accordingly, steps should be taken to advance capacity within institutions who are embedded within communities to facilitate community partnership building.

Through experiences working within and collaborating across established implementation science centers, the authors have learned that starting slowly with a core group of interdisciplinary scientists is key.

Activities such as trainings for faculty and researchers within the university, hosting journal clubs and webinars, and developing a social media presence are simple but effective ways to build capacity for implementation science presence on campus. Based on success of these initiatives, and similar to other methods/research centers housed within schools of public health and medicine, a research core may be a suitable next logical step which would facilitate interdisciplinary collaboration across the institution through consultation services, grant proposals, and other scientific and community engagement initiatives. Further, one area of improvement identified as a priority is to increase the presence of community partners within implementation science centers who are able to participate in key decision making and research initiatives. This may ultimately enhance relationships with the local community and advance public health research through an equitable and community-driven approach.

In conclusion, the field of dissemination and implementation science provides many tools and frameworks for improving the translation of evidence to practice, but more work is needed to advance its use to address and mitigate disparities in public health. This article provides pragmatic examples of our work in school-based policy and healthcare to illustrate how building partnerships with local organizations and providers can enhance the impact of research on public health. Finally, potential next steps are outlined for universities and those in public health and medicine to build capacity for meaningful and rigorous implementation science research and practice.

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Conflicts of Interest
The authors have no conflicts to declare.

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References

1.   Jenssen BP, Kelly MK, Powell M, Bouchelle Z, Mayne SL, Fiks AG. COVID-19 and Changes in Child Obesity. Pediatrics. 2021;147(5):e2021050123. doi:10.1542/peds.2021-050123

2.   Lackland DT, Sims-Robinson C, Jones Buie JN, Voeks JH. Impact of COVID-19 on Clinical Research and Inclusion of Diverse Populations. Ethnicity & Disease. 2020;30(3):429-432. doi:10.18865/ed.30.3.429

3.   Abrams EM, Szefler SJ. COVID-19 and the impact of social determinants of health. The Lancet Respiratory Medicine. 2020;doi:10.1016/S2213-2600(20)30234-4

4.   Marmot M, Friel S, Bell R, Houweling TAJ, Taylor S. Closing the gap in a generation: health equity through action on the social determinants of health. The Lancet. 2008/11/08/ 2008;372(9650):1661-1669. doi:https://doi.org/10.1016/S0140-6736(08)61690-6

5.   Alcántara C, Diaz SV, Cosenzo LG, Loucks EB, Penedo FJ, Williams NJ. Social determinants as moderators of the effectiveness of health behavior change interventions: scientific gaps and opportunities. Health Psychol Rev. Mar 2020;14(1):132-144. doi:10.1080/17437199.2020.1718527

6.   Brownson RC, Colditz GA, Proctor EK, eds. Dissemination and Implementation Research in Health: Translating Science to Practice, Second Edition. Oxford University Press; 2018.

7.   Powell BJ, McMillen JC, Proctor EK, et al. A compilation of strategies for implementing clinical innovations in health and mental health. Med Care Res Rev. Apr 2012;69(2):123-57. doi:10.1177/1077558711430690

8.   Fernandez ME, Ten Hoor GA, van Lieshout S, et al. Implementation Mapping: Using Intervention Mapping to Develop Implementation Strategies. Frontiers in public health. 2019;7:158-158. doi:10.3389/fpubh.2019.00158

9.   Brownson RC, Kumanyika SK, Kreuter MW, Haire-Joshu D. Implementation science should give higher priority to health equity. Implementation Science. 2021/03/19 2021;16(1):28. doi:10.1186/s13012-021-01097-0

10.   Tabak RG, Khoong EC, Chambers DA, Brownson RC. Bridging research and practice: models for dissemination and implementation research. American journal of preventive medicine. 2012;43(3):337-350. doi:10.1016/j.amepre.2012.05.024

11.   Vamos CA, Green SM, Griner S, et al. Identifying Implementation Science Characteristics for a Prenatal Oral Health eHealth Application. Health Promotion Practice. 2020/03/01 2018;21(2):246-258. doi:10.1177/1524839918793628

12.   Purtle JD, EA; Brownson, RC. Policy Dissemination Research. In: Brownson R, ; Colditz, GA; Proctor, EK, ed. Dissemination and Implementation Research in Health: Translating Science to Practice, Second Edition. Oxford University Press; 2018.

