

# Progress in Corrections Worker Health: The National Corrections Collaborative Utilizing a Total Worker Health<sup>®</sup> Strategy

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**Objective:** To examine National Corrections Collaborative (NCC) activities, as an outreach initiative, to advance corrections workplace health and safety research, practice, and policy through a series of applied Research to Practice (r2p) meetings informed by the Total Worker Health<sup>®</sup> (Total Worker Health<sup>®</sup> is a registered trademark of the U.S. Department of Health and Human Services) (TWH) strategy. **Methods:** We mapped the coalescence of correctional worker health concerns, federal and national professional organization initiatives, and research activities that formed the NCC in 2014. **Results:** During the NCC's 5-years of TWH activities, attendance increased, partner composition expanded, and themes of concern evolved. Partners were motivated to participate and work together towards building evidence for health and safety r2p. **Conclusions:** A unified plea to the academic and federal research communities for assistance with better evaluation instruments, data linkages, and for adopting an integrated TWH approach to workforce health and wellbeing continue to drive NCC r2p activities.

**Keywords:** correction officer, corrections, health and well-being, health promotion, safety, Total Worker Health<sup>®</sup>

## BACKGROUND

Approximately 450,000 correctional officers (COs)<sup>1</sup> work in facilities housing approximately 1.5 million individuals incarcerated in jails and prisons across the United States.<sup>2</sup> There is solid evidence that CO morbidity and mortality rates exceed almost all other occupational groups.<sup>3</sup> Law enforcement had the highest rates of workplace injury of all occupational sectors; and the rates among corrections officers were lower than but comparable to police.<sup>3,4</sup> In 2009, COs experienced the highest number of days away from work among all state government employees, 2.5 times the total rate for all other occupations.<sup>5</sup> In a report covering years 1999 to 2008,

work-related fatalities among COs were the 22nd highest among 115 professions (2.7 per 100,000 full-time employees).<sup>3</sup> Compared with other fields of public safety (eg, police and fire) CO surveillance and injury data research are of limited utility due to inherent methodological challenges.<sup>6–9</sup>

COs are at high risk for suicide, depression, obesity, hypertension, injury, and early death due to chronic disease.<sup>3,8,10–14</sup> Although, there is evidence of elevated premature mortality, high turnover and the lack of life cycle tracking complicate recognition of disease natural history and risk factors.<sup>15</sup> Working in correctional environments is both physically and mentally taxing as it demands that officers stay hyper-vigilant to their surroundings and use physical force to protect themselves and others within correctional facilities.<sup>16</sup>

COs exhibit much higher rates of stress, burnout, and symptoms of posttraumatic stress disorder (PTSD) than the general workforce, exceeding those of police officers.<sup>11,17,18</sup> The body of research on CO well-being has consistently linked correctional work to psychosocial problems including marital hardship and divorce, alcoholism, and substance misuse.<sup>19,20</sup> Adverse physical outcomes include cardiovascular events, gastrointestinal and digestive disease, diabetes, high cholesterol, and hypertension.<sup>3,13,19,21–23</sup> Most ominous are suicide and premature death.<sup>14,24,25</sup> These adverse health outcomes and premature retirement have been linked to intrinsic organizational factors, including chronic understaffing, extended work hours including mandatory and unplanned overtime, inadequate pay demanding shift schedule, service pension offset,<sup>26</sup> and the militaristic structure of correctional facilities.<sup>27,28</sup> Other negative factors are a poor public perception of corrections officers,<sup>29</sup> perceived job dangerousness, hypervigilance, risk of experiencing critical incidents such as violent crimes,<sup>30,31</sup> and lack of career advancement options and opportunities.<sup>31,32</sup>

