ISSUEBRIEF

FALL 2022

THE ROLE OF COMMUNITY HEALTH WORKER SERVICES IN COVID-19 RESPONSE EFFORTS





The COVID-19 pandemic disproportionately affected communities of color, with Black and Hispanic Connecticut residents experiencing higher infection and mortality rates than the overall population. Recognizing the need to better assist communities with their COVID-19 response and understanding the value of community health workers in reaching residents, the Connecticut Health Foundation (the foundation) quickly developed a grant opportunity for local public health agencies. These grants enabled five local health departments to use community health worker (CHW) services as part of their pandemic response.

This brief provides an overview of the CHW initiatives that local health departments developed and implemented to meet the specific needs of their communities, with the foundation's assistance, and it summarizes the results of an evaluation conducted by a team of experts based at UMass Chan Medical School, Commonwealth Medicine division ("UMass Chan").

While a growing body of literature demonstrates that CHWs are effective in meeting the needs of their communities in a variety of settings, less is known about CHWs' contribution to addressing public health emergencies, such as the COVID-19 pandemic. This brief seeks to document the contributions made by CHWs who participated in their local health departments' COVID-19 response.

SUMMARY

- Health departments implemented CHW initiatives in Danbury, Hartford, New Haven, Norwalk, and Stamford.
- CHWs provided a different set of services in each city, tailored to the needs of each community and health department.
- CHW services included contact tracing, community outreach and education, supporting COVID-19 testing and vaccination clinics, and connecting community members to needed services and supports.

FINDINGS

- CHWs effectively met community members' medical and non-medical needs.
- CHWs and the residents they served believe the initiative was helpful and had a positive impact.
- The initiative averted some COVID-19 cases, and these averted cases offset the program cost.

BACKGROUND

The COVID-19 pandemic exacerbated existing racial and ethnic disparities in health outcomes for people of color. Throughout the pandemic, Black and Hispanic Connecticut residents have been substantially more likely to be infected with COVID-19 and about twice as likely to die from the disease.^{1,2} A variety of factors contribute to these inequitable health outcomes, including less reliable access to health care, nutritious food, and stable housing.³ Black and Hispanic Connecticut residents are more likely to have underlying conditions such as asthma and diabetes, which can exacerbate the effects of COVID-19 and result in higher rates of death and hospitalization.⁴ Nationally, Black and Hispanic individuals are more likely to be employed in parts of the service sector that put them in close contact with the public, increasing their risk of exposure to COVID-19 — for example, as home health aides, grocery clerks, restaurant workers and housekeepers. Additionally, these close-contact jobs are less likely to offer paid sick leave or health insurance coverage, and their workers are less likely to get time off and health care when they are sick.^{5,6} Finally, Black and Hispanic adults were more likely to lose income or employment during the COVID-19 pandemic than white adults, putting them at greater risk of experiencing financial difficulties and losing employer-sponsored health insurance.^{7,8}

To better assist communities in addressing COVID-19, the Connecticut Health Foundation developed a grant opportunity to help local health departments use CHW services as part of their pandemic response. The foundation prioritized health departments in communities with higher populations of color.

From its prior work^{910,11} the foundation knew that CHWs can help individuals access the care and services they need, while also advocating to ensure the care system as a whole is responsive to community needs. In recent years, the Connecticut Health Foundation has provided funding and technical assistance for several initiatives that demonstrated CHWs' contributions to improved patient outcomes, particularly in low-income, predominantly Black and Hispanic communities.⁹ This initiative sought to build on those efforts.

ROLE OF COMMUNITY HEALTH WORKERS IN PUBLIC HEALTH PREPAREDNESS AND RESPONSE

There is considerable evidence that CHW services can improve health outcomes and contain health care costs. While researchers are just beginning to examine CHWs' contributions to public health emergencies, the Centers for Disease Control and Prevention (CDC) has noted that CHWs' role as trusted members of their communities positions CHWs particularly well to convey emergency messages that help protect the most vulnerable residents. In addition, studies document that CHWs can contribute to public health responses in the following ways:

• CHWs build community trust in public health leadership and guidance. CHWs have a deep knowledge of the communities they serve, often sharing their language, culture, and socioeconomic needs, making them uniquely able to provide culturally competent care, which is key to building trust in a community.¹⁵