13.   Glasgow RE, Dzewaltowski DA, Estabrooks PA, Gaglio BA, King D, Klesges L. RE-AIM. 2010.

14.   Glasgow RE, Klesges LM, Dzewaltowski DA, Estabrooks PA, Vogt TM. Evaluating the impact of health promotion programs: using the RE-AIM framework to form summary measures for decision making involving complex issues. Health Education Research. 2006;21(5):688-694. doi:10.1093/her/cyl081

15.   Proctor E, Silmere H, Raghavan R, et al. Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda. Administration and Policy in Mental Health and Mental Health Services Research. 2011;38(2):65-76. doi:10.1007/s10488-010-0319-7

16.   Mazzucca S, Tabak RG, Pilar M, et al. Variation in Research Designs Used to Test the Effectiveness of Dissemination and Implementation Strategies: A Review. Front Public Health. 2018;6:32. doi:10.3389/fpubh.2018.00032

17.   Damschroder L, Safaeinili N, Rojas-Smith L, Woodward EN. Introduction and application of the consolidated framework for implementation research (CFIR): Version 2 (CFIR V2). . presented at: 14th Annual Conference on the Science of Dissemination and Implementation; 2021; Washington, DC.

18.   Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. Implementation Science. 2009;4(1):50-50. doi:10.1186/1748-5908-4-50

19.   Emmons KM, Chambers DA. Policy Implementation Science - An Unexplored Strategy to Address Social Determinants of Health. Ethn Dis. Winter 2021;31(1):133-138. doi:10.18865/ed.31.1.133

20.   Woodward EN, Singh RS, Ndebele-Ngwenya P, Melgar Castillo A, Dickson KS, Kirchner JE. A more practical guide to incorporating health equity domains in implementation determinant frameworks. Implementation Science Communications. 2021/06/05 2021;2(1):61. doi:10.1186/s43058-021-00146-5

21.   Shelton RC, Adsul P, Oh A, Moise N, Griffith DM. Application of an antiracism lens in the field of implementation science (IS): Recommendations for reframing implementation research with a focus on justice and racial equity. Implementation Research and Practice. 2021/01/01 2021;2:26334895211049482. doi:10.1177/26334895211049482

22.   Baumann AA, Cabassa LJ. Reframing implementation science to address inequities in healthcare delivery. BMC Health Services Research. 2020/03/12 2020;20(1):190. doi:10.1186/s12913-020-4975-3

23.   Glasgow RE, Nelson CC, Strycker LA, King DK. Using RE-AIM Metrics to Evaluate Diabetes Self-Management Support Interventions. American Journal of Preventive Medicine. 2006;30(1):67-73. doi:10.1016/j.amepre.2005.08.037

24.   Glasgow RE, McKay HG, Piette JD, Reynolds KD. The RE-AIM framework for evaluating interventions: what can it tell us about approaches to chronic illness management? Patient Education and Counseling. 2001;44(2):119-127. doi:https://doi.org/10.1016/S0738-3991(00)00186-5

25.   Shelton RC, Chambers DA, Glasgow RE. An Extension of RE-AIM to Enhance Sustainability: Addressing Dynamic Context and Promoting Health Equity Over Time. Perspective. Frontiers in Public Health. 2020-May-12 2020;8(134)doi:10.3389/fpubh.2020.00134

26.   Woodward EN, Matthieu MM, Uchendu US, Rogal S, Kirchner JE. The health equity implementation framework: proposal and preliminary study of hepatitis C virus treatment. Implementation Science. 2019;14(1):26-26. doi:10.1186/s13012-019-0861-y

27.   Knoepke CE, Ingle MP, Matlock DD, Brownson RC, Glasgow RE. Dissemination and stakeholder engagement practices among dissemination & implementation scientists: Results from an online survey. PLOS ONE. 2019;14(11):e0216971-e0216971.

28.   Matsuzaki M, Sánchez BN, Acosta ME, Sanchez-Vaznaugh EV. Competitive Food and Beverage Policies and Obesity among Middle School Students: Variability by Urbanicity in California. Childhood Obesity. 2021;doi:10.1089/chi.2021.0025

29.   Au LE, Ritchie LD, Gurzo K, et al. Post-Healthy, Hunger-Free Kids Act Adherence to Select School Nutrition Standards by Region and Poverty Level: The Healthy Communities Study. J Nutr Educ Behav. Mar 2020;52(3):249-258. doi:10.1016/j.jneb.2019.10.016

30.   McLoughlin GM, Candal P, Vazou S, et al. Evaluating the implementation of the SWITCH® school wellness intervention and capacity-building process through multiple methods. International Journal of Behavioral Nutrition and Physical Activity. 2020/12/11 2020;17(1):162. doi:10.1186/s12966-020-01070-y

