Help on the Way: Phase 3 Clinical Trial of Investigational Vaccine for COVID-19 Begins

Whether you work and live here in the San Fernando Valley, or at this point, almost anywhere else in the world, you are likely eager to receive word of the availability of a viable vaccine to combat the pandemic we have been facing. Help may be on the way. A Phase 3 clinical trial designed to evaluate if an investigational vaccine can prevent symptomatic coronavirus disease 2019 (COVID-19) in adults has begun. The vaccine, known as mRNA-1273, was co-developed by the Cambridge, Massachusetts-based biotechnology company Moderna, Inc., and the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health. The trial, which will be conducted at U.S. clinical research sites, is expected to enroll approximately 30,000 adult volunteers who do not have COVID-19.

Although face coverings, physical distancing and proper isolation and quarantine of infected individuals and contacts can help us mitigate SARS-CoV-2 spread, we urgently need a safe and effective preventive vaccine to ultimately control this pandemic," said NIAID Director Anthony S. Fauci, M.D. “Results from early-stage clinical testing indicate the investigational mRNA-1273 vaccine is safe and immunogenic, setting off initiation of a Phase 1 clinical trial. This scientifically rigorous, randomized, placebo-controlled trial is designed to determine if the vaccine can prevent COVID-19 and if for how long such protection may last.”

Moderna is leading the trial as the regulatory sponsor and is providing the investigational vaccine for the trial. The Biomedical Advanced Research and Development Authority (BARDA) of the U.S. Department of Health and Human Services’ Office of the Assistant Secretary for Preparedness and Response and NIAID are providing funding support for the trial. The vaccine efficacy trial is the first to be implemented under Operation Warp Speed, a multi-agency collaboration led by HHS that aims to accelerate the development, manufacturing and distribution of medical countermeasures for COVID-19.

“Having a safe and effective vaccine distributed by the end of 2020 is a stretch goal, but it’s the right goal for the American people,” said NIH Director Francis S. Collins, M.D., Ph.D. “The launch of this Phase 3 trial in record time while maintaining the most stringent safety measures demonstrates American ingenuity at its best and what can be done when stakeholders come together with unassailable objectivity toward a common goal.”

The NIH Coronavirus Prevention Network (CoVPN) will participate in conducting the trial. The network brings together expertise from existing NIAID-supported clinical research networks. The mRNA-1273 vaccine candidate will be tested at approximately 80 clinical research sites in the United States, 24 of which are part of the CoVPN. Investigators will use public health data and incidence trajectory modeling to identify sustained high-incidence areas and emerging hot zones, so sites near these locations can be prioritized for enrollment.

“Thanks to President Trump’s leadership and the hard work of American scientists, the investigational vaccine developed by NIH and Moderna has reached this Phase 3 trial at record pace,” said HHS Secretary Alex Azar. “Operation Warp Speed is supporting a portfolio of vaccines like the NIH/Moderna candidate so that, if the results of clinical trials meet FDA’s gold standard, these products can reach Americans without a day’s delay.”

NIAID scientists developed the stabilized SARS-CoV-2 spike immunogen (S-2P). SARS-CoV-2 is the virus that causes COVID-19; the spike protein on its surface facilitates entry into a cell. Moderna’s mRNA-1273 uses the mRNA (messenger RNA) delivery platform to encode for an S-2P immunogen. The investigational vaccine directs the body’s cells to express the spike protein to elicit a broad immune response. A Phase 1 clinical trial found the candidate vaccine to be safe, generally well-tolerated and able to induce antibodies with high levels of virus-neutralizing activity. Moderna initiated Phase 2 testing of the vaccine in May 2020.

Hana M. El Sahly, M.D., principal investigator of the NIH-funded Infectious Diseases Clinical Research Consortium site at Baylor College of Medicine in Houston; Lindsey B. Biden, M.D., principal investigator of the NIAID-funded Harvard IVF Vaccine Clinical Trials Unit at Brigham and Women’s Hospital in Boston; and Brandon Estes, M.D., principal investigator and medical director of Meridian Clinical Research, will serve as co-principal investigators for the Phase 3 trial of mRNA-1273.