A community health worker (CHW) is defined in Connecticut statute as "a public health outreach professional with an in-depth understanding of the experience, language, culture and socioeconomic needs of the community and who provides a range of services, including, but not limited to, outreach, engagement, education, coaching, informal counseling, social support, advocacy, care coordination, research related to social determinants of health and basic screenings, and assessments of any risks associated with social determinants of health."¹²

• CHWs routinely play critical roles in vaccine introduction and acceptance, making them essential in the effort to contain the spread of COVID-19. CHWs engage communities to promote preventive measures by providing information about the benefits of masks, hand washing, and social distancing.¹⁶ CHWs are also well positioned to address the misinformation and stigma surrounding COVID-19 by providing timely health advice on COVID-19 testing and vaccination, and guidance related to social distancing, contact tracing, and quarantine.¹⁷ • CHWs strengthen public health response by linking underserved community members to resources. CHWs effectively refer community members to community resources to enable them to safely quarantine and self-isolate. For example, a CHW can help facilitate quarantine by dropping off food packages during home visits, so that exposed or infected individuals can remain at home. Beyond meeting people's immediate needs, these connections to community resources have the long-term benefit of familiarizing residents with services and supports available to help meet ongoing needs related to health, food, housing, and more.

FIVE COMMUNITY INITIATIVES

The foundation provided funding to five local health departments (Figure 1) in collaboration with 4-CT,¹⁸ an organization established in March 2020 to deliver relief to Connecticut residents, especially those who were disproportionately affected by the pandemic. The foundation also partnered with the Penn Center for Community Health Workers¹⁹ to provide CHW training and with UMass Chan to provide technical assistance and project management.

GRANTEES

Beginning in September 2020, five local health departments (the grantees) each received two rounds of funding from the foundation. While each city's initiative was unique, each aimed to stop the spread of COVID-19 by connecting

Figure 1. Grant Funding by Local Health Department



| | Danbury | Norwalk | Stamford | Hartford | New Haven |
|-----------------|-----------|-----------|-----------|-----------|-----------|
| CT Health Grant | \$99,920 | \$320,487 | \$176,779 | \$514,987 | \$101,044 |
| Other Funding | \$208,000 | - | - | \$187,096 | - |
| Total | \$307,920 | \$320,487 | \$176,779 | \$702,083 | \$101,044 |
| Duration | 13 months | 10 months | 10 months | 10 months | 6 months |

Four grants began in October 2020; New Haven began in February, 2021.

residents to the community resources they needed. The Hartford, Norwalk, and Stamford health departments chose to partner with community-based organizations to staff their initiatives, while the Danbury and New Haven health departments hired, trained, and managed their own CHW staff.²⁰

Grantee activities included contact tracing, community outreach and education, supporting COVID-19 testing and vaccination clinics, connecting individuals to needed services and supports, and more, as described in Figures 2, 3, and 4.

| CHW Activity | CHW Activity Description |
|--------------------------------------|---|
| Contact Tracing | Contacted residents who were either diagnosed with COVID-19 or were exposed to someone who was diagnosed with COVID-19 |
| Social Service Referrals | Screened individuals for unmet needs that affect their mental or physical health and/or their ability to isolate/quarantine effectively |
| | Connected individuals to local and regional resources (i.e. food, financial assistance, state level services and supports) |
| Food | Prepared food packages for distribution to community members, either through home visits or via food pick-up sites |
| Health Promotion/Social Marketing | Provided timely health advice on COVID-19 individually and via social media; encouraged community members to seek testing and vaccination, and comply with health guidance related to social distancing, contact tracing and quarantine |
| Track Health Care Appointments | Helped community members connect to health care services for COVID-19 treatment and related care |
| Flu Shots | Hosted influenza vaccine clinics to reduce the rate of COVID-19 and influenza co-infections |
| Home Visits | Conducted ongoing monitoring and check-ins via home visits, sometimes delivering food or personal protective equipment |
| Case Management | Conducted assessment for case management needs |
| | Conducted ongoing monitoring and check-ins throughout the isolation/quarantine period |
| | Provided case management beyond the end of the isolation/quarantine period until needs were met |

Figure 2. Activities performed by CHWs

Figure 3. Grantee Intervention Activities

| Activities | New Haven | Stamford | Norwalk | Hartford | Danbury |
|----------------------------|-----------|----------|---------|----------|---------|
| COVID Testing | • | | | | • |
| Contact Tracing | | • | • | | • |
| Social Service Referrals | | ٠ | • | ٠ | • |
| Food | | • | • | • | • |
| Marketing/Social Marketing | ٠ | ٠ | • | ٠ | ٠ |
| Track Health Care Appts | | • | | • | • |
| Flu Shots | ٠ | | | | • |
| Home Visits | | • | | | |
| Case Management | | • | • | | |

