

Carolina PROSPER  
Final Research Report to the Collaboratory

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**Overview**

The North Carolina Occupational Safety and Health Education and Research Center (NC OSHERC) is a regional center that since 1975 has provided graduate level education and training, conducted state-of-the-science research, offered outreach and continuing education in occupational safety and health for professionals, and offered technical assistance for a wide array of businesses in North Carolina, nationally, and around the world. An interdisciplinary team of health professionals from NC OSHERC applied the Total Worker Health® (TWH) approach to launch a technical assistance program called Carolina PROSPER designed to assist small- to medium-sized North Carolina businesses with their efforts to respond to the COVID-19 pandemic and to ensure the safe and healthy operations or re-opening of businesses. There were two phases to this project: Phase 1: Survey of small- to medium-sized employers about their occupational safety and health needs and interests in the time of the pandemic; and Phase 2: Test the feasibility of providing technical assistance to interested businesses applying these results using the TWH approach (Figure 1). We have delivered a tailored menu of evidence- and practice-based solutions and strategies, programs, and policies designed to create safe work environments and to promote the safety, health, and well-being of workers. The TWH approach takes into account both practice and policy strategies to positively impact worker health and work conditions while improving enterprise outcomes for employers that can have long-term benefits to employees, family members, communities, and the economy as a whole. In summary, NC OSHERC has provided technical assistance and support for helping businesses stay open or re-open in ways that are tailor-made (*i.e.*, instead of “one-size-fits-all”) for each business, continuing our legacy as North Carolina’s go-to experts for worker safety and health during this unprecedented time.