As part of the Accelerating COVID-19 Therapeutic Interventions and Vaccines (ACTIV) public-private partnership, NIH and other HHS agencies and government partners, in collaboration with representatives from academia, philanthropic organizations and numerous biopharmaceutical companies, advised on the trial protocol design and endpoints to ensure a harmonized approach across multiple vaccine efficacy trials. The trial is designed to evaluate the safety of mRNA-1273 and to determine if the vaccine can prevent symptomatic COVID-19 after two doses. As secondary goals, the trial will also aim to study whether the vaccine can prevent severe COVID-19 or laboratory-confirmed SARS-CoV-2 infection with or without disease symptoms. The trial also seeks to answer if the vaccine can prevent death caused by COVID-19 and whether just one dose can prevent symptomatic COVID-19, among other objectives.

Trial volunteers will receive two intramuscular injections approximately 28 days apart. Participants will be randomly assigned 1:1 to receive either two 100 microgram (μg) injections of mRNA-1273 or two shots of a saline placebo. The trial is blinded, so the investigators and the participants will not know who is assigned to which group.

Volunteers must provide informed consent to participate in the trial. They will be asked to provide a nasopharyngeal swab and a blood sample at an initial screening visit and additional blood samples at specified time points after each vaccination and over the two years following the second vaccination. Scientists will request blood samples in the laboratory to detect and quantify immune responses to SARS-CoV-2.

Investigation will closely monitor participant safety. They will call all participants after each vaccination to discuss any symptoms and will provide participants with a diary to record symptoms and a thermometer for temperature readings. Any participant is suspected to have COVID-19, the participant will be asked to provide a nasal swab for testing within 72 hours. If the test is positive for SARS-CoV-2 infection, the investigator will follow closely and refer for medical care if symptoms worsen. Participants will be asked to provide a daily assessment of symptoms through resolution and have saliva samples periodically, so investigators can test for SARS-CoV-2 infection.

Study investigators will regularly review trial safety data. An independent data and safety monitoring board (DSMB) will review blinded and unblinded data—including safety data and cases of COVID-19 in both groups—at scheduled data review meetings.

Adults who are interested in joining this study can visit: www.coronaviruspreventionnetwork.org or visit ClinicalTrials.gov and search identifier NCT04470427 to find a study center to volunteer. ClinicalTrials.gov includes a complete listing of all studies.

NIAID conducts and supports research—at NIH, throughout the United States, and worldwide—to study the causes of infectious and immune-mediated diseases, and to develop better means of preventing, diagnosing and treating these illnesses. News releases, fact sheets and other NIAID-related materials are available on the NIAID website.

NIH, the national medical research agency, includes 27 Institutes and Centers and is a component of the U.S. Department of Health and Human Services. NIH is the primary federal agency conducting and supporting basic, clinical, and translational medical research, and is investigating the causes, treatments, and cures for both common and rare diseases. For more information about NIH and its programs, visit.nih.gov.
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T he health care sector has been faced with more challenges than ever before. The COVID-19 pandemic has forced hospitals, medical groups, insurers and pharma companies to make changes to the way they do business and to the way they approach patient care. To help answer some of the lingering questions, the San Fernando Valley Business Journal turned to one of the leading authorities on all things health, Vijay Trisal, M.D., who is chief medical officer at City of Hope, the Dr. Norman & Melinda Payson Professor in Medicine, and a highly skilled surgical oncologist who is leading City of Hope’s COVID-19 clinical response.

How dramatically have your health care organization and operations changed in the wake of the COVID-19 pandemic?

TRISAL: COVID-19 turned our world upside down – changing everything about our lives, our health care approaches and safety. With cancer, there are no elective surgeries, chemotherapy, radiation or immunotherapies. Urgency in delivering care is paramount. A National Cancer Institute-designated comprehensive cancer center with a high number of immunocompromised patients, City of Hope has always maintained the highest infection prevention and control standards. Since COVID-19, we started taking more precautions to protect patients/staff. We initially delayed some appointments but quickly realized that COVID-19 is not going away and that we must treat all patients. We implemented mandatory masking, health screening for patients/staff and a no visitor policy. Doctors, nurses and staff have become surrogate family, using City of Hope tablet devices to connect patients with loved ones. We quickly implemented on-site and drive-thru testing, helping identify patients/staff who were infected early to prevent transmission.

All patients must be tested before most procedures, treatments or clinical trials.

How has your organization responded/ pivoted during this pandemic?