There are gaps in government safety and health guidelines and regulations that address corrections worker safety and well-being. The Occupational Safety and Health Administration (OSHA) provides minimal oversight of local, state, or federal correctional facilities. For instance, OSHA citations are rare at prison facilities with seven states cited in the past 5 years<sup>33</sup> and one Bureau of Prisons facility in 2019.<sup>34</sup> The U.S. Department of Labor provides federal prison regulations for their employees<sup>35</sup> while state level oversight is provided by workforce commission or labor agency. Correctional facilities may opt to adopt private regulatory guidelines for both employees and people incarcerated. The Correctional Leaders Association (CLA)<sup>36</sup> is an elite American corrections policy group that includes corrections commissioners and directors from US states, military divisions, the Federal Bureau of Prisons, and associated counterparts in US territories. The CLA provides leadership development forums to address corrections issues; and provides related resources to their members including sponsorship of a committee on staff wellness to promote and improve health and well-being of correctional professionals. In addition, private entities such as the American Corrections Association (ACA) offer optional guidelines that provide standards for correctional institutions to adhere to receive or maintain accreditation.<sup>37</sup> The distributed nature of corrections facilities in the United States across federal, state, county, city, and municipal levels complicates the introduction of best practices for staff health protection and promotion.

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Clinical significance: Limited quality of the data remains a barrier to informing workplace health policy in corrections work, however, there is wide recognition among NCC members about the important relationship of health to working conditions and leaders of NCC expressed their intentions to advance corrections workplace health promotion.

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## Current State of CO Health and Well-Being

Our review of agency and organization priorities for CO health revealed that corrections organizations focus primarily on the processes affecting the incarcerated population and far less on the protection and health of COs.<sup>3</sup> There has been more recent attention to CO health from correctional agencies.<sup>38–40</sup> A National Institute of Justice (NIJ) safety and wellness literature synthesis indicated that corrections officers are at increased safety and health risk as compared with other occupations,<sup>40</sup> and was featured in Ferdik and Smith's review.<sup>3</sup> Earlier in 2013, the NIJ concluded that research is still in the formative stages of intervention development and that a significant research gap is the lack of information on "prevalence and effectiveness of correctional officer wellness programs."<sup>10</sup> One feature of the 2013 report was the scarcity of long-term investigations to determine the effectiveness of CO health solutions.<sup>10</sup> However, some state correctional systems, notably in Connecticut, Oregon, and California are early adopters of CO health promotion. For example, the Connecticut Department of Corrections (DOC) participated in a 13-year project to identify and implement evidence-based CO health solutions called The Health Improvement Through Employee Control for Correctional Officers—HITEC.<sup>41</sup> The Oregon DOC partnered with the Oregon Healthy Workforce Center (OHWC) to conduct a randomized trial study of a safety and health program implemented at four Oregon facilities that is team-centered and peer-led.<sup>42,43</sup>

There have been recent efforts to link correctional officer health to broader national initiatives directed to workforce health. The State of Connecticut DOC and the National Corrections Collaborative (NCC) Symposia have featured a Total Worker Health<sup>®</sup> (TWH) approach to CO health and well-being. TWH is the National Institute for Occupational Safety and Health's (NIOSH) signature program for development of policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being.<sup>44</sup> Prioritizing worker involvement is critical to ascertain the culture and climate of a preventive worksite health program. Engagement presides over the selection of intervention types and means of dissemination. Another continuing part of the process is creating communication plans through a loop-back effect, whereby information and results are disseminated to labor representatives, workers, and employers.<sup>44</sup> For TWH programs, workers' insights into the interactions between work and non-work hazards are particularly pertinent, because they can shape the selection of the intervention itself as well as how it is delivered and communicated. Participatory involvement is critical for all stakeholders and participants at all levels, including executives and senior leaders, middle management, labor representatives, and workers.<sup>44</sup>

TWH has been applied to corrections workplaces to address the hazards and health risks associated with the occupation. Participatory needs assessment and identification of interventions using the TWH approach have proven to be feasible in prison and jail settings.<sup>41,45,46</sup> Challenges exist with the implementation of holistic and multidimensional interventions due in large part to the environmental, organizational, and cultural barriers that exist in correctional and law enforcement work. Traditionally corrections workforce health interventions focus on unidimensional outcomes, such as substance abuse interventions, and are consequently limited in their ability to significantly impact well-being because they address single issues, thus excluding over changes in culture or behavior.<sup>41</sup>

The HITEC program within the Center of Promotion of Health in New England Workplace (CPH-NEW), is one of first six NIOSH funded TWH Centers of Excellence. The HITEC collaboration with the Connecticut DOC reflects an integration

of TWH approaches, directed to the physical and organizational work environment, with workplace health promotion.<sup>47,48</sup> The HITEC series of studies have been directed to the health of the correctional workforce. Now in its third phase, HITEC studies (2006 to 2016) comprise the longest (13) years and most consistent effort in the United States to introduce participatory TWH health practices to the corrections workforce, and have helped to establish national recognition of health and wellness risks and concerns within this workforce. HITEC accompanies its interventions with process evaluation of program effectiveness, essential elements for success, and how best to scale the programs from pilot to full implementation. HITEC studies have helped to establish national recognition for the importance of evidence-based interventions to improve the safety, health, and well-being of under-studied and underserved correctional officers.