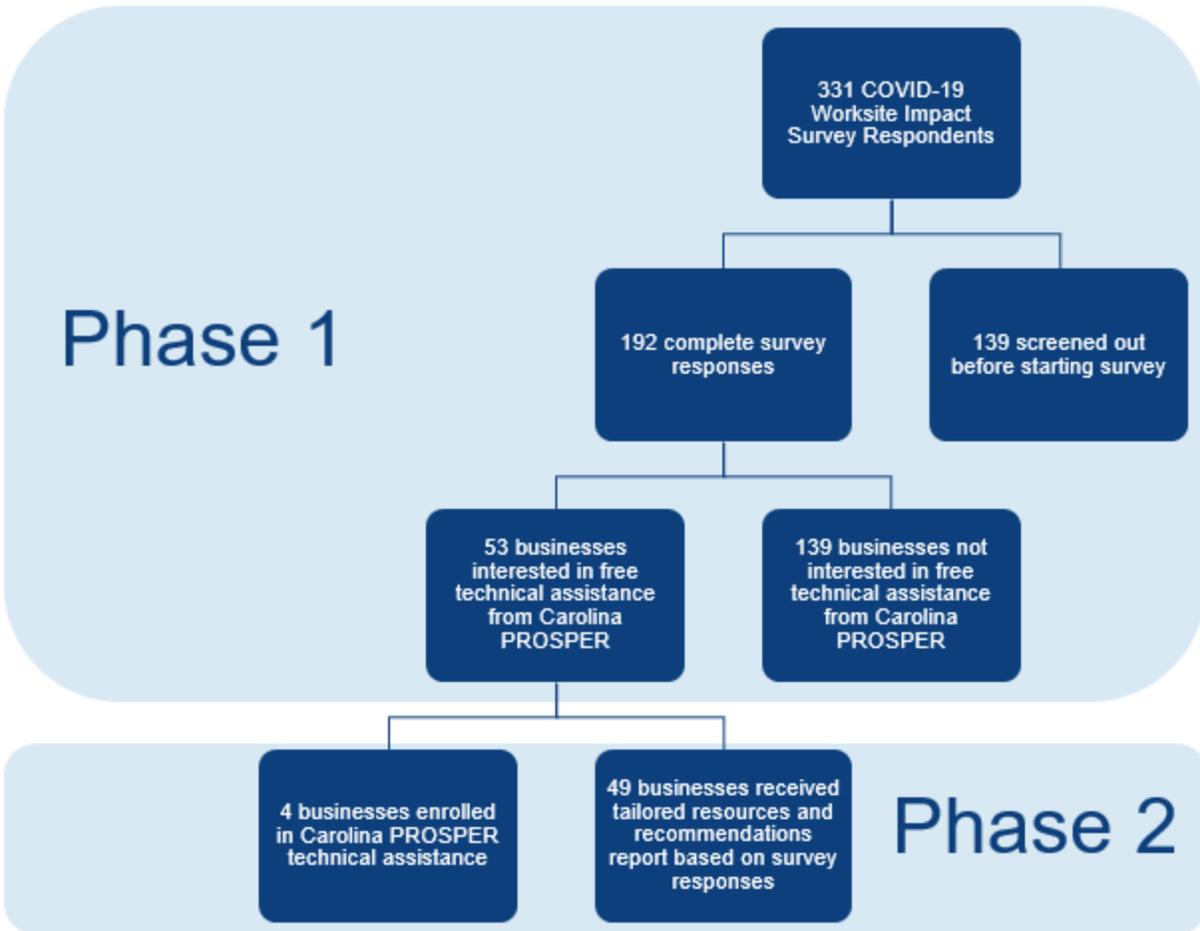


Figure 1. **Description of Phases 1 and 2** -- Carolina PROSPER

## Personnel

*PROSPER Staff (all affiliated with UNC Gillings School of Global Public Health)*

Multiple Principal Investigators: Leena Nylander-French, PhD, CIH and Laura Linnan, ScD

Co-investigator: John Staley, PhD, MSEH

Co-investigator: Maija Leff, MPH

Project Manager and Healthy Working Conditions Technical Lead: Rosa Greenberg, MPH

Industrial Hygiene and Workplace Safety Technical Lead: Emily Price, MSPH

NC OSHERC Program Manager: Julie Myers

Graduate Research Assistant: Hannah Barker

Graduate Research Assistant: Mahfuz Nasiri

Graduate Research Assistant: Aldrea Speight, CHES

Graduate Research Assistant: Hanna Jardel

*PROSPER Collaborator*

Frank Stillo, PhD and Savannah Volkoff, PhD, Geosyntec Consultants

*PROSPER Consultants*

Richard Cravener Jr., MS, CIH, CSP, Owner and Operator, Cravener Consulting Solutions

Edwin Fisher, PhD, Director of Peers for Progress and Professor of Health Behavior, UNC Gillings School of Global Public Health

Patrick Tang, MPH, Peers for Progress Program, UNC Gillings School of Global Public Health

Bahby Banks, PhD, CEO, Pillar Consulting

Diane Gavarkavich, EdD, MPH, Founder and Principal Consultant of DTG Community Services

Tilde Language Justice Cooperative

The Ergonomics Center of North Carolina, North Carolina State University

*PROSPER Advisory Board*

Kevin Beauregard, CSP, CPM – Director of the Occupational Safety and Health Division, NC Department of Labor

Dr. Gialana Dang, DrPH, CPH (they/them/theirs), Occupational Epidemiologist, Principal Investigator, NC Occupational Health Surveillance Program

Robert M. Gilmore – Human Services Supervisor, AA, BS - Health Care Management, SOAR, BESP; Employment Services Operations/NCWORKS Career Center; SSI/SSDI Outreach, Access And Recovery (SOAR)-Supervisor Certified; Business And Employers Services Professional (BESP, Certified); Orange County Department of Social Services; US Army Medical Department, Retired MSG

Dr. Shawn Kneipp, PhD, RN, ANP, APHN-BC, FAANP – Professor, UNC School of Nursing  
Carolyn Naseer, MA – Co-Founder, My Change Agent

Aaron Martin Nelson, IOM – President and CEO, The Chamber For a Greater Chapel Hill-Carrboro

Kevin J. Price, MBA, MHA – President and CEO, NC Institute of Minority Economic Development