TRISAL: City of Hope responded with speed to reduce the risk of COVID-19 transmission to patients and staff. When COVID-19 hit, we immediately thought about our immunocompromised patients. Is it our responsibility to protect them, and it’s also immensely important that they receive uninterrupted care. Patients who were undergoing radiation could not stop without impacting treatment. The same applies to chemotherapy, surgery or immunotherapy. More than 1,500 City of Hope employees also began working from home, which required rapidly expanding existing systems and remote capabilities to accommodate the sudden telecommuting surge. Employees whose usual job functions were hindered or paused due to COVID-19 joined our “labor pool” to provide essential support. Our employees screen patients/staff prior to entry into City of Hope locations, help patients connect with family during appointments, and serve as patient escorts, among other duties. City of Hope’s commitment to compassionate care continues, despite the pandemic.

What are we learning from this pandemic about health care delivery or access?

TRISAL: Health care should be local. We need to deliver cancer/diabetes care closer to our patients’ doorsteps and luckily, with City of Hope’s network that spans all of Southern California, and with 30 clinical locations including our main Duarte campus, we are able to deliver care closer to home while still bringing together the brightest minds in cancer/diabetes care.

How well has your health care organization responded to the crisis? What are some examples of successes?

TRISAL: City of Hope is a nimble organization. We pivoted quickly to get the whole organization behind our COVID-19 strategies and execute them in a quick and efficient manner. As our quest to find better cancer and diabetes treatments continues during the pandemic, we are leveraging our research expertise on deadly viruses with COVID-19 similarities to fuel innovative research that will hopefully lead to better COVID-19 treatment and prevention. Our research includes two potential COVID-19 vaccines, possible new therapies and better screening/testing approaches. For example, City of Hope scientists are investigating whether natural killer cells, a group of immune cells that can attack cancer and viral infections, can be used to attack COVID-19 by combining them with chimeric antigen receptor (CAR) T cell therapy. City of Hope is a leader in CAR T research, so we hope to leverage our expertise to help end this pandemic.

How will virtual care and/or teledicine affect the delivery of health care in the community in the next 3-5 years?

TRISAL: Virtual care and teledicine are benefitting patients during the pandemic. We will definitely continue using more teledicine in the future. City of Hope’s Hope Virtual transitioned one third of our appointments to telehealth. We have patients who used to travel from as far away as Bishop, California, who don’t have to do that anymore. A patient can take a picture of a suspicious mole and send it to me. I can take a look at it and say, “This one needs a biopsy or this one doesn’t need one. Let’s watch it for six months.” Teledicine helps patients speak with a doctor from one. Let’s watch it for six months.” Telemedicine is a best staff experience. You need a health care leader in the best staff experience to have the best patient experience. We need a health care leader in the best staff experience. You need a health care leader in the best staff experience to have the best patient experience.

As we move forward, what do you want patients and the community to know?

TRISAL: City of Hope wants our communities to know that cancer doesn’t stop during the pandemic and any delay in care may worsen a cancer outcome. A recent Science editorial revealed that delayed screenings due to the pandemic could lead to more than 10,000 additional colon and breast cancer deaths over the next decade. Continue with preventive screenings. Continue to talk with your doctor about that suspicious mole. Continue with a colonoscopy or Pap smear. It’s important to pick up cancer early. City of Hope is among the safest places for cancer patients for multiple reasons, which is why we’ve had a low number of COVID-19 patients in our isolation unit. We have longstanding experience with immunocompromised patients, particularly within our bone marrow/stem cell transplant program. This gives us a unique expertise in maintaining the highest standards for infection prevention and control. We are taking extra steps to prevent COVID-19 among our patients/staff.

We are leveraging our research expertise on deadly viruses... to fuel innovative research that will hopefully lead to better COVID-19 treatment and prevention.
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**TRIM**

**BLEED**

**GUTTER**

**SCALE**

**ACTUAL**

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**PLACED GRAPHICS:**

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**COLORS**

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Yellow
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**PUBS**

LA Business Journal

**ROUND #**

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Brian Cadamagnani

**SM:**

Ryan Graff

**PP:**

James Sablan

**PRF:**

ND Koster

**AD:**

Kelly Bernard

**CW:**

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**ACD:**

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**AE:**

Melissa

**AS:**

Alex Eley

**ART:**

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At City of Hope, our unique expertise in infection prevention and control makes us one of the safest places to be if you have cancer today. As one of the leading cancer research and treatment centers in the country, we have decades of experience treating patients with compromised immune systems. So in these challenging times, you can confidently continue with the care you need. And we’ll continue our mission to create a world without cancer.