## Forming the National Corrections Collaborative

In 2013, HITEC, CPH-NEW, and the Oregon TWH center formalized their existing scientific collaboration to more broadly seek out innovative approaches to correctional health interventions. This consortium of research collaborators and practitioners recognized diversity and lack of uniformity in correctional health initiatives and practices across the United States, highlighting the need for more intensive and far-reaching Research to Practice (r2p) for CO health. They formed the NCC in 2014 to build a community of researchers and practitioners focusing on corrections officer safety and health and to promote the TWH strategy. The NCC community of TWH scientists and practitioners met regularly for 1 year to plan an event to build engagement and resources supporting correctional health research, interventions, and policy. NCC continues to serve as a platform for national engagement and collaboration for correctional health, and to connect correctional researchers and practitioners. The NCC has convened on three occasions in the past 5 years (Portland OR, 2014; St Louis MO, 2017; Boston MA 2019).<sup>49</sup>

In this study, we explored the activities of NCC over the past 6 years using a qualitative content review. The purpose of this paper is to describe the development of the NCC's participatory initiative utilizing a TWH approach to bring key stakeholders together for the advancement of CO health research and practice. The aims of the paper are to describe the following:

1. Historical overview of correctional officer health interests by organizational programs,
2. Exploration of the NCC growth and the evolving areas of interest and activities,
3. Exploration of partner voices and feedback on initiatives and future steps needed to move the CO Health research and practice agenda forward.

This study explored the formation of the NCC and subsequent activities using a retrospective literature review and qualitative approach.

## METHODS

Despite the recent growing body of work examining the impact of correctional stressors on officers, researchers have yet to comprehensively examine the contextual role that different correctional environments play. This study explored the growth of the NCC and subsequent activities using a qualitative content review. We reviewed correctional officer health interests of federal and national professional organizations; and departments of corrections. Through the NCC we explored the areas of interest and activities; and partner voices and feedback using the following methods:

1. Historical overview of correctional officer health interests by federal agencies and national organization programs. We searched organization websites for any statements, initiatives, or mission content that specified correctional officer health. Any content related to health and safety of workers was included in the review.
2. Exploration of the NCC growth and the evolving areas of interest and activities. The three events titled, National Symposium on Correction Officers Health (2014),<sup>49</sup> and National Symposium on Corrections Worker Health (2017, 2019)<sup>49</sup> have been coordinated and held through NCC. NCC representation will be summarized to describe the event location, number of attendees, and types of entities represented such as corrections departments, academic institutions, unions, and federal agencies.
3. Exploration of partner voices and feedback on initiatives and future steps needed to move the CO Health research and practice agenda forward. In 2018, we contacted each organization and asked them to answer the following questions in 250 words or less. 1. What are the initiatives at your organization that will move the agenda forward for CO health and wellness? 2. What do you see as needed future steps to advance corrections workplace health?

In 2014, 2017, and 2019, we also asked symposium attendees to provide their feedback on the symposium and requested suggestions for future symposium topics. Responses were compiled in Excel and Nvivo coding was performed. We used consensus rating to categorize and organize the feedback based on their themes and next steps were identified.

