The Lord is like a strong tower, where the righteous can go and be safe.
Proverbs 18:10

DIYARYO
KABITENYO
Nagmamalasakit sa lalawigan

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Be alert, stand firm in the faith, be brave, be strong.
1 Corinthians 16:13

PDEA destroys P13-B dangerous drugs in Cavite

The Philippine Drug Enforcement Agency (PDEA) destroyed last Aug. 21 some P13,359,137,093 worth of dangerous drugs at the Integrated Waste Management Inc. (IWMI) in Barangay Aguado, Trece Martires City, Cavite.

PDEA spokesperson Derrick Carreon said the destruction ceremony was the first since PDEA Director General Wilkins M. Villanueva assumed his post.

Carreon said it was also "the biggest substance in the history of the PDEA with a total net weight of two tons of confiscated drug evidence during anti-drug operations and those turned over by authorities that were recently

Turn to page 3

Cavite to rollout free WiFi system for up to 90 percent of its residential areas

Cavite will soon rollout a free WiFi system that will cover most of the residential areas in the province, Gov. Jonvic Remulla announced last Aug. 18.

"I am very happy to announce that the Province of Cavite is about to embark in a massive rollout of FREE WiFi system that shall cover (up to 90%) of the residential areas," Remulla said in a Facebook post.

During the quarantine period amid the coronavirus disease pandemic, the free WiFi system "shall be greatly utilized for the educational requirements of public school or DepEd students, which they can access through their ID numbers," according to the governor.

"Once the mass

was overcome its present challenges, the internet infrastructure can then be used as a tool for research, commerce, online retail, and knowledge genera-

Turn to page 2

DIYARYO KABITENYO

ARNULFO BARCO
Publisher - Editor

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Operations Manager

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Publishers Association of the Philippines, Inc.

Research shows air pollution could play role in development of cardiometabolic diseases

Air pollution is the world's leading environmental risk factor, and causes more than nine million deaths per year. New research published in the Journal of Clinical Investigation shows air pollution may play a role in the development of cardiometabolic diseases, such as diabetes. Importantly, the effects were reversible with cessation of exposure.

Researchers found that air pollution was a "risk factor for a risk factor" that contributed to the common and of other fatal problems like heart attack and stroke, similar to how an unhealthy diet and lack of exercise can lead to disease. Exposure to air pollution could be added to this risk factor list as well.

"In this study, we created an environment that mimicked a polluted day in New Delhi or Beijing," said Sanjay Rajagopalan, MD, first author on the study, Chief of Cardiovascular Medicine at University Hospitals Harrington Heart and Vascular Institute, and Director of the Case Western Reserve University Cardiovascular Research Institute. "We concentrated fine particles of air pollution, called PM2.5 (particulate matter components < 2.5 microns). Concentrated particles like these develop from human impact on the environment, such as automobile exhaust, power generation and other fossil fuels."

(CAVITE... from page 1)

(PDEA... from page 1)

DECLARATION OF HEIRSHIP
(Extra-Judicial Settlement of Estate)

NOTICE is hereby given that the estate of the late **JOSE E. OCAMPO** who died intestate on April 23, 2018, a resident of Panapaan, Bacoor, Cavite at the time of his death, consisting of the following conjugal properties:

	Transfer Certificate of Title No.	Conjugal Share of Gertrudes M. Ocampo	Conjugal Share of Jose E. Ocampo
a.	[illegible]	50%	50%
b.	[illegible]	50%	50%
c.	[illegible]	50%	50%
d.	[illegible]	50%	50%
e.	[illegible]	50%	50%
f.	[illegible]	50%	50%
g.	[illegible]	50%	50%
h.	[illegible]	50%	50%
i.	[illegible]	50%	50%
j.	[illegible]	50%	50%
k.	[illegible]	50%	50%
l.	[illegible]	50%	50%
m.	[illegible]	50%	50%
n.	[illegible]	50%	50%
o.	[illegible]	50%	50%
p.	[illegible]	50%	50%
q.	[illegible]	50%	50%
r.	[illegible]	50%	50%
s.	[illegible]	50%	50%
t.	[illegible]	50%	50%
u.	[illegible]	50%	50%
v.	[illegible]	50%	50%
w.	[illegible]	50%	50%

has been adjudicated and extra-judicially settled by and among his heirs;

That after this Deed the properties shall have the following ownership interest:

GERTRUDES M. OCAMPO	50% conjugal share
GERALDINE O. MACAVINTA	12.5% inheritance
EDGAR M. OCAMPO	12.5% inheritance
JACKIELYN O. ESCUETA	12.5% inheritance
JEREMY M. OCAMPO	12.5% inheritance

[illegible]