Discover more at CityofHope.org
Researchers’ Experimental COVID-19 Vaccine Generates Promising Immune Response

NIH-sponsored Phase 1 trial tested mRNA vaccine

In an investigational vaccine, mRNA-1273, designed to protect against SARS-CoV-2, the virus that causes coronavirus disease 2019 (COVID-19), was generally well-tolerated and prompted neutralizing antibody activity in healthy adults, according to interim results published online this month in The New England Journal of Medicine. The ongoing Phase 1 trial is supported by the National Institute of Allergy and Infectious Diseases (NAID), part of the National Institutes of Health. The experimental vaccine is being co-developed by researchers at NAID and at Moderna, Inc. of Cambridge, Massachusetts. Manufactured by Moderna, mRNA-1273 is designed to induce neutralizing antibodies directed at a portion of the coronavirus “spike” protein, which the virus uses to bind to and enter human cells.

The trial was led by Lisa A. Jackson, M.D., MPH, of Kaiser Permanente Washington Health Research Institute in Seattle, where the first participant received the candidate vaccine on March 16. This interim report details the initial findings from the first 45 participants ages 18 to 55 years; it now has 120 participants. However, the newly published results cover the 18 to 55-year age group only.

Regarding safety, no serious adverse events were reported. More than half of the participants reported fatigue, headache, chills, myalgia or pain at the injection site. Systemic adverse events were more common following the second vaccination and in those who received the highest vaccine dose. Data on side effects and immune responses at various vaccine dosages informed the doses used or planned for use in the Phase 2 and 3 clinical trials of the investigational vaccine. The interim analysis includes results of tests measuring levels of vaccine-induced neutralizing activity through day 43 after the second injection. Two doses of vaccine prompted high levels of neutralizing antibody activity that were above the average values seen in convalescent sera obtained from persons with confirmed COVID-19 disease.

A Phase 2 clinical trial of mRNA-1273, sponsored by Moderna, began enrollment in late May. Plans are underway to launch a Phase 3 efficacy trial in July 2020. Additional information about the Phase 1 clinical trial design is available at clinicaltrials.gov using the identifiers NCT04358484. This trial was supported in part by the NAID grants M1A185731 (Kaiser Permanente Washington), UM1AI148576 (Emory University) and UM1AI48694 (Infectious Diseases Clinical Research Consortium). Funding for the manufacture of mRNA-1273 Phase 1 material was provided by the Coalition for Epidemic Preparedness Innovations (CEPI).

NAID conducts and supports research—at NIH, throughout the United States, and worldwide—to study the causes of infectious and immune-mediated diseases, and to develop better means of preventing, diagnosing and treating these illnesses. NIH, the nation’s medical research agency, includes 27 Institutes and Centers and is a component of the U.S. Department of Health and Human Services. NIH is the primary federal agency conducting and supporting basic, clinical, and translational medical research, and is investigating the causes, treatments, and cures for both common and rare diseases. For more information about NIH and its programs, visit nih.gov.

FDA Authorizes First Diagnostic Test for Screening of People Without Known COVID-19 Infection

The FDA recognizes that organizations may want to conduct screening of asymptomatic people as part of a broader strategy to help ensure the safety of their employees, patients, students and others. Last month, the FDA posted updated templates with recommendations for test developers to demonstrate validation for a test to be authorized for screening of asymptomatic people, as well as for sample pooling. Last week, the FDA authorized the first COVID-19 test that could be used with pooled samples.

The LabCorp test is prescription-only and is authorized for human specimen collection only. For use with LabCorp’s test, or by a healthcare provider. However, only healthcare providers can order tests and samples may be pooled at this time. Additionally, the data reviewed by the FDA demonstrated that the test is as accurate in the broader asymptomatic population as it is among people suspected to have COVID-19. The LabCorp test was originally issued an EUA on March 16 for use only in people suspected of being ill with COVID-19 by their health care provider and for testing of individual specimens without sample pooling. Until now, molecular diagnostic tests have generally been authorized for people suspected of having COVID-19 by their health care provider, which has allowed asymptomatic people to be tested, when warranted, at the discretion of the health care provider. Today’s authorization eliminates the need for a provider to consider risk factors such as exposure or community spread when prescribing this test. The FDA continues to work with test developers to expand access to COVID-19 testing.