Quintana Stewart, MPA – Health Director, Orange County Public Health Department

Douglas W. Urland, MPA – Director, NC Institute for Public Health

Dr. Iulia Vann, MD, MPH – Health Director, Guilford County Public Health Department

Mike Zelek, MPH – Health Director, Chatham County Public Health Department

## Funding

### *PROSPER Budget Summary and Allocation*

Carolina PROSPER investment funds supported the launch of an occupational safety and health technical assistance program using the TWH approach and a feasibility test of the program with prioritized businesses that employ workers disproportionately affected by the COVID-19 pandemic. Budget allocations included personnel and fringe costs at \$242,705 and non-personnel costs at \$243,190 for a total investment funding of \$485,895.

Personnel and fringe expenses included all faculty, staff, coordinators, and graduate research assistants. Personnel budget allocation at \$242,705 was exceeded by \$53,574 for a total expense of \$296,279.

Non-personnel expenses included all purchased services and materials: travel to workplaces; supplies for workplaces and workers to use (t-shirts, polos, face masks, tote bags, water bottles, floor decals, signage, and hand sanitizer stations); workplace testing materials; PPE to conduct workplace assessments and testing; a computer for data collection and analyses; consultant services to conduct workplace assessments, provide resources for workers, conduct surface testing, review disinfection procedures for SARS-CoV-2, and recommend best practices; project phone line; web and application design; cloud platform; and data management and programming. Non-personnel budget allocation at \$243,190 had a remaining balance of \$78,712 for a total expense of \$164,478.

The total project expense at \$460,757 left a funding balance of \$25,138.

### *Additional Related Funding Awards and Proposals*

We participated in a “Work Safely” COVID-19 video series, at the request of Hope Renovations, a nonprofit organization that provides trades-based education to underemployed women in North Carolina. The \$25,000 contract was awarded to NC OSHERC to provide content expertise in development of two videos in English and Spanish - 1 employer focused, and 1 employee focused. The video link is [here](#), as well as the link to the Gillings [School News release](#). We plan to submit future proposals with Hope Renovations and other trades stakeholders to develop additional videos and webinars.

On February 3, 2021, members of the Carolina PROSPER team led by Dr. Linnan will submit a \$7 million proposal to the National Institute for Occupational Safety and Health in response to PAR 20-297 to fund the Carolina Center for Total Worker Health and Well-Being, a new Center of Excellence in TWH. This Center will focus on worker safety, health, and well-being in North Carolina and the southeastern U.S. The Center includes four research projects addressing essential workers (firefighters, childcare, and nurses/physicians) and under-studied LGBTQ workers. In addition, the Center includes Cores in Evaluation and Planning, as well as Outreach and Education, a Pilot Project Program, and funds set aside to address emerging issues while engaging workers to improve worker safety, health, and well-being. This Center will build on the accomplishments of Carolina PROSPER, the long-standing work of NC OSHERC, UNC partners including the Center for Health Promotion and Disease Prevention, Injury Prevention Research Center, as well as investigators at Duke, UNC Greensboro and Research Triangle International to advance worker well-being in North Carolina and beyond.

## Deliverables

### Carolina PROSPER Phase 1

Carolina PROSPER's Phase 1 efforts began with the creation and distribution of the online COVID-19 Worksite Impact Survey (herein referred to as "Impact Survey") to assess businesses' COVID-19-related needs and interests. We are drafting a manuscript to summarize these results. A total of 192 small- to medium-sized North Carolina businesses completed the survey, in which they indicated they were most interested in: (1) testing employees for COVID-19, (2) developing facility disinfection protocols for coronavirus and other infectious diseases, (3) training supervisors on how to best support employee mental health through the pandemic, (4) developing and implementing an infection control protocol/policy, and (5) interpreting COVID-19-related health and safety data (Figure 2). We used the survey results to plan the various technical assistance components to be offered to businesses in Phase 2 of the project.