(Sgd.) **Gertrudes M. Ocampo and Geraldine O. Macavinta on her own behalf and as representative of Jeremy M. Ocampo, Jackielyn O. Escueta and Edgar M. Ocampo**

Publication : DIYARYO KABITENYO
Dates : August 17, 24 & 31, 2020

DEED OF EXTRAJUDICIAL SETTLEMENT OF ESTATE WITH SALE

NOTICE is hereby given that the estate of the deceased **JOSE ARCA and SOLEDAD S. ARCA** who both died intestate on June [illegible], 1998 and on March [illegible], 1993 both in Tanza, Cavite, respectively, consisting of a parcel of land without improvement situated in Barangay [illegible], Municipality of Tanza, Province of Cavite, containing an area of ONE THOUSAND TWO HUNDRED FORTY (1,240) SQUARE METERS, embraced by Transfer Certificate of Title No. T-[illegible] has been adjudicated and extrajudicially settled by and among their heirs in equal shares, pro indiviso and they CEDE, TRANSFER, and CONVEY, ABSOLUTELY and UNCONDITIONALLY by way of absolute sale, all their interest and rights of strict dominion over the above described parcel of land covered by Transfer Certificate of Title no. T-[illegible] in favor of LOURDES C. CASTILLO, for and in consideration of ONE MILLION EIGHT HUNDRED SIXTY THOUSAND PESOS (P1,860,000.00), Philippine Currency, on January [illegible], 2020 in Trece Martires City, Cavite, Philippines before Notary Public Atty. [illegible] and entered in his Notarial Register as Doc. No. [illegible], Page No. [illegible], Book No. [illegible], Series of 2020.

(Sgd.) **All Heirs and Buyer**

Publication : DIYARYO KABITENYO
Dates : August 24, 31 and September 7, 2020

Vaccine that harnesses antifungal immunity protects mice from staph infection

Immunization of mice with a new vaccine consisting of fungal particles loaded with Staphylococcus aureus (S. aureus) proteins protects mice against S. aureus infection, according to a study published August 20, 2020 in the open-access journal PLOS Pathogens by David Underhill of Cedars-Sinai Medical Center, and colleagues.

S. aureus is one of the most common bacterial infections world-wide, and antibiotic-resistant strains such as methicillin-resistant S. aureus (MRSA) are a major threat and burden to public health. MRSA not only infects immunocompromised patients but also healthy individuals, and has rapidly spread from the healthcare setting to the outside community. Vaccines aimed at targeting S. aureus have failed in clinical trials, and the reason for this lack of success remains unclear. As this pathogen continues to rapidly spread on a global scale, it is vital that new approaches to S. aureus vaccination are developed. Immunocompromised individuals such as patients with HIV are highly susceptible to S. aureus infections, and they are also at increased risk of developing fungal infections. Based on this evidence, Underhill and colleagues tested whether stimulation of antifungal immunity would promote the type of immune responses needed for effective host defense against S. aureus.

The researchers developed a new vaccine called 4X-SA-GP, which consists of fungal ?-glucan particles loaded with four S. aureus proteins. Mice were vaccinated once a week for three weeks with 4X-SA-GP and then injected with S. aureus either four or eight weeks later.

Vaccination induced protective T cell and antibody responses, and the T cell responses in particular were essential for vaccine-induced protection from S. aureus infection.

Dilated blood vessels in the lung may explain low oxygen levels in severe cases of COVID-19

A new pilot study from the Icahn School of Medicine at Mount Sinai suggests that COVID-19 is causing significant dilation of the blood vessels of the lung, specifically the capillaries. This vasodilation is contributing to the very low oxygen levels seen in COVID-19 respiratory failure and also helps explain why the disease behaves differently than classic acute respiratory distress syndrome (ARDS). The study was published in the American Journal of Respiratory and Critical Care Medicine.

In classical ARDS, pulmonary inflammation leads to leaky pulmonary blood vessels that flood the lungs with fluid, making the lungs stiff and requiring oxygenation. Many patients with COVID-19 pneumonia demonstrate severe hypoxemia that is markedly out of proportion to the degree of lung stiffness. This disconnect between gas exchange and lung mechanics in COVID-19 pneumonia has raised the question of whether the mechanisms of hypoxemia in COVID-19 differ from those in classical ARDS.

The discovery was serendipitous. Researchers were initially assessing cerebral blood flow in mechanically ventilated COVID-19 patients with altered mental status to look for, among other things, abnormalities commonly seen with stroke. They used a robotic transcranial Doppler (TCD), the Lucid Robotic System by NovaSignal, to perform a "bubble study," which is a non-invasive and painless ultrasound technique.