Figure 4. Grantee Intervention Activities: Danbury and Norwalk

Danbury and Norwalk used different approaches resulting in differences in the time allocated to address individuals' needs. Estimated time per individual varies widely within and across the two grantees.

| Danbury | Norwalk |
|---|--|
| Contact Tracing Health Promotion Social Service Referrals | Contact Tracing Health Promotion Social Service Referrals |
| Estimated Time: 30–110 minutes per individual | Case Management Estimated Time: 75–570 minutes per individual |

COST OF INITIATIVE

Each city used different interventions tailored to its local needs, with a wide range of time and expense required for each activity. Each program endeavored, to the best of its ability, to collect information about CHW activities and their related activity costs, as well as demographic information for the people they served. Unfortunately, the state of Connecticut did not have a standardized way to collect demographic data related to race, ethnicity, and language at the time of this initiative, which hampered the local health departments' ability to collect this information about the people served.

Stamford and New Haven provided data that enabled the UMass Chan team to calculate the total cost of each activity, while Danbury and Norwalk also provided more detailed data that allowed the team to estimate the time and cost associated with assisting each resident. Hartford provided information about its activities, but could not provide cost data to the evaluators. Figures 5 through 8 provide details on the cost and volume of services provided by each grantee. The charts show the cost of each activity, broken out by personnel costs, non-personnel costs (such as supplies), and the share of the organization's indirect costs (general expenses such as office space and human resources) linked to the activity. The charts also show the units of service provided under each activity (that is, the number of individuals served, number of events supported, number of communications materials developed, number of facilities that received informational materials) and the cost of providing each unit of service. Amounts have been rounded to the nearest dollar.



Stamford partnered with a local community-based organization, Family Centers, to train and employ five full-time multilingual CHWs (see Figure 5). The CHWs provided individual case management to residents who tested positive or were exposed to COVID-19 and connected these individuals to community services and supports to help them safely quarantine.

New Haven took a less time-intensive approach, focusing on broad COVID-19 response efforts. The city hired CHWs to support COVID-19 testing and vaccination clinics, along with free influenza vaccine clinics, to reduce the rate of COVID-19 and influenza co-infections (see Figure 6). The CHWs provided information and answered residents' questions in several languages.²¹

Figure 5. Intervention Cost: Stamford

Stamford employed a time-intensive model. CHWs connected residents with community services and supports to help them safely quarantine.

| | Quarantine assistance, contact tracing | Community outreach, vaccine scheduling | Flyers | Total |
|---|--|--|--------------------------------|-----------|
| Units of service provided | 838 Individuals received assistance | 238 Appointments scheduled | 9,659 Flyers distributed | |
| Percentage of funds allocated to activity | 50% | 35% | 15% | 100% |
| Personnel cost | \$53,195 | \$37,236 | \$15,958 | \$106,390 |
| Non-personnel cost (e.g. supplies) | \$13,809 | \$9,666 | \$4,143 | \$27,618 |
| Indirect cost* | \$21,385 | \$14,970 | \$6,416 | \$42,771 |
| Total cost of activity | \$88,389 | \$61,873 | \$26,517 | \$176,779 |
| Cost per unit | \$105 | \$260 | \$3 | |

Figure 6. Intervention Cost: New Haven

New Haven took a less time-intensive approach. CHWs supported COVID-19 testing and vaccination clinics, along with free influenza vaccine clinics.

| | Quarantine assistance, contact tracing | Community outreach, vaccine scheduling | Brochure/ flyers | Total |
|---|--|--|----------------------------------|-----------|
| Units of service provided | 422 Facilities received assistance | 15 Vaccine events hosted | 50 Communications deployed | |
| Percentage of funds allocated to activity | 33% | 36% | 31% | 100% |
| Personnel cost | \$19,722 | \$21,760 | \$18,832 | \$60,314 |
| Non-personnel cost (e.g. supplies) | \$9,008 | \$9,939 | \$8,602 | \$27,550 |
| Indirect cost* | \$4,310 | \$4,755 | \$4,115 | \$13,180 |
| Total cost of activity | \$33,040 | \$36,454 | \$31,550 | \$101,044 |
| Cost per unit | \$79 | \$2,430 | \$631 | |

individuos necesitados en el área de Greater Ne rserved individuals in the Greater New Haven ar





* Indirect costs are general expenses such as office space or human resources; these costs are spread across all services. Amounts have been rounded to the nearest dollar. Information provided by UMass Chan Medical School.

