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RECENT RESEARCH PRESS RELEASE HIGHLIGHTS**

TITLE: Wayne State researcher aides American College of Cardiology and the American Heart Association on new guidelines for evaluating and diagnosis of chest pain

Date: Nov. 1, 2021

OVERVIEW: On Oct. 28, 2021, the American College of Cardiology and the American Heart Association released new clinical practice guidelines for medical professionals to better identify patients who may be having a cardiac emergency, ultimately aiding in selecting the right test or treatment. Phillip Levy, M.D., M.P.H., the Edward S. Thomas Endowed Professor of Emergency Medicine and assistant vice president of Translational Research at Wayne State, as well as Chief Innovation Officer of Wayne Health, was vice chair of the committee that co-authored the guidelines.

The guidelines highlighted:

- More than 6.5 million emergency department visits each year in the U.S. are due to chest pain, as well as almost 4 million outpatient clinic visits annually.
- Chest pain or discomfort can extend to the shoulders, arms, jaw, neck, back and upper abdomen.
- While most chest pain episodes are found to be not heart-related, it is the most common sign of heart trouble in advance of a serious event. People should seek immediate medical care for evaluation of chest discomfort.
- Both women and men experience chest pain during a serious heart event, however, women are more likely to experience accompanying side effects like nausea and shortness of breath.
- Shared decision-making includes the patient in conversation with health care professionals and can help ease patient concerns and reduce unnecessary testing.

According to the new guidelines, chest pain that comes on suddenly should be acted upon immediately.

“The most important thing people need to know about chest pain is that if they experience it, they should call 911,” said Levy. “People shouldn’t waste time trying to self-diagnose. They should immediately go to the nearest hospital via ambulance to get evaluated for chest pain.”

The new guidelines aim to help patients and health care professionals act faster, make smarter choices, and communicate better about chest pain.

TITLE: Wayne State announces Urban One Health Symposium

DATE: Oct. 29, 2021

OVERVIEW: Wayne State University has announced its 2021 Urban One Health Symposium, Urban Environmental Stressors as Determinants of Health and Resilience. The virtual symposium will be held Dec. 2 and 3 and will feature local and international speakers. Attendees will include academic researchers; educators; public health practitioners; urban planners; medical, environmental law and engineering professionals; representatives from government agencies and community organizations; infectious disease experts; social scientists; veterinary health professionals; communicators; and students and trainees.

One Health is defined by the Centers for Disease Control and Prevention as a collaborative, multisectoral and transdisciplinary approach that works at the local, regional, national and global levels to achieve optimal health outcomes that recognize the interconnection between people, plants, animals and their shared environment.

The symposium agenda includes two keynote speakers: Colin Basler, D.V.M. and M.P.H., deputy director of the One Health Office at the Centers for Disease Control and Prevention, and Peter Fiske, Ph.D., executive director of the National Alliance for Water Innovation and director of the Water-Energy Resilience Research Institute at Lawrence Berkeley National Laboratory.

Early career investigators (postdocs and assistant professors) are invited to submit abstracts for a session of short Flash Talks.

TITLE: Wayne State receives \$3.1 million grant to seek alternative sources of rare earth elements

DATE: October 25, 2021

OVERVIEW: A multidisciplinary team of researchers at Wayne State University have been awarded a \$3.1 million grant from the U.S. Army Corps of Engineers ERDC program to seek alternative sources of rare earth elements critical to advanced military and consumer technologies.

The project, Rare Earths from U.S. Extractions – or REUSE – will focus on both basic and related applied research in science and engineering with the goal of developing a U.S. rare earth element (REE) supply chain as well as a process of handling waste streams. REUSE is led by two principal investigators, Mathew J. Allen, Ph.D., chair and professor of chemistry in the College of Liberal Arts and Sciences, and Timothy M. Dittrich, Ph.D., assistant professor of civil and environmental engineering in the College of Engineering at Wayne State University.