"It is remarkable that a diagnostic machine used to study the brain could give us insight into the pathophysiology of a pulmonary disease. The benefit of using this particular system was that automated monitoring allowed providers to assess cerebral blood flow while minimizing the potential for exposure to COVID-19," said Alexandra Reynolds, MD, Assistant Professor of Neurosurgery, and Neurology, at the Icahn School of Medicine at Mount Sinai and Director of TeleNeurocritical Care for the Mount Sinai Health System.

During this study, agitated saline — saline with tiny microbubbles — is injected into the patient's vein and TCD is used to determine if those microbubbles appear in the blood vessels of the brain. Under normal circumstances, these microbubbles would travel to the right side of the heart, enter the blood vessels of the lungs, and ultimately get filtered by the pulmonary capillaries, because the diameter of the microbubbles is bigger than the diameter of the pulmonary capillaries.

If the microbubbles are detected in the blood vessels of the brain, it implies that either there is a hole in the heart, so that blood can travel from the right to the left side of the heart without going through the lungs, or that the capillaries in the lungs are abnormally dilated, allowing the microbubbles to pass through.

In the pilot study, 14 mechanically ventilated patients with severe COVID-19 pneumonia underwent TCD with bubble study. Fifteen out of the 14 (93 percent) patients had detectable microbubbles, indicating the presence of abnormally dilated pulmonary blood vessels. The number of microbubbles detected by the TCD correlated with the severity of hypoxemia, indicating that the pulmonary vasodilations may explain the disproportionate hypoxemia seen in many patients with COVID-19 pneumonia. Previous studies have demonstrated that only 26 percent of patients with classical ARDS have microbubbles during a bubble study; furthermore, the number of these microbubbles does not correlate with the severity of hypoxemia, implying that pulmonary vascular dilations are not a major mechanism of hypoxemia in classical ARDS.

"It is becoming more evident that the virus wreaks havoc on the pulmonary vasculature in a variety of ways. This study helps explain the strange phenomenon seen in some COVID-19 patients known as 'happy hypoxia,' where oxygen levels are very low, but the patients do not appear to be in respiratory distress. If these findings are confirmed in larger studies, pulmonary microbubble transit may potentially serve as a marker of disease severity or even a surrogate endpoint in therapeutic trials for COVID-19 pneumonia. Future studies that investigate the use of pulmonary vascular constrictors in this patient population may be warranted," says senior author Hooman Poor, MD, Assistant Professor of Medicine (Pulmonary, Critical Care and Sleep Medicine) at the Icahn School of Medicine at Mount Sinai and Director of Pulmonary Vascular Disease at the Mount Sinai – National Jewish Health Respiratory Institute.

COVID-19 patients who experience cytokine storms may make few memory B cells

The release of massive amounts of proteins called cytokines can lead to some of the most severe symptoms of COVID-19. When large numbers of immune cells release cytokines, this increases inflammation and creates a feedback loop in which more immune cells are activated and this is sometimes called a cytokine storm. An August 19 study in the journal Cell now suggests that high levels of some cytokines may also prevent people who are infected from developing long-term immunity so affected patients were observed to make very few of the type of B cells needed to develop a durable immune response.

"We've seen a lot of studies suggesting that immunity to COVID-19 is not durable because the antibodies decline over time," says co-senior author Shiv Pillai, a professor at Harvard Medical School and member of the Ragon Institute of Massachusetts General Hospital, MIT, and Harvard. "This study provides a mechanism that explains this lower-quality immune response."

The investigators focused on germinal centers — the areas within the lymph nodes and spleens where B cells, the immune cells that produce antibodies, differentiate. Differentiation and changes in antibody genes are required to build immunity to an infectious agent.

"When we looked at the lymph nodes and spleens of patients who died from COVID-19, including some who died very soon after getting the disease, we saw that these germinal center structures had not formed," says co-senior author Robert Paders, a pathology professor at Harvard. "We decided to determine why that's the case."

Because the disease was so new, animal models for studying COVID-19 infection were not yet available at the time they began their study. The researchers instead gained insights from previous studies involving mouse models of other infections that induce cytokine storms syndrome – a modern model and one of bacterial infection in which germinal centers were lost.

In people with severe COVID-19, one of most abundant cytokines released is called TNF. In the infected mice, TNF appeared to block the formation of germinal centers. In previous cytokine storm models, when the mice were given antibodies to block TNF or had their TNF gene deleted, the germinal centers were able to form. When the researchers studied the lymph nodes of patients who had died of the disease, they found high levels of TNF in these organs. This led them to conclude that TNF may be preventing the germinal centers from forming in people with COVID-19 as well.

"Studies have suggested this lack of germinal centers happens with SARS infections," Pillai says. "We even think this phenomenon occurs in some patients with Ebola, so it was not surprising to us."