## RESULTS

### Historical Overview of Correctional Officer Health Interests by Federal Agencies and National Organization Programs

In 1996 NIOSH introduced the National Occupational Research Agenda (NORA) as a framework for organizing and prioritizing occupational safety and health research. NORA evolved into a sector-based partnership program for encouraging research and improving workplace practices.<sup>50</sup> In 2006 NORA was organized around 10 industrial sectors including Public Safety, and NORA is currently in its third decade with an enhanced structure. Currently, the NIOSH NORA Public Safety Sector is organized around five occupational subsectors including corrections. The NORA Public Safety Sector council is comprised of public safety stakeholders from academia, labor, government agencies, and professional associations who were engaged to develop strategic goals. In 2019, the Public Safety Steering council prioritized several research objectives for corrections including reducing cardiovascular disease, infectious disease transmission, and workplace violence, and improving resilience and mental health of corrections workers.<sup>51–53</sup> In 2011 NIOSH launched a program on Total Worker Health<sup>®</sup> which is an effort to integrate health protection and health promotion interventions.<sup>44</sup> The focus of the Public Safety Program and TWH have garnered greater interest and research around corrections workers and environment across two of the TWH centers on both coasts, CPH-NEW in the north east and the Oregon Healthy Workforce Center in the pacific northeast through the centers' research projects and pilot funding opportunities.

Independently, in 2016, the NIJ also highlighted the importance of CO health bringing it to the forefront through its strategic priorities with relevant occupational health research awareness and funding availability.<sup>40</sup> The gap between NORA strategic goals published in 2009 and<sup>52</sup> strategic planning of research to practice within criminal justice organizations<sup>40</sup> is significant. However growing interest in CO health over the past 5 years is indicated

by published literature reviews from three national offices describing the high-risk nature of corrections work and suggesting actions towards promoting and implementing workplace health solutions.<sup>3,10,53</sup> Furthermore, in 2016 the NIJ published a strategic plan to map priority action for promoting strategies, policies, practices, and research to address correctional work.<sup>40</sup> Other national agencies and organizations have also taken steps towards the initiatives outlined in Table 1.<sup>3,36,38,40,52,54–57</sup>

### Exploration of the NCC Growth and the Evolving Areas of Interest and Activities

Participation in NCC from 2014 to 2019 showed steady increases in the number and representation of the participants through the three symposia (Table 2). A total of 221 participants, representing national correction department or agency, academic institutions, unions and organization, and federal or other agencies attended throughout the three symposia. The objectives of NCC included: (a) identify and form a national constituency (consortium) that includes corrections labor and management, professional groups, and associations; (b) identify research priorities for corrections worker health; (c) prepare a conference summary paper for all attendees; and (d) identify research priorities to develop a research proposal for existing NIJ or NIOSH research funding announcements.

A baseline needs assessment was conducted among NCC members and key stakeholders to identify the topics for the first symposium in 2014. The programming topics and objectives from each symposium as summarized in Table 3 reflect the evolution and sophistication of needs identified by the participants and the planners over the last 6 years (2014 to 2019). The format of the three symposia included podium and panel presentations along with themed roundtable discussions. The topics predominantly focused on exploring the current evidence and practice about the promotion of corrections worker health and well-being with the goal of identifying new research opportunities, and strengthen collaborations and evidence based policies and programs that address the critical health and safety challenges of this workforce. For the second and third symposia, the topics were identified using participant input as illustrated in the following thematic analysis for the three respective symposium program topics.

The majority of the participants who responded to the evaluation in the first symposium (2014) agreed that the symposium helped to coalesce a summary of needs for corrections worker health, to identify the common challenges and barriers for health and safety interventions in corrections, and to identify research priorities. The symposium facilitated exchanging promising health and wellness practices for the CO workforce. In 2014 the evaluation feedback suggested that future symposium topics to focus on mental health and stress, family support, Labor and management partnership, and best practices for CO health and wellness.

In 2017 the participants concurred that the symposium established a meeting point for practitioners and academic professionals to: encourage priority funding from federal agencies; conduct cross-regional studies; identify common problems in data acquisition across corrections agencies; translate evolving focus on health of personnel into intervention programs; and finally, pursue the link between workforce health and capacity and inmate outcomes.

In 2019, the participants identified the following symposium topics to be most essential: CO stress, burnout, PTSD, suicide, employee assistance program (EAP) use, CO well-being, working hours and overtime, strategies to improve working conditions and quality of work and other “out of the box” solutions, labor (union)-management involvement, and testimonials from correctional officers and officials about the personal impact of correctional work.