Rare earth elements are a set of 17 elements that are plentiful in the earth’s crust but are rarely found concentrated in large ore deposits. REE’s have a diverse magnetic, chemical, electrical, optical and catalytic properties that in the past four decades have been increasingly beneficial in advanced military and consumer technologies, as well as electronics that involve unique metal alloys, optical displays, magnets and lasers.

The multidisciplinary team will apply advanced characterization tools to evaluate potential sources, conduct fundamental research into a system to extract and separate REEs, and develop a process resulting in REE products and a sustainable waste management plan for them.

TITLE: Researchers find more severely COVID-19 infected mothers more likely to have preterm birth

DATE: October 8, 2021

OVERVIEW: Researchers at the Wayne State University School of Medicine and the National Institutes of Health's Perinatology Research Branch in Detroit have discovered that the more severely infected with COVID-19 a mother is, the more likely she is to experience preterm birth.

In "[SARS-CoV-2 and the subsequent development of preeclampsia and preterm birth: evidence of a dose response relationship supporting causality](#)," published in the American Journal of Obstetrics and Gynecology, the researchers reported that the rate of preterm birth in about 1,000 pregnant women who tested positive for SARS-CoV-2, the virus that causes COVID-19, was a function of the severity of infection.

"The more severe the SARS-CoV-2 infection, the greater the risk of preterm birth," said Roberto Romero, M.D., DMedSci, chief of the Perinatology Research Branch and professor of Molecular Obstetrics and Genetics at the Wayne State University School of Medicine. "There was a dose-dependent relationship between the severity of SARS-CoV-2 infection and the risk of prematurity."

The WSU/PRB researchers conducted the study in collaboration with the Fetal Medicine Foundation of London, finding that the rate of preterm birth in about 1,000 pregnant women who tested positive for COVID-19 depended on the severity of their infection. The excess rate of premature birth, they report, is largely due to medically-induced preterm birth brought about by concerns for the health of the mother, such as preeclampsia.

Preterm birth, the leading cause of perinatal morbidity and mortality worldwide, is defined as one that occurs before 37 weeks of gestation. Two-thirds of preterm births are due to spontaneous onset of preterm labor. The remaining third is due to medical conditions that affect either the mother or the unborn baby that necessitate delivery.

he more severe the COVID-19 infection, the greater the risk of preeclampsia, a sudden increase in blood pressure after the 20th week of pregnancy. The condition is responsible for 76,000 maternal deaths and more than 500,000 infant deaths every year. Some mothers develop seizures (eclampsia) and suffer intracranial hemorrhage, the main cause of death in those who develop the disorder. Some women develop blindness. The babies of preeclamptic mothers are affected by the condition and may develop intrauterine growth restriction or die in utero.

Doctors appear to be medically inducing early delivery to save the lives of mothers infected with COVID-19 in the cohort studied.

The more severe the SARS-CoV-2 infection, the greater the risk of preterm birth. There was a dose dependent relationship between the severity of SARS-CoV-2 infection and the risk of prematurity.

Regardless of those medically induced preterm births, the researchers said, the possibility that COVID-19 infection causes preeclampsia must be considered.

TITLE: Wayne State wins \$18 million from National Institutes of Health to intercept chronic disease in Black communities

DATE: October 6, 2021

OVERVIEW: The National Institute on Minority Health and Health Disparities has awarded Wayne State University \$18.15 million over five years to establish a Center for Multiple Chronic Diseases Associated with Health Disparities: Prevention, Treatment, and Management that will use community-based interventions deployed from three research institutions to fight hypertension, heart failure and coronary heart disease in the Black population.

The Addressing Cardiometabolic Health Inequities by Early PreVEntion in the GREAT LakEs Region, or ACHIEVE GREATER, Center is a proactive versus reactive approach to reducing overwhelming cardiometabolic health disparities and downstream Black-White lifespan inequality in Detroit and Cleveland, two uniquely comparable cities.