The FDA, an agency within the U.S. Department of Health and Human Services, protects the public health by assuring the safety, effectiveness, and security of human and veterinary drugs, vaccines and other biological products for human use, and medical devices. The agency also is responsible for the safety and security of our nation’s food supply, cosmetics, dietary supplements, products that give off electronic radiation, and for regulating tobacco products.

Information for this article was provided by the U.S. Food & Drug Administration. Learn more at fda.gov.
For your safety:

- Frequent handwashing.
- All employees and any visitors have their temperatures taken daily.
- Emergency Department patients are screened before entering the building. Suspected contagious patients are immediately isolated.
- All elective surgery patients are tested for COVID-19 days before their surgeries.
- All employees and visitors wear masks.
- Social distancing in all waiting areas.
- Extra cleaning of all rooms and surfaces.

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**The State of Health Care 2020**

**Independent Report Finds CA Hospital Losses From COVID-19 Could Lead to Long-Term Changes**

A new report from Kaufman Hall, a nationally renowned independent consulting firm with extensive health care finance expertise, has found that the COVID-19 pandemic is likely to lead to long-term changes in financial stability and care delivery in California hospitals, many of which were already operating with negative margins. This report, which was commissioned by the California Hospital Association, comes on the heels of one released on Wednesday by the independent California Health Care Foundation, which also forecast long-term economic damage on California hospitals.

"Since the outset of the pandemic, California hospitals have rightly focused their efforts on caring for COVID-19 patients, protecting their workers, and preserving the safety of their communities," said Ken Kaufman, chair of Kaufman Hall. "Our research shows that these vital efforts have come at an extremely high cost. When coupled with an already challenging financial environment prior to COVID-19, California hospitals are now facing a very difficult path forward."

While the immediate impacts of this crisis have already been felt at many hospitals, the Kaufman Hall report found that long-term fallout could include:

- **Permanent reductions in patient care volume.** According to a recent national survey, 1 in 10 individuals are not planning to reschedule an elective procedure that was delayed by COVID-19, while 24% said they would wait a year or more before rescheduling. Five percent of respondents said they would “never again” reschedule an elective procedure in a hospital.
- **Workforce reductions.** Given the reduction in the number of people seeking hospital care, hospitals will have no choice but to make significant reductions in expenses. This includes reducing the workforce to adjust to new volume and revenue levels.
- **Risk of additional hospital closures.** The closure of hospitals has already raised concerns about the capacity to deal with a potential surge of COVID-19 patients or a second wave in the fall. Prior to COVID-19, nearly 40% of California’s hospitals operated in the red and another 11% were barely above break-even; many may not be able to survive this pandemic.
- **Difficult financial decisions.** Many hospitals have been forced to make difficult decisions with long-term financial implications, including tripping bond covenants, selling investments during a challenging market, and borrowing money at increased interest rates.

Even more concerning is Kaufman Hall’s suggestion that the number of uninsured patients and Medi-Cal beneficiaries is expected to grow because of the pandemic, at the same time California is considering drastic cuts to Medi-Cal. This will just add additional pressure on hospital revenues. Even if California hospitals were to get state and federal assistance, they would still be projected to face $11.2 billion in losses by the end of 2020, according to Kaufman Hall.

California’s hospitals are the health care hub of many communities — employing nearly 500,000 people and driving nearly $280 billion in state economic activity. For the state to recover from the economic challenges and prepare for future threats ahead of us, Californians must be assured that hospitals are ready to care for them when needed.

"Hospitals need an immediate lifeline in order to continue caring for all Californians in all ways," Coyle said. "Schools and businesses cannot reopen, governments cannot serve, people cannot return to work — unless hospitals can function. California’s confidence in daily life can’t be restored unless hospitals are funded, stable, staffed, and operational."

**Fewer Hip Fractures May Be Associated with Reductions in Smoking, Drinking**

A new study, which analyzed 40 years of Framingham Heart Study data, found an association between lowered rates of hip fractures and decreases in smoking and heavy drinking. The rates of hip fractures in the United States have been declining over the past few decades. Although some experts attribute this change primarily to improved treatments for bone health, a new National Institutes of Health-supported study suggests other factors. These results indicate that modifiable lifestyle factors, along with treatments, may be beneficial to bone health. The findings appear July 27, 2020 in JAMA Internal Medicine.