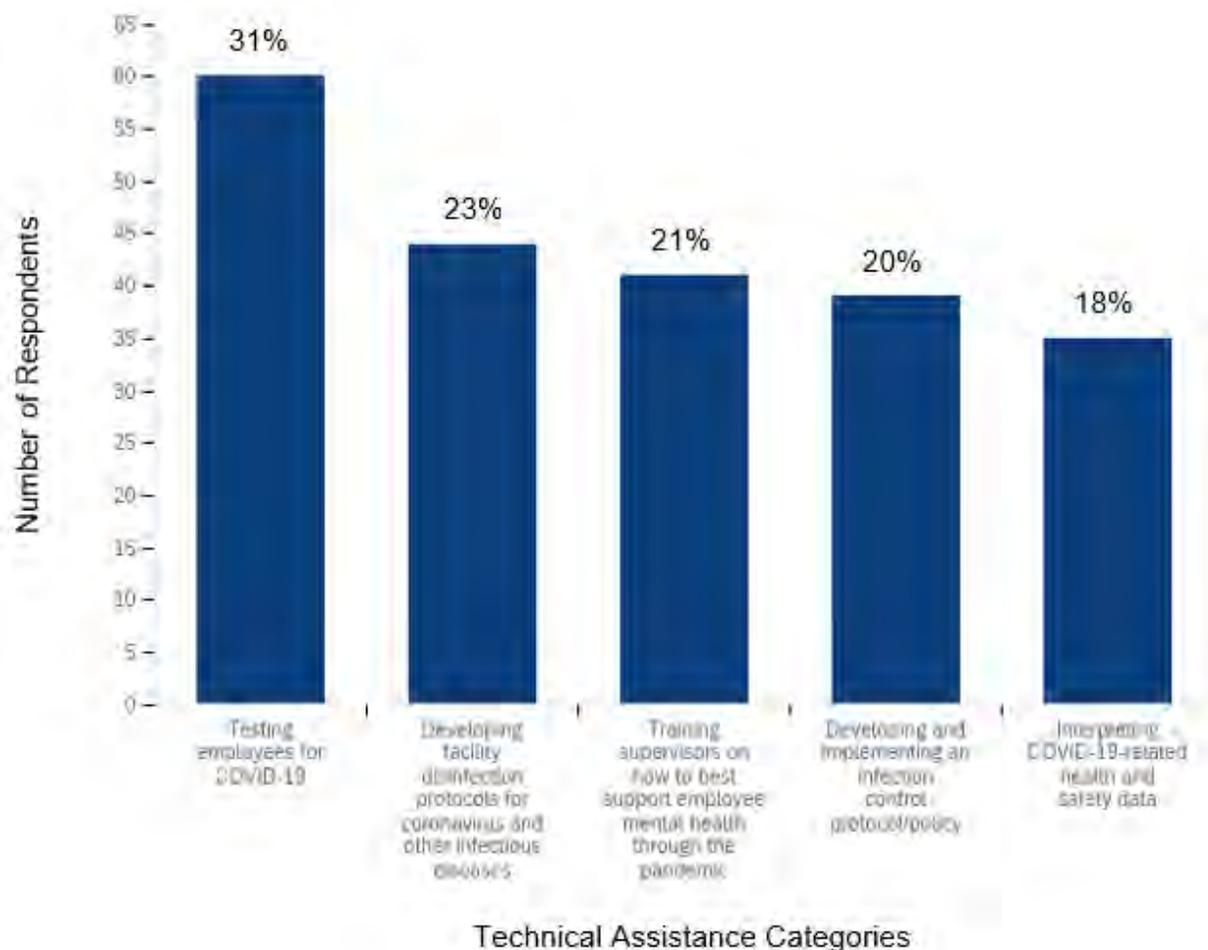


Figure 2. Top five technical assistance categories requested by survey respondents (n=192)

From the survey results, we observed a lack of capacity and significant need for assistance in building and integrating safety programs with health and well-being (e.g., mental health) initiatives that a TWH approach would facilitate. This need was particularly evident in essential

and underserved minority businesses, as reflected in a comment by one business owner participating in the Carolina PROSPER project:

*“When the state promised money to small businesses like ours [for COVID relief], we thought we would get the help we need. Yet, that money went to big businesses like chain restaurants, leaving the little guy like us out in the cold. We are paying for masks and safety equipment out of our own pocket, with no guidance on how to do it, let alone help with how to deal with how scared my employees are in having to use it.”*

A representative of another business reflected on our delivery of employee mental health webinars:

*“Thanks for this! I think there’s a lot of interest in these topics, and several folks have already reached out to me expressing their gratitude for this timely webinar.”*

When asked what the biggest barriers were to staying safe at work, one frontline employee said:

*“Mental health and missing people. Also, the back and forth [in the worksite space], especially when confronted by people not wearing masks or distancing.”*

NC businesses also expressed a more general need for occupational safety and health technical assistance, as 53 out of 192 survey respondents (28%) indicated they wanted free technical assistance from Carolina PROSPER. Therefore, resources and policies were directed to businesses during the funding period. However, continued, enhanced support should be directed toward providing these services in the future, especially given the lingering effects of the COVID-19 pandemic.

### *Carolina PROSPER Phase 2*

Given the results of the Impact Survey, 53 businesses indicated they were interested in partnering with Carolina PROSPER during Phase 2 and in testing the feasibility of providing technical assistance using the TWH approach. We provided detailed, tailored specific reports with a wide array of recommendations and resources to those 53 businesses (see attached “PROSPER\_TA Tailored Reports\_FinalFull.docx”). Then, with four specific small businesses, we tested the feasibility of providing more intensive, tailored technical assistance in addition to the tailored report. We conducted on-site interviews with employees and managers/owners, as well as on-site walk-throughs with these four businesses, and provided the following:

- Review of facility operations, work practices, and existing disinfection protocols
- Ventilation consultations
- Surface testing for SARS-CoV-2
- Recommendations for facility operations, work practices, and ventilation
- Recommendations for training on hand washing, physical distancing, and mask wearing
- Recommendations for infection control procedures and testing resources
- Signage/decals to enforce hand washing, physical distancing, and mask wearing
- Health promotion in the time of COVID resources and trainings
- Mental health resources and webinars
- Organizational leadership webinars
- Ergonomic resources for working from home

We delivered specific surface testing results, ventilation consultation results, and other general recommendations based on our on-site walkthrough assessment of the workplaces (see attached “PROSPER Redacted Walkthrough Report Example.pdf”). Across the four businesses, we interacted with approximately 105 study participants in total. We are preparing to deliver a unique, site specific set of recommendations in a report prepared for each business based on the employer’s preferences.

Each report contains the PROSPER team’s recommendations pertaining to the technical assistance described above, as well as summaries of the various interviews, surveys and/or focus groups we conducted with employees, volunteers and/or contractors who worked at the sites. During a follow-up session, representatives from each of the four businesses are invited to a Zoom action planning meeting with our team to discuss PROSPER’s recommendations and suggested resources so that the business may begin implementing improvements for worker safety and health at their worksites. The feasibility of this TWH approach will be assessed via follow-up employee surveys, interviews with business leadership, and final on-site walkthroughs according to the businesses’ preferences.

## **Where We Are Going from Here**

NC OSHERC will build on the accomplishments of Carolina PROSPER during the COVID-19 pandemic and beyond to ensure all workers, including frontline, essential, and those who are disproportionately affected by the pandemic, are safe and healthy as we not only survive, but thrive together as a community. We have already collaborated with other groups to provide helpful resources, information, and trainings for employers and workers statewide and nationally. To secure funding for post-COVID-19 work, we are submitting a \$7 million proposal for a new Carolina Center for Total Worker Health and Well-being, to become the home of a TWH Center specifically serving the needs of North Carolina and the southeastern region of the U.S. The new Center will specifically focus on promoting worker safety, health, and well-being in underserved and underrepresented worker populations, *e.g.*, essential workers, and racial/ethnic minorities.