31.   Wilhelm AK, Schwedhelm M, Bigelow M, et al. Evaluation of a school-based participatory intervention to improve school environments using the Consolidated Framework for Implementation Research. BMC Public Health. Sep 3 2021;21(1):1615. doi:10.1186/s12889-021-11644-5

32.   Kien C, Grillich L, Nussbaumer-Streit B, Schoberberger R. Pathways leading to success and non-success: a process evaluation of a cluster randomized physical activity health promotion program applying fuzzy-set qualitative comparative analysis. BMC Public Health. 2018;18(1):1386-1386. doi:10.1186/s12889-018-6284-x

33.   McLoughlin GM, McCarthy JA, McGuirt JT, Singleton CR, Dunn CG, Gadhoke P. Addressing Food Insecurity through a Health Equity Lens: a Case Study of Large Urban School Districts during the COVID-19 Pandemic. J Urban Health. 2020:1-17. doi:10.1007/s11524-020-00476-0

34.   McLoughlin GM, Fleischhacker S, Hecht AA, et al. Feeding Students During COVID-19 - Related School Closures: A Nationwide Assessment of Initial Responses. Journal of Nutrition Education and Behavior. 2020;52(12):1120-1130. doi:10.1016/j.jneb.2020.09.018

35.   Nutrition and Obesity Policy, Research, and Evaluation Network. NOPREN COVID-19 Response. 2020. Accessed January 30, 2021. https://nopren.org/covid19/

36.   School Nutrition Association. Impact of COVID-19 on School Nutrition Programs: Back to School 2020. 2020. Accessed February 1, 2021. https://schoolnutrition.org/uploadedFiles/6_News_Publications_and_Research/8_SNA_Research/Impact-of-Covid-19-on-School-Nutrition-Programs-Back-to-School-2020.pdf

37.   BBC World Service. 2020. Has Coronavirus changed school meals forever? Accessed January 30, 2021. https://www.bbc.co.uk/programmes/w3cszjr7

38.   Urban School Food Alliance. The Urban School Food Alliance. Accessed December 6, 2021. https://urbanschoolfoodalliance.org/

39.   Muñoz-Laboy M, Martinez O, Davison R, Fernandez I. Examining the impact of medical legal partnerships in improving outcomes on the HIV care continuum: rationale, design and methods. BMC Health Services Research. 2019/11/20 2019;19(1):849. doi:10.1186/s12913-019-4632-x

40.   Martinez O, Boles J, Muñoz-Laboy M, et al. Bridging Health Disparity Gaps through the Use of Medical Legal Partnerships in Patient Care: A Systematic Review. The Journal of Law, Medicine & Ethics. 2017/06/01 2017;45(2):260-273. doi:10.1177/1073110517720654

41.   Penner T. Lawyers in Schools: Navigating the Risks and Rewards of School-Based Medical–Legal Partnerships. Houston Law Review. 2021;59(2):479.

42.   National Center for Medical Legal Partnerships. Health Center Based Medical Legal Partnerships. Accessed March 28, 2022. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/viewer.html?pdfurl=https%3A%2F%2Fmedical-legalpartnership.org%2Fwp-content%2Fuploads%2F2017%2F12%2FHealth-Center-based-Medical-Legal-Partnerships.pdf&clen=485841&chunk=true

43.   Martinez O. A review of current strategies to improve HIV prevention and treatment in sexual and gender minority Latinx (SGML) communities. Expert Review of Anti-infective Therapy. 2021/03/04 2021;19(3):323-329. doi:10.1080/14787210.2020.1819790

44.   Bauer GR, Churchill SM, Mahendran M, Walwyn C, Lizotte D, Villa-Rueda AA. Intersectionality in quantitative research: A systematic review of its emergence and applications of theory and methods. SSM - Population Health. 2021/06/01/ 2021;14:100798. doi:https://doi.org/10.1016/j.ssmph.2021.100798

45.   National Cancer Institute. Implementation Science Centers for Cancer Control. Accessed February 1, 2021. https://cancercontrol.cancer.gov/is/initiatives/isc3

46.   National Institutes of Mental Health. Advanced Laboratories for Accelerating the Reach and Impact of Treatments for Youth and Adults with Mental Illness (ALACRITY). Accessed February 5, 2022. https://www.nimh.nih.gov/research/research-funded-by-nimh/research-initiatives/advanced-laboratories-for-accelerating-the-reach-and-impact-of-treatments-for-youth-and-adults-with-mental-illness-alacrity

47.   National Heart, Lung, and Blood Institute. Building the workforce to translate discoveries into health. Accessed February 1, 2019. https://www.nhlbi.nih.gov/news/2017/building-workforce-translate-discoveries-health