Like New Haven, **Danbury** hired CHWs to staff COVID-19 testing and vaccination sites, as well as to develop and share educational materials. Danbury spent an average of \$25 per person who received a vaccine, as well as \$133 per facility that received educational materials (see Figure 7).

In **Norwalk**, community health workers also distributed educational materials and staffed testing and vaccination sites. In addition, Norwalk CHWs assisted with COVID-19 contact tracing, and helped connect residents to services and supports within their community. Norwalk spent an average of \$183 per person who used CHW contact tracing and case management services (see Figure 8).

The **Hartford** health department (not pictured) partnered with three local community-based organizations (Hispanic Health Council, Hartford Communities That Care, and Family Life Education) to train and employ 20 full-time CHWs.²² The CHWs engaged in a wide range of activities: supporting contact tracing, hosting COVID-19 testing and flu clinics, coordinating food distribution sites, and distributing flyers and personal protective equipment such as masks and hand sanitizer.

EVALUATION METHODS

The UMass Chan team designed an evaluation to gauge the effectiveness of each health department's initiative. To do so, the team employed several methods:

- *Resident Survey:* The Danbury and Norwalk health departments asked residents who received services from CHWs to complete a survey to:
 - better understand their medical and non-medical needs and
 - gauge whether residents thought CHWs were helpful in addressing these needs.

Figure 7. Intervention Cost: Danbury

In Danbury, CHWs conducted contact tracing, supported COVID-19 testing and vaccination clinics, and developed educational materials.

| | Contact tracing | Community outreach | Brochure distribution | Total |
|---|----------------------------------|--------------------------------|---|-----------|
| Units of service provided | 14,801 Individuals reached | 5,937 Households reached | 866 Facilities received brochures | |
| Percentage of funds allocated to activity | 8% | 17% | 15% | 100% |
| Personnel cost | \$37,162 | \$102,455 | \$97,315 | \$236,932 |
| Non-personnel cost (e.g. supplies) | \$953 | \$7,535 | \$14,619 | \$23,107 |
| Indirect cost* | \$23,434 | \$21,096 | \$3,352 | \$47,882 |
| Total cost of activity | \$61,549 | \$131,085 | \$115,286 | \$307,920 |
| Cost per unit | \$4 | \$22 | \$133 | |

Figure 8. Intervention Cost: Norwalk

In Norwalk, CHWs provided the same services as in Danbury, and also connected residents with community services and supports to help them safely quarantine.

| | Referral to community resources, and contact tracing | Community outreach | Brochure distribution | Vaccination clinics | Total |
|---|---|--------------------------------|-----------------------------------|-------------------------------------|-----------|
| Units of service provided | 1,095 Individuals received assistance | 4,126 Households reached | 2,063 Brochures distributed | 11,179 Individuals vaccinated | |
| Percentage of funds allocated to activity | 63% | 25% | 6% | 6% | 100% |
| Personnel cost | \$168,003 | \$67,309 | \$16,684 | \$16,684 | \$268,680 |
| Non-personnel cost (e.g. supplies) | \$6,255 | \$2,506 | \$621 | \$621 | \$10,004 |
| Indirect cost* | \$26,139 | \$10,472 | \$2,596 | \$2,596 | \$41,803 |
| Total cost of activity | \$200,397 | \$80,287 | \$19,901 | \$19,901 | \$320,487 |
| Cost per unit | \$183 | \$19 | \$10 | \$2 | |

- *CHW Survey:* All five grantees asked their CHWs to complete a survey to:
 - better understand the medical and non-medical needs of the residents CHWs served and
 - gauge whether CHWs thought they were able to address those needs.
- * Indirect costs are general expenses such as office space or human resources; these costs are spread across all services. Amounts have been rounded to the nearest dollar. Information provided by UMass Chan Medical School.

- Analysis of Effectiveness: Using the survey results together with cost data provided by the local health departments, the UMass Chan team was able to estimate:
 - how often CHWs were able to meet all of a consumer's needs
 - how many COVID-19 cases were averted as a result of the CHW initiatives in Norwalk and Danbury from August 1, 2020 through July 31, 2021 and
 - the cost savings associated with the averted cases.