During the Carolina PROSPER project, we collaborated with multiple groups to develop and deliver informational videos and webinars. We worked with Peers for Progress, a program of the Department of Health Behavior in the Gillings School of Global Public Health, to develop and deliver a four-part Wellness Webinar Series in January and February 2021. The webinars are intended for all workers and cover the following topics: “Better Sleep for Health and Well-Being”, “Strategies for Improving Your Mood and Reducing Anxiety”, “Creating a Positive Workplace for Employee Mental Health”, and “Getting and Giving Social Support”. We coordinated with Dr. Bahby Banks of Pillar Consulting (a minority-owned small business) to deliver a three-part THRIVE Webinar Series for business leadership to reflect on, realign, and renew their business goals in the coming year. Lastly, we teamed up with the Ergonomics Center of North Carolina at NC State University to provide a video training titled “Ergonomics for the Home Office” and to provide ergonomics training modules to 100 workers for free. The webinars and trainings have been promoted to workers and employers at the Carolina PROSPER partner businesses and other businesses that responded to the Impact Survey. They have also been promoted via NC OSHERC’s existing connections:

- All NC OSHERC Social Media Channels - LinkedIn, Facebook, Twitter
- American College of Occupational and Environmental Listserv – a large world-wide group of medical professionals

- NC OSHERC stakeholder groups (2) – Upcoming Programs and Summer Institute Attendees – ~900 folks
- NIOSH Education and Research Centers (ERCs) Outreach and CE Directors listserv – ~20 folks
- Gillings Workforce Development Group – a 11-member committee that does workforce education and technical assistance in NC and across the country.
- Southeastern ERCs – reach the entire southeastern region of the U.S.
- Triangle Industrial Hygiene Group – industrial hygienists and safety professionals of the central NC region
- Cathy Brennan, Executive Director of UNC Environment, Health and Safety
- Rhonda McGuire, NCAOHN Communications Chair, NC Association of Occupational Health Nurses

We advertised Carolina PROSPER via the following media news stories, webinars, and websites:

- Dr. Leena Nylander-French: [Carolina PROSPER offers help to businesses ready to reopen safely amid COVID-19 pandemic \(ABC11 News\)](#)
- Dr. Laura Linnan: [UNC Research Study Helps Local Businesses Stay Safe During Pandemic \(Chapelboro.com\)](#)
- Dr. John Staley: [MISSION IMPOSSIBLE: Return to the Worksite \(Go Triangle\)](#)
- Dr. John Staley: [Total Worker Health® During a Pandemic: The Carolina PROSPER Project](#). Part of the National Institute for Occupational Safety and Health Expanding Research Partnerships: Webinar Series 2020. September 2, 2020
- Carolina PROSPER Webpage: <https://sph.unc.edu/osherc/carolina-prosper-and-other-covid-resources/>
- NC Coronavirus Studies page of the UNC Gillings COVID-19 Dashboard: <https://gillingscovid19.unc.edu/nc-covid19-studies/carolina-prosper>

Additionally, the Carolina PROSPER project is directly resulting in at least three publications:

1. Published - Ozone: Science and Engineering. [SARS-CoV-2 Surface Disinfection Using Ozone](#). 21 Dec 2020.
2. In preparation - Implementing a Total Worker Health Approach during the COVID-19 Pandemic: The Carolina PROSPER project.
3. In preparation - Impact of the COVID-19 Pandemic on Small- and Medium-Sized Businesses in North Carolina: The Carolina PROSPER Worksite Impact Survey

These publications will inform safety and occupational health leaders/professionals and employers how to develop generalizable evidence-based plans for reopening or continued operations during this pandemic and other challenging times that may be ahead. NC OSHERC has 46 years of experience protecting and improving the lives of workers in North Carolina and is optimally positioned to continue to do so as well as explore new emerging occupational safety and health issues spurred by these initial publications, especially related to the implementation of a TWH approach for improving worker safety and health during the COVID-19 pandemic and beyond.

We will pursue additional funding from state, federal, and private agencies so that we can continue the work of Carolina PROSPER in the future, take advantage of existing connections,

and forge new partnerships to be able to continue to deliver evidence-based safety and occupational health resources and guidance to the NC community.