**TABLE 1.** Federal and National Agency Activities Supporting Corrections Officer Health and Safety

Agency		
Federal	Year	Examples
National Institute for Occupational Safety and Health (NIOSH)/ National Occupational Research Agenda (NORA)	2009–2019	Three strategic goals with 42 research and translation goals, to reduce occupational injuries and fatalities, illnesses and injuries, occupational stressors in corrections personnel. <sup>52</sup>
National Institute of Corrections (NIC)	2014	Published a report describing occupational stressors in corrections organization <sup>54</sup> and an annotated bibliography on corrections work health-related literature. <sup>55</sup>
National Institutes of Justice (NIJ)	2015	Launched a virtual conference on corrections staff wellness.
	2016	A strategic plan mapping priority action plan objectives to support development, and promote strategies, policies, practices, and technologies that enhance the safety of criminal justice personnel; and study the unique safety concerns presented by correctional settings. <sup>40</sup>
	2017	Published a literature synthesis on correctional officer safety and wellness highlighting three distinct dangers confronting officers: work-related, institution-related, and psycho-social. <sup>3</sup>
	2018	Published a public correctional policy on employee wellness to raise awareness, promote well-being, and equip staff with tools to address work-related stress; and specified sharing practices and research with correctional partners. <sup>38</sup>
National American Correctional Association (ACA)	2018	Published a public correctional policy on employee wellness to raise awareness, promote well-being, and equip staff with tools to address work-related stress; and specified sharing practices and research with correctional partners. <sup>38</sup>
Association of State Correctional Administrators (ASCA) (currently known as Correctional Leader Association)	–	Staff Wellness Committee formed to improve the health and well-being of correctional professionals lives through health education and workplace health promotion activities that will support positive lifestyle changes. <sup>36</sup>
American Jail Association (AJA)	2015	Resolution to support the protection of all detention and jail employees from abusive work environments. <sup>56</sup>
Major County Sheriffs of America	2019	Seeking new collaborations to include CO health as one of the strategic priorities. <sup>57</sup>

The participants described ample of opportunities to share the information presented in the symposium in their workplace, including: sharing the information with labor and management; lessons learned from CO health, and wellness programs in other DOCs including but not limited to: EAP, TWH, mental health interventions, peer mentoring, among others.

The direction for future symposia is reflected in Table 3. The participants identified several topics that need to be addressed including: mental health and PTSD; use of the EAP; solutions for understaffing and overtime in correction along with strategies to retain staff and reduce staff turnover; practitioner–researcher collaborations in prison and jail settings, and funding for safety and wellness initiatives and strategies. Barriers and facilitating factors for such initiatives in correctional setting were also highlighted. These included involvement of correctional staff in addition to non-custody staff and engagement with the criminal justice reform and restorative justice activities involving inmate and officer interaction.

To understand the alignment of the NCC with established corrections professional activities, several examples are relevant. In 2017, Dr Martin Cherniack (CPH-NEW Co-Director) was the invited speaker at the 2017 national Correctional Leaders Association (CLA) (Formerly Association of State Correctional Administrators [ASCA]) conference in St. Louis when the association inaugurated a new executive committee focusing on staff health and well-being. Identified domains included physical fitness, mental health and stress reduction, chronic disease management, disease and injury prevention, generational workforce issues, family health, workforce specific issues, and care giver and eldercare concerns. The CLA endorsed the TWH approach of integrating working conditions with individual health. Workforce well-being was identified with a multi-part initiative to improve the United States corrections environment for the workforce. CLA leadership was particularly interested in the capacity of CPH-NEW to develop and provide process evaluation tools and metrics, thus enabling corrections leaders to justify legislative support for their initiatives.

**TABLE 2.** Summary of NCC Representation in 2014, 2017, and 2019

Year	Location	Attendees	Correction Departments or Agencies	Academic Institutions	Unions and Organizations	Federal and Other Agencies
2014	Portland, OR	60	3	5	3	2
2017	St. Louis, MO	75	11	6	1	7
2019	Boston, MA	86	16	8	8	9
	Total	221				
		Total	30	19	12	18

NCC, National Corrections Collaborative.