RESIDENT AND CHW SURVEY ANALYSIS

The Danbury and Norwalk health departments invited residents who used CHW services to take an anonymous survey. The survey was available both online and by phone, and was available in several languages.²³ The majority of survey respondents were Hispanic or Latino, followed by Black or African American, which aligns with the communities the grant initiative aimed to serve.

Figure 9. Consumers' Perceptions of CHWs

Overall helpfulness of CHWs (n=64 respondents)





Figure 10. CHWs' Perceptions of Initiative



Overall, residents said that the CHWs were very helpful in supporting them during the pandemic and reported that most or all of their needs were met (see Figure 9). Overall, 83% of respondents selected the top rating of "very helpful" on a 1 to 5 scale, and 11% selecting the second-highest rating of 4.

A separate survey was offered to CHWs in all five cities. The CHW survey found that the vast majority of respondents viewed the initiative as making a real difference in people's lives and helping people learn about the resources available to them and find the support they need (see Figure 10).

EFFECTIVENESS EVALUATION ANALYSIS

Helping residents quarantine by meeting their needs

UMass Chan analysts used the results of the Danbury and Norwalk resident surveys to estimate how often CHWs were able to meet most or all consumer needs, and by extension, the impact CHWs had in stopping the spread of COVID-19. The premise is that when individuals have their needs met, they are more likely to remain in quarantine or isolation, helping to reduce the spread of the virus.

Figure 11. CHW Initiative Met Residents Needs

Overall, 80.6% of respondents who discussed all their medical and non-medical needs with CHWs had all their needs met compared to 10.5% who did not discuss any or all their needs with the CHW. In Norwalk, 87.5% of respondents who discussed all their medical and non-medical needs with CHWs had all their needs met. In Danbury, 66.7% of respondents who discussed all their medical and non-medical needs with CHWs had all their needs met.

Residents who discussed all medical and non-medical needs with CHW (n=36 respondents) $% \left(n=36,n=2,\dots,n\right) =0$





Residents who did not discuss all medical and non-medical needs with CHW (n=19 respondents)

Overall, 51% of survey respondents reported discussing all their medical and non-medical needs with a CHW. Within this group 81% reported that all their needs were met, indicating that CHWs were able to make a positive difference in the lives of the community members they served (see Figure 11).

SLOWING THE SPREAD OF COVID-19

The UMass Chan team developed an economic model to estimate the number of COVID-19 cases averted as a result of the CHW interventions in Danbury and Norwalk, represented in Figure 12. These interventions were aimed at enabling community members to safely quarantine and self-isolate. The economic model relied on the survey data, along with interviews with grantees, findings from published peer-reviewed studies^{24,25,26} and Connecticut COVID-19 infection data. Because the data available for this calculation is limited, the team developed an estimated range of COVID-19 cases averted based on a variety of factors that might influence the spread of COVID-19.

The team's best estimate is that engaging CHWs in contact tracing activities in Danbury and Norwalk averted 8.7 cases of COVID-19, or 59% of expected cases that would otherwise have been spread by the 70 individuals who responded to the consumer survey. Without these interventions, COVID would have likely spread from the survey respondents to another nine people.

Figure 12. Study Framework: Assessing the Impact of the Intervention on Infection Rates

Hypothesis: By addressing the medical and non-medical needs of the quarantined/isolated individuals, CHW engagement would (1) enable those individuals to adhere to quarantine/self-isolation requirements, and (2) lower the infectivity rate among household members and those in contact with the exposed or quarantined/ isolated individuals.



*New infections combined the probability of being infected after exposure to COVID-19 and the reproductive rate

The lowest estimate is that the intervention averted 5.1 cases or 35% of expected COVID-19 cases. The highest estimate is that the intervention averted 9.8 cases or 65% of expected COVID-19 cases (see Figure 13).

Figure 13. Averted COVID-19 Cases

The team's best estimate is that engaging CHWs in contact tracing activities in Danbury and Norwalk averted 8.7 cases of COVID-19, or 59% of expected cases among the 70 individuals who responded to the consumer survey.

| | Lower estimate | Best estimate | Higher estimate |
|--------------------------------|-------------------|------------------|--------------------|
| Cases Averted | 5 | 9 | 10 |
| Total Expected Cases | 15 | 15 | 15 |
| % of COVID-19 Cases Averted | 33% | 60% | 67% |

REDUCING HEALTH SYSTEM COSTS

Averting these COVID-19 cases also prevented costs to the health care system. The average cost of treatment for a symptomatic COVID-19 case was \$1,816 in 2021.²⁷ If the 70 individuals who participated in the survey had spread COVID-19 to an additional 5 to 10 people, and if treatment for those cases averaged \$1,816 per person, those additional treatment costs would be in the range of \$9,300 to \$17,800. If the intervention averted these costs, then this cost avoidance would offset the cost of engaging CHWs in contact tracing, which was \$183 per person in Norwalk or \$25 per person in Danbury.