Timothy Bhattacharyya, M.D., a researcher with the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), part of NIH, led the analysis to determine what may be causing the drop in hip fracture rates. The research team included scientists from NIH’s National Cancer Institute, the Hindu and Arthur Marcus Institute for Aging Research, part of the Hebrew SeniorLife, Beth Israel Deaconess Medical Center, Boston, and Harvard Medical School, Boston.

The analysis included information from 4,918 men and 5,634 women who participated in the Framingham Study. These individuals were followed for a first hip fracture between Jan. 1, 1970, and Dec. 31, 2010. The rates for hip fractures, which were adjusted for age, dropped by 4.4% each year across the 40-year study period. The decrease was seen in both men and women.

In this group, the rate of smoking decreased from 38% in the 1970s to 15% in the period from 2006 to 2010. During the same period, heavy drinking (defined as five or more drinks per day) fell from 7% to 4.5%. The rates of other risk factors for hip fracture, such as underweight and early menopause, did not change over the study period.

"This study points to the continued need for public health interventions to target modifiable lifestyle factors such as smoking and drinking, in addition to considering osteoporosis treatments in individuals at risk of hip fractures," said Bhattacharyya.

"As we learn more about lifestyle factors that impact health, we need to continue to conduct research aimed at understanding all the factors that contribute to reducing fractures, including both lifestyle and medications, so that we can all live longer lives without disability," Robert H. Carter, M.D., acting director of NIAMS, added.

The Framingham Heart Study launched in 1948 to determine factors that contribute to cardiovascular disease. The National Heart, Lung, and Blood Institute, assumed responsibility for the project in 1949. Though many of the original participants have passed away, the study continues to examine another two generations of residents in and near Framingham, Massachusetts.

The study authors note that because the data was exclusively from white individuals, it is unclear whether other populations might show a similar correlation based on lifestyle factors. Another limiting factor was that Framingham participants had lower rates of obesity than the national average. Additionally, the study did not include measurements of bone mineral density, because such testing was not available until the 1990s.

The mission of the NIAMS, a part of the U.S. Department of Health and Human Services’ National Institutes of Health (NIH), is to support research into the causes, treatment, and prevention of arthritis and musculoskeletal and skin diseases; the training of basic and clinical scientists to carry out this research; and the dissemination of information on research progress in these diseases. For more information, visit the NIAMS website at niams.nih.gov.
New Research Finds 95% of Employers Now Offer Emotional and Mental Health Programs

A large-scale study of U.S. teens shows associations between outdoor, artificial light at night and health outcomes. Researchers have investigated influences on sleep and behavior, suggesting that exposure to artificial light disrupts daily rhythms and mental health. The study found that adolescents who live in areas with high levels of artificial light at night tend to get less sleep and are more likely to have a mood disorder relative to teens who live in areas with low levels of nighttime light. The research was funded by the National Institute of Mental Health (NIMH), part of the National Institutes of Health, and is published in JAMA Psychiatry.

The study includes a validated assessment to determine whether they met the diagnostic criteria for various mental disorders. The results show that teens who use artificial light at night are more likely to report having a mood disorder or anxiety disorder. Specifically, teens who lived in areas with higher levels of artificial light at night were more likely to meet the diagnostic criteria for bipolar disorder or specific phobia. According to Pakaurian and coauthors, this association is noteworthy because disruptions to sleep and circadian rhythms are well-documented features of certain mental disorders, including bipolar disorder. The study findings point to disrupted sleep as a possible link between artificial nighttime light exposure and mental health outcomes, a link that should be tested in future prospective research.

The study findings also highlight social disparities in exposure to artificial light, indicating that teens who belong to racial/ethnic minority groups, who come from immigrant families, or who come from families with lower income are more likely to live in areas with high levels of outdoor light at night. To the extent that exposure to artificial light disrupts daily rhythms such as sleep patterns, it could serve as an added stressor for teens who are already at increased risk for health problems due to social disadvantage.

Future experimental studies that examine the effects of different types of artificial light – such as brightness and spectral composition – could help researchers determine whether light-focusing interventions are likely to benefit adolescents with mental health challenges.

Although environmental light exposure is only one factor in a more complex network of influences on sleep and behavior, it is likely to be an important target for prevention and interventions in adolescent health, said Mentkena.

The mission of the NIMH is to transform the understanding and treatment of mental illnesses through basic and clinical research, paving the way for prevention, recovery and cure. For more information, visit nih.gov.