**TABLE 3.** Summary of Programming Objectives From NCC Symposia

Themes	2014	2017	2019	Future Direction
TWH approaches for CO health and wellness	Challenges/barriers for health and safety interventions in corrections	Adaptation of the Total Worker Health <sup>®</sup> approach to corrections	Intersections of workplace health/TWH with restorative justice and reentry programming	TWH and future of work
Participatory approach Labor–management partnership	Promote participatory action research in corrections	Labor–management joint problem solving	Substance use and workforce-led interventions, continue labor–management joint approaches	Capitalizing on union driven and CO led initiatives
Best practices and programmatic approaches	Organizational culture as a challenge to change	Programs designed for the long-term	Customized health care and wellness resources, employee screening, morale survey, staff support, mindfulness training, communication skills, and engaging staff in a meaningful way with inmates	Facilitators and barriers and of best practices
Mental health Critical incidents Work–family	Mental health and suicide among COs: what programs exist and what works?	Interventions directed to critical incidents and posttraumatic stress, mental health, support CO family life and CO work-life balance	Identifying CO critical incidents and addressing mental health including posttraumatic stress	Stress related mental health approaches and interventions
Peer support and mentoring	Promote practices for health promotion/health protection in law enforcement and corrections	Peer-to-peer CO support programs	Peer mentoring toolkit	Peer mentoring evaluation for best practices
Employee assistance program	Assess impact of shift work on stress, sleep, injury, health, and disease	Assess using EAPs and other services for CO stress-related and other problems	Issues around using services such as Employee Assistance Programs (EAP) for CO stress-related and other problems, interventions to support CO family life and work-life balance	Innovations in EAP approaches
Research collaboration Funding priorities	Funding and collaboration for correctional workforce research	Interstate comparisons of correctional officer (CO) health	Growing the interstate network of CO health research	Practitioner-researcher collaborations and funding for CO safety and wellness initiatives and strategies
Criminal justice reform and CO health and wellness		Introducing the need to bridge CO health with criminal justice reform initiatives such as reentry programming	Furthering the conversation on CO health and reform with examples from international and national projects	Further exploration of best practices that emphasize the intersection between CO health and wellness and restorative justice

NCC, National Corrections Collaborative.

### Exploration of Partner Voices and Feedback on Initiatives and Future Steps Needed to Move the CO Health Research and Practice Agenda Forward

The following section identifies the: (1) initiatives to move the agenda forward for CO health and wellness, and (2) future directions to advance CO health based on the responses from to the two afore mentioned questions in the method section. A total of 25 of associations were contacted and a total of 8 (32%) responded to the two questions.

### Initiatives to Move the Agenda Forward for CO Health and Wellness

The associations and departments that responded identified that initiatives and needs were targeted at most levels of engagement

including legislation, organizational policy, organization, group, peer, and individual levels.

Partnerships and Collaborations. Initiatives included working with EAPs, health insurers, personal support programs, university research, and unions. Many were also evidence-informed by including data instruments that were used to assess employee health and wellness needs, employee satisfaction, and process evaluation of wellness activities. EAP services expansion were also available.

Mental Health. Initiatives addressing mental health that offered wellness peer support and peer support groups in case of critical incidents, crises intervention, suicide prevention, stress management were prominent among the respondent Response Teams. Some mental health programs for employees offered post-trauma and critical incident response (eg, Critical Incident Stress Management and certification; Mental Health First Aid). The

Connecticut DOC for example established Quality of Work Life Committees and military support programs several years ago, along with Bereavement and E-Wellness protocols, which may partially explain its openness to workforce participation in HITEC. Expedited Correction Action Plan and the Post Incident Workplace Reference Program (POWER program) were utilized at the CT DOC as well for process improvement.

**Well-being.** Related initiatives included on-site wellness screening and activities (eg, health fairs) including employees and families. Access to healthy beverages and foods through vending options. Environmental changes included employee wellness “quiet” rooms and optimizing special housing to minimize hypervigilance. Resources, education, and training were offered through a wellness website and various types of wellness training including stress awareness and annual staff wellness advisory team training. Employee benefits were of focus to increase enrollment for preventive checkups to ensure employees receive their wellness discount on their health insurance premiums. In another DOC, a Wellness Steering Team, labor/management committee worked on policy level discussions and initiatives, such as an Employee Assistance Unit.

**Manager and Leadership Development.** Another set of initiatives across different state DOCs focused on manager and leadership development. A developing leader's initiative was informed by an assessment of leaders' strengths and weakness that resulted in the development of professional agreement plans for achieving leadership goals. A developing managers' initiative worked to open communication, build working relationships through manager training. Another initiative sought to improve communications between managers and union leadership.