LIMITATIONS OF EFFECTIVENESS ANALYSIS

This analysis may not be generalizable to other populations for the following reasons:

Small sample size

The resident survey sample is small, which limits our ability to apply the evaluation findings beyond the survey respondents. The sample size was too small to conduct analysis of subgroups, such as by race and ethnicity.

Race and ethnicity data was insufficient

No subgroup analysis can be conducted for different racial and ethnic groups or underserved populations because the grantees did not report race and ethnicity data consistently across this initiative.

The COVID-19 literature is still developing

• The literature from the U.S. on how many COVID-19 cases can be averted by adhering to quarantine guidelines is still developing, limiting the generalizability of the hypothesis.



- The literature and survey data cover a period before the Delta/Omicron variant became dominant in the U.S., making it more difficult to assess whether the intervention would have been as effective for a different variant. However, given the transmissibility of the newer COVID-19 variants, we would have expected this intervention to be highly effective.
- The estimates do not incorporate benefits from vaccines in protecting against COVID-19, since the study was implemented in early 2021 when vaccine availability was limited. However, we can assume that if an exposed person was vaccinated, then the infection rate and the reproduction rate would be less than those used in this analysis. This would reduce the benefit of the intervention. However, CHW engagement in the COVID-19 vaccination effort might have increased vaccine acceptability among Black and Hispanic Connecticut residents, highlighting the important role played by CHWs and suggesting another way CHWs could contribute to reducing the spread of COVID-19.

Race and ethnicity data collection is evolving

- At the time of the study, Connecticut had no statewide standardized way for health care systems and clinics to collect, report, and use patients' self-reported race, ethnicity, and language data to improve care.²⁸ This lack of standardization makes it hard to estimate how effective the intervention was for different racial groups across all five cities.
- Respondents from the resident surveys in Danbury and Norwalk were majority Black or Hispanic, indicating that the local health departments of these cities successfully reached the intended communities. However, all grantees did not consistently capture race and ethnicity information.

CONCLUSION

This initiative demonstrated that community health workers can make a substantive contribution to their communities' public health emergency response efforts.

CHWs effectively met consumers' medical and non-medical needs.

The CHW initiative effectively supported community members with most of their medical and non-medical needs.

- 80.6% of survey respondents who discussed all their medical and non-medical needs with CHWs had all their needs met.
- The most predominant medical needs were related to COVID-19 testing and vaccination, followed by COVID-19 prevention, care, and treatment. Predominant nonmedical needs included getting and paying for groceries, as well as help with paying non-medical bills and rent.

Community members and CHWs believe the initiative was helpful and had a positive impact.

CHWs and the community members served both agreed that the initiative made a tangible difference in people's lives by

- Providing options for COVID-19 testing and vaccination.
- Reliably informing and connecting residents to services and supports within their community, which helped those exposed to COVID-19 adhere to quarantine or isolation requirements.



The CHW interventions in Danbury and Norwalk likely averted COVID-19 cases, offsetting the cost of the program.

Danbury and Norwalk developed very different, but effective, interventions tailored to their cities' needs, and collected data that allowed for an analysis of costs and averted COVID-19 cases.

- Norwalk provided COVID-19 contact tracing and directly connected residents to services and supports within their community, spending \$183 per person on contact tracing and referrals.
- Danbury focused on staffing COVID-19 testing and vaccination sites, and creating informative brochures to educate residents, spending \$25 per person on vaccination clinics and \$133 per facility on brochures.
- The number of COVID-19 cases averted by helping residents quarantine offset the cost of engaging CHWs in COVID-19 prevention efforts in both cities.