Building upon existing collaboration and resources across Wayne State University/Wayne Health, and the Henry Ford Health System in Detroit, and Case Western Reserve University/University Hospitals in Cleveland, ACHIEVE GREATER will include three distinct but related projects that focus on interrupting early stages of pathogenesis by addressing multiple domains of influence that contribute to disparate health outcomes in the Black population, specifically biological, behavioral, physical/built environment, sociocultural environment and the health care system.

The overarching goal is to mitigate health disparities in risk factor control for chronic conditions of tremendous public health importance, which drive downstream lifespan inequality, said ACHIEVE GREATER principal investigator Phillip Levy, M.D., M.P.H., the Edward S. Thomas Endowed Professor of Emergency Medicine and assistant vice president of Translational Research for WSU, as well as Chief Innovation Officer of Wayne Health.

The ACHIEVE GREATER center seeks to improve lifespan equality by implementing the PAL2 intervention to address multi-level risk profiles in Black patients with cardiometabolic risk factors who live in racially concentrated areas of poverty; and use the Practical Robust Implementation and Sustainability Model to assess program reach, effectiveness, adoption, implementation and maintenance, or RE-AIM. It will also profile the incidence density of chronic hypertension, heart failure and coronary heart disease in electronic health records and interrogate multi-level risk profiles by probing interrelationships among geospatial factors, including aspects of the built environment, person-level socio-behavioral factors and clinical characteristics. In addition, early-career scientists will be trained to focus on mitigating the chronic hypertension, heart failure and coronary heart disease disparities that drive downstream lifespan inequality and disseminate key information uncovered during the project's trajectory to policy makers, payers, public health departments and other stakeholders to drive sustainable change.

TITLE: Wayne State’s Department of Emergency Medicine secures \$15.88 million from CDC to study viral infection surveillance

DATE: September 30, 2021

OVERVIEW: The U.S. Centers for Disease Control and Prevention has awarded \$15.88 million to the Wayne State University School of Medicine’s Department of Emergency Medicine to be the epicenter of a national study on viral infections that present in emergency departments across the county.

The project, “Enhancing U.S. Surveillance of Laboratory Confirmed SARS-CoV-2, Influenza, and Other Respiratory Viruses through a Network of Emergency Departments,” will continue for three years.

Jeffrey Kline, M.D., professor and associate chair of Research for the Department of Emergency Medicine, is the overall principal investigator on the project, which will spread to emergency departments in 21 states and the District of Columbia, and 100 hospitals for surveillance of viral infections. Data will be obtained from the electronic medical records at the participating hospital systems. Each participating system will receive a portion of the \$15.88 million and will have an on-site principal investigator.

The study is based on [the Registry of suspected COVID-19 in Emergency Care](#), or RECOVER, a large clinical registry of patients from 155 emergency departments in 27 states tested for SARS-CoV-2 from March to September 2020, which Dr. Kline founded.

This study network will be known as RECOVER-CDC.

Patients will be identified based upon their reason, or chief complaint, for visiting the emergency department.

TITLE: New NIH research study to investigate psychosocial determinants of cardiovascular disease risk among urban African American adults

DATE: September 20, 2021

OVERVIEW: The [Biopsychosocial Health lab](#) from Wayne State University has been awarded \$3,590,488 from the National Heart, Lung and Blood Institute of the National Institutes of Health to conduct a project titled “Stress and Cardiovascular Risk Among Urban African American adults: A Multilevel, Mixed Methods Approach.”

The project, led by Samuele Zilioli, Ph.D., assistant professor in the Department of Psychology and the Department of Family Medicine and Public Health Sciences at Wayne State University, aims to provide a fine-grained characterization of the psychosocial factors associated with cardiovascular disease (CVD) risk and inflammation among urban middle-aged and older African American adults.

According to Zilioli, despite the steady decline in CVD morbidity and mortality in the U.S. over the last few decades, African American adults bear a disproportionate share of CVD burden.

Using a mixed-method and multiple-time scale design approach with a large sample of 500 African American Detroiters aged 55 to 75 years old, the study will identify and conceptualize the psychosocial stressors critical for this population and model the daily psychological, behavioral and biological pathways through which these factors exacerbate CVD risk in this cohort.