**Organizational Management and Human Resources.** Related initiatives were identified by many DOC respondents including: hiring, retention, and workforce planning initiatives, identifying critical vacancies and trends, and yearly academy classes to help fill vacancies and decrease forced overtime. Specific initiatives focused on overtime reduction. Job re-design was considered to create positions that would allow security employees to return to work on light duty; for earlier return-to-work after workers compensation or family and medical leave act.

### Future Directions to Advance CO Health

Themes from DOC respondents' feedback on addressing the question of future needs included greater sophistication and a more holistic approach to DOC's employee health wellness programs and initiatives focusing on the mind, body, and spirit of the employees, with access to mental health and trauma resources. One employer suggested, “integration of easily accessible daily tools to offset trauma and secondary trauma, such as on-line mindfulness exercises, Eye Movement Desensitization and Reprocessing Therapy (EMDR), peer support, etc.” Family engagement activities were suggested to engage families of COs for building an understanding of CO work and family resilience. Improving interpersonal relationships were also suggested for building trust and relationships between staff and management, and labor union. Organizational needs were expressed regarding the challenges in recruitment and retention of COs. One administrator suggested the need for assessing policy and ethics statutes to offer paid time to exercise, flex schedules, and longevity incentives. Other expressed needs included legislative budgetary support along with strategic implementation process to mitigate insufficient resources and unforeseen problems.

### Examples of Emerging Data

Case examples of emerging data in the United States include the safety and health improvement: enhancing law enforcement departments (SHIELD) randomized prospective study of health

interventions ( $N=408$ ) with police and sheriff department staff including jail officers conducted in the Northwest. Tailored lifestyle and behavior change interventions were used to address healthy eating, sleep patterns, and stress. Trends towards the reduction of depression, tobacco use, and alcohol consumption were indicated.<sup>42</sup> Participatory teams at Midwestern, small (rural), and medium sized (urban) jails developed workplace health and safety interventions from officer informed surveys ( $N=401$ ) and focus groups.<sup>46</sup> The mixed methods data from participating jails provided context to the experiences of COs and how to form multi-level, tailored interventions for communication skills, mental health training, workplace culture, and facility and city/county policies. In the Eastern region, the HITEC 2 study used participatory action research to implement interventions with four prison facility design teams.<sup>41,47,58</sup> A design team of non-supervisory correctional staff identified the need for air quality improvements. An upper-level design team implemented sleep quality and quantity improvements with supervisors ( $N=101$ ). Each of these studies show promise illustrated by team-based participation, identification of health promotion interventions, and implementation of potential solutions; precursors to health behavior and workplace health change.

## DISCUSSION

In this project, we provided three things: (1) an overview of correctional worker health interests by federal agencies and national organization programs, (2) an analysis of the activities of the NCC and how they have evolved over time with increases in attendance, growing composition of the participants, and the planners, and (3) a catalogue of the emergence of newly and commonly identified themes and topics through the convening of corrections key stakeholders from 2014 to 2019. Furthermore, organizational programs and their attention to worker health interests were explored to gauge awareness of corrections workplace health promotion. There was a common recognition, confirmed by the symposia proceedings and presentations, of the serious risks to corrections workers' health and safety, and of the evolving national consensus on the timeliness of research and practice for interventions.

This represents an expansion of the score of activities of federal and national agencies on corrections work, which as Brower<sup>10</sup> observed had been primarily in the exploration phase of determining needs for filling research gaps especially in prevalence and effectiveness of workplace wellness programs. A significant historical deficiency has been the lack of national consensus on best practices, and evaluation instruments. An advanced plan to address policy and multilevel workplace procedures and resources was described by the NIJ<sup>40</sup> but we found no evidence in our review that other agencies had responded. Recommendations for evidence-based interventions, toolkits, and action plans for reducing health risks and hazards were limited. This early stage of awareness and need for more data to fill gaps was also a common theme across NCC symposium meetings that evolved to more informed conversations and action steps.

The outreach effort of the NCC seems to be justified by the growing number of attendees and respondents at each symposium, and the increased participation of corrections departments and agencies, universities, unions, federal, and other agencies at each symposium. With each subsequent symposium, the stakeholders and participants were able to clearly identify that the types and breadth of topics and themes that has emerged, had become richer, and more sophisticated as illustrated in Table 3. The evolving nature of the themes across the three symposia is in line with TWH practices and reflective of the priorities and needs of NCC attendees. With a core focus on the dissemination of r2p, the symposia efforts have been limited to sharing through informational presentations, rather than by expanding efforts at implementation and evaluation to new sites and states.