References

- 1. Schultes, O., Lind, M. L., Brockmeyer, J., Sosensky, P., Cummings, D., & Ko, A. I. (2022). Closing the health inequity gap during the pandemic: COVID-19 mortality among racial and ethnic groups in Connecticut, March 2020 to December 2021. *Journal of epidemiology and community health*, 76(7), 695–696. https://doi.org/10.1136/jech-2022-218975
- 2. Locklear, M. (2022) Racial disparities in COVID-19 death rates have declined in Connecticut. Yale News. https://news.yale.edu/2022/04/21/racial-disparities-covid-19-death-rates-have-declined-connecticut
- 3. Kumar, N., Antolin Muñiz, M. (2022). What We Have Learned From Community Health Workers Throughout the Pandemic: Recommendations for Policymakers. Families USA. https://familiesusa.org/resources/what-we-have-learned-from-community-health-workers-throughout-the-pandemic-recommendations-for-policymakers/
- 4. Joint Economic Committee. (2020) The Impact Of Coronavirus On The Working Poor And People Of Color. Retrieved from: https://www.jec.senate.gov/public/index.cfm/democrats/2020/4/black-latino-and-low-income-communities-are-disproportionately-impacted-by-the-coronavirus
- Dubay, L., Aarons, J., Brown, St., Kenney, G. (2020). How Risk of Exposure to the Coronavirus at Work Varies by Race and Ethnicity and How to Protect the Health and Well-Being of Workers and Their Families. Urban Institute. https://www.urban.org/research/publication/how-risk-exposurecoronavirus-work-varies-race-and-ethnicity-and-how-protect-health-and-well-being-workers-and-their-families
- 6. Goldman, N., Pebley, A. R., Lee, K., Andrasfay, T., & Pratt, B. (2021). Racial and ethnic differentials in COVID-19-related job exposures by occupational standing in the US. *PloS one*, *16*(9), e0256085. https://doi.org/10.1371/journal.pone.0256085
- 7. Collins, S., Aboulafia, G., Gunja, (2021). M. As Pandemic Eases What's State of Coverage Affordability in U.S.?. Commonwealth Fund. https://www.commonwealthfund.org/publications/issue-briefs/2021/jul/as-pandemic-eases-what-is-state-coverage-affordability-survey
- 8. Robert Wood Johnson Foundation. (2021). Household Experiences in America During the Delta Variant Outbreak. National Public Radio (NPR), The Robert Wood Johnson Foundation, Harvard University's T.H. Chan School of Public Health.
- https://www.rwjf.org/en/library/research/2021/10/household-experiences-in-america-during-the-delta-variant-outbreak.html
- 9. London, K., Carey, M, and Russell, K. (2015). Tomorrow's Health Care System Needs Community Health Workers: A Policy Agenda for Connecticut. Connecticut Health Foundation. https://www.cthealth.org/wp-content/uploads/2015/07/CHW-Brief-Final-Final-2.pdf
- London, K., Love, K., and Tikkanen, R. (2017). Sustainable Financing Models for Community Health Worker Services in Connecticut: Translating Science into Practice. Connecticut Health Foundation. https://www.cthealth.org/publication/sustainable-financing-models-for-community-health-workerservices-in-connecticut-translating-science-into-practice/
- 11. London, K., Love, K., and Tikkanen, R. (2017). Community Health Workers: A Positive Return on Investment for Connecticut. Connecticut Health Foundation. https://www.cthealth.org/publication/community-health-workers-a-positive-return-on-investment-for-connecticut/
- 12. Connecticut Department of Public Health. 2022. *Provisions of Public Act 19-117, Community Health Worker*. [online] Available at: https://portal.ct.gov/DPH/Practitioner-Licensing--Investigations/Community-Health-Worker/Practice-Act
- 13. Kwon S. (2018). Community health workers improve outcomes, reduce costs. Managed care (Langhorne, Pa.), 27(11), 20-21.
- 14. Centers for Disease Control and Prevention. 2022. *Possible Unifying Frameworks for CHWs in State Policy*. Available at: https://www.cdc.gov/dhdsp/chw_elearning/s3_p4.html
- Recto, P., Zapata, J., Jr, Gandara, E., Moreno-Vasquez, A., Zavala Idar, A., Castilla, M., Hernandez, L., Flores, M., Escareno, J., Castillo, C., Morales, V., & Lesser, J. (2022). The Vital Role of CHWs During the COVID-19 Pandemic within the South Texas Communities. *Issues in mental health nursing*, 1–4. Advance online publication. https://doi.org/10.1080/01612840.2022.2027695
- 16. World Health Organization and the United Nations Children's Fund (UNICEF). April 2021. The Role Of Community Health Workers In COVID-19 Vaccination: Implementation Support Guide. https://www.who.int/publications/i/item/WHO-2019-nCoV-NDVP-CHWs-role-2021.1
- 17. Rahman, R., Ross, A., & Pinto, R. (2021). The critical importance of community health workers as first responders to COVID-19 in USA. *Health promotion international*, 36(5), 1498–1507. https://doi.org/10.1093/heapro/daab008
- 18. 4-CT. 2022. Community Health Workers And Contact Tracing. Available at: https://www.4-ct.org/2020projects/community-health-workers-and-contact-tracing
- 19. Penn Center for Community Health Workers. Accessible at: https://chw.upenn.edu/
- 20. Hartford partnered with the Hispanic Health Council (https://hispanichealthcouncil.org/), Family Life Education (https://www.familylifeedu.org/, and Hartford Communities that Care (https://hartfordctc.org/). Norwalk partnered with Family and Children's Agency (https://familyandchildrensagency.org/), and Stamford partnered with Family Centers (https://www.familycenters.org/).
- Influenza co-infection with COVID-19 can increase the probability of hospitalization, longer ICU stays, and even death. Alosaimi, B., Naeem, A., Hamed, M. E., Alkadi, H. S., Alanazi, T., Al Rehily, S. S., Almutairi, A. Z., & Zafar, A. (2021). Influenza co-infection associated with severity and mortality in COVID-19 patients. *Virology journal*, 18(1), 127. https://doi.org/10.1186/s12985-021-01594-0
- 22. Initially, the Hartford health department proposed to also serve the cities of West Hartford and Bloomfield but ultimately decided to focus on serving only Hartford and East Hartford.
- 23. The resident survey was offered in English, Spanish, Haitian Creole, and Portuguese, the languages that the Danbury and Norwalk health department staff identified as most prevalent in their service areas.
- 24. Lee, V. J., Chiew, C. J., & Khong, W. X. (2020). Interrupting transmission of COVID-19: lessons from containment efforts in Singapore. *Journal of travel medicine*, 27(3), taaa039. https://doi.org/10.1093/jtm/taaa039
- 25. Kucharski, A. J., Klepac, P., Conlan, A., Kissler, S. M., Tang, M. L., Fry, H., Gog, J. R., Edmunds, W. J., & CMMID COVID-19 working group (2020). Effectiveness of isolation, testing, contact tracing, and physical distancing on reducing transmission of SARS-CoV-2 in different settings: a mathematical modelling study. *The Lancet. Infectious diseases, 20*(10), 1151–1160. https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(20)30457-6/fulltext
- 26. Rocklöv, J., Sjödin, H., & Wilder-Smith, A. (2020). COVID-19 outbreak on the Diamond Princess cruise ship: estimating the epidemic potential and effectiveness of public health countermeasures. *Journal of travel medicine*, *27*(3), taaa030. https://doi.org/10.1093/jtm/taaa030
- 27. Kent, R. September 2021. Data reflects a twelve month period. Last accessed: 12/28/2021. Retrieved from: Newsroom | FAIR Health (https://www.fairhealth.org/press-release/national-average-charge-for-a-complex-hospital-stay-for-covid-19-is-317-810-fair-health-finds)
- 28. Imbeah, K., Howard, P., Brandes, R., et al. Spring 2021. A Roadmap for Race, Ethnicity, and Language Data Collection and Use in Connecticut. Connecticut Health Foundation and Institute for Healthcare Improvement (https://www.cthealth.org/publication/a-roadmap-for-race-ethnicity-and-language-data-collection-and-use-in-connecticut/).

CONTRIBUTORS

REPORT AUTHORS

UMass Chan Medical School Commonwealth Medicine

Katharine London, MS Principal, Health Law & Policy

Lissette Victoriano, MPH Senior Policy Analyst, Health Law & Policy

Bittie Behl-Chadha, PhD Director, Office of Survey Research

Melissa Karapanos, RD, MPH Project Director, Office of Survey Research

Susan Pfefferle, PhD Senior Research Scientist, Research & Evaluation

Yara Halasa-Rappel, PhD Senior Project Director, Research & Evaluation

Connecticut Health Foundation

Tiffany Donelson, MPH President & CEO Connecticut Health Foundation

Ellen Carter Vice President of Program

Eminet Abebe Gurganus Former Director of Grantmaking

Arielle Levin Becker Director of Communications & Strategic Initiatives

Garrick Wong Former Director of Grantmaking

Tsiry Rakoto Former Program Officer

DESIGN CONSULTANT: Ritz Henton Design PHOTOGRAPHY: Gale Zucker



100 Pearl Street Hartford, CT 06103

cthealth.org @cthealth 860-724-1580