Some areas of NCC interest have been consistent over time. These include the prevalence of poor physical and mental health in the workforce, and the frequency of work–family issues. These priorities mirror the findings in research that also has identified avenues for future work.<sup>59</sup> Other emergent topic issues were the necessity of participatory and interactive action teams and approaching interventions and reform with supportable evidence. There was an NCC consensus on alliance with research to identify needs and solutions. Symposia presentations clustered around consensus interests in as mental health, especially occurrence of suicide and posttraumatic stress. The proliferation of varying survey methods and study design were recognized as problematic, thus necessitating further coordination across states and systems while taking into account that in the United States there are regional practices, rather than national norms. However, the variety of jurisdictions did not mitigate the many common issues. One myth that was dispelled was the presumption that corrections issues are so unique to each system or type of facility that common approaches and data collection are not feasible. The status of common interests in corrections was identified as justification for general platforms.

For the first time to our knowledge, a national corrections forum considered the bridging of CO health with the corrections reform movement as a common platform. Despite cognizance of the larger scope of criminal justice issues including mass incarceration and high rates of recidivism the line officer workforce has been wary of a combined examination of prison workforce and prison inmate issues. The topic was broached at the 2017 NCC Symposium, and the 2019 symposium deepened the conversation with examples from multiple institutions, both international and national, that were actively piloting projects that integrated reentry practices and system reform with workplace health.

A collaborative, TWH approach for engaging researchers and professionals was feasible and continued to improve over the past 5 years. Partners were motivated to participate and work together towards building evidence for solutions. Building participatory interventions requires the utilization of corrections culture—shared experiences throughout the promotion hierarchy, chain of command and leadership by example, similarity of experience across systems and state line.

Key strengths of the NCC are its creation from grassroots outreach and its multidisciplinary platform offering an open and free access for participants. NCC activities have been characterized by an increase in attendance and an expansion of membership as reflected in speakers and participants from across the nation. Its continued value will rest on its multidisciplinary representation, with constant representation from the federal agencies, university scholars, professionals, and DOC.

This positive appraisal requires consideration of several limiting factors. The survey results from the symposia were based on a relatively low response rate. Other limitations included an inherent limited generalizability to other sectors; the inability to measure or follow up r2p programs; and the lack of capacity for data exchange or developing and testing the validity and reliability of assessment tools that are particular to this workforce. The expansion of the NCC and inclusion of multiple specialties beyond its inception constituency, also meant a shifting of participants and planners and geographic self-selection and travel limitations. Thus, changes in themes and priorities have a participant bias.

Most of the participants expressed the need for an annual assembling of this type of forum. The feasibility of annual convening is circumscribed by the unfunded and thoroughly voluntary nature of the symposia. A contributing limitation comes from state financing limitations, periodic travel restrictions, and the general lack of CME type funding for line workers.

## CONCLUSION

Development and implementation of a national collaborative for corrections worker health was feasible for advancing research to practice. We identified a wide variety of needs to inform the research and development of evidence informed interventions to promote health among COs. TWH is an appropriate strategy for identifying more than one-dimensional solutions. Growth of the NCC was a naturally occurring process with grassroots support by volunteers motivated to bring innovation to corrections health. We realized the underlying, latent interest within corrections systems and their motivation to bring research findings into practice. Topics emphasized during NCC meetings evolved and expanded over time. Key themes have been labor and management joint initiatives, interventions that reduce mental health risks, and uncovering cultural limitations and resistance to top-down type health promoting initiatives in corrections. Addressing correctional workplace culture that enhances the strengths of staff and satisfies needs of inmates—that is, reentry—has gained visibility in corrections workforce health promotion.<sup>46,60</sup> Future research will require rigorous methods to support the validation and dissemination of results. We will continue to engage key stakeholders and the corrections community in participatory events to build the research to practice agenda for multidimensional corrections workplace health promotion.

Solid interest and activities for advancing corrections worker health exist among multidisciplinary researchers and professionals. Future work is needed to address evolving issues further bridge evidence to practical solutions and policy to protect and promote corrections worker health.

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