The researchers also studied blood and lymphoid tissue from people with active infections who were in different stages of COVID-19. They found that although germinal centers were not formed, B cells were still activated and appeared in the blood, which would allow the patients to produce some neutralizing antibodies. "There is an immune response," Pulleas says. "It's just not coming from a germinal center."

"Without the germinal centers, there is no long-term memory to the antigens," Pillai adds. He notes that studies of other coronaviruses that cause colds have suggested that someone can get infected with the same coronavirus three or four times in the same year.

The authors say despite their findings, they still believe a successful COVID-19 vaccine can be developed as it should not cause high levels of cytokines to be released.

This work was supported by the National Institutes of Health and the National Institute of General Medical Sciences. Funding for these studies from the Massachusetts Consortium of Pathogen Readiness, the Mark and Lisa Schwartz Foundation, and Enid Schwartz is also acknowledged.

Prevention strategy for substance use disorder

There are well documented risk factors associated with developing substance use disorder across all age groups. A recent study from IUPUI found these risk factors affect age groups differently and proposes a primary prevention strategy for substance use disorder that is individualized for people within defined age groups.

The study proposes a primary prevention strategy for SUD that is individualized for people within defined age groups. This approach is in contrast to current strategies that involve targeting individual substances being abused within a certain community or population.

"We need to start approaching the problem of substance use disorder from the basis of what makes individuals abuse one or more substances instead of what substances are abused in a community," said Eric Afiseh, clinical assistant professor at the IUPUI School of Nursing. "The current prevention approach does not consider the fact that what makes a child develop a substance use disorder is different from what will cause an adult or older adult to abuse the same substance."

The study, published in Substance Abuse Treatment, Prevention, and Policy, looked at more than 500 written articles, published between 1989 and 2019, to identify risk factors for substance use disorder among children, young adults, adults, and older adults. Researchers analyzed similarities and differences in risk factors across life stages and found that across all age groups, risk factors for developing SUD included adverse childhood experiences, trauma, chronic health diseases, environmental factors, family history, social determinants, and grief and loss.

However, despite the similarities, the contextual factors and life challenges associated with these risks varied according to life stages.

For children under 18, the study found risk factors included adverse childhood experiences and trauma, peer pressure, participation in organized athletics and a family history of misuse. For young adults (age 18-25), who may or may not have had childhood risk factors, the added stress of adulthood, lose family history, lack of positive parental role models, lack of employment, and academic stress were added risk factors.

Major risk factors for adults age 26-64, according to the study, are related to family life and career. Different careers associated with substance use disorders in adults include high-stress jobs and heavily physical jobs such as healthcare, military service, and law. While risk factors for adults over 65 are similar to those in younger groups, there are also unique age related risk factors such as experiencing grief and loss more frequently, due to deaths among family and friends, and a greater tendency for chronic physical diseases, such as arthritis and other chronic pain conditions, which increases the likelihood of misusing substances to relieve pain.

To create preventions that work, Afiseh's team suggests screenings based on the identified risk factors in each age group. Screening results can be used to customize education and empowerment interventions such as mentoring, social media, targeted communications, workplace orientation information and more.

The age-based approach, Afiseh said, not only allows prevention methods to be individualized, it also takes off some of the burden off of healthcare workers, as anyone can initiate it, including parents, educators and employers.

"Federal, state and local agencies have put resources and processes in place to address substance use disorders at different levels of the disease continuum," Afiseh said. "But these strategies tend to address specific substances at the population level. To be truly effective, we need to account for the unique developmental factors and life stressors in different age groups, the potential misuse of more than one substance at a time and the multiple risk factors for developing a substance use disorder."

Afiseh has proposed age-related screening, education and empowerment as a framework for primary prevention of SUD. Researchers will now work to design and test screening tools that can be administered to individuals of different age groups with recommended strategies to address each screening result.

Caitlin Pike and Ukamaka Orachet, of the School of Nursing IUPUI, co-authored the study.

Study focuses on low-carb, high-fat diet effect on older populations

A new study, published in Nutrition and Metabolism, from researchers with the University of Alabama at Birmingham's Nutrition Obesity Research Center observed improvements in body composition, fat distribution and metabolic health in response to an eight-week, very low-carbohydrate diet.

Older adults with obesity are at particularly high risk of developing cardiometabolic disease such as Type 2 diabetes and cardiovascular disease. Rather than total fat mass, deposition of fat in certain areas, such as the abdominal cavity and skeletal muscle, may confer this greatest risk of disease development.

The study's lead author is Amy Goss, Ph.D., RDN, an assistant professor with UAB's Department of Nutrition Sciences. Goss says her team aimed to determine if a very low-carbohydrate, or VLCD, high-fat diet would deplete these fat depots and preserve lean mass without intentional caloric restriction in older adults with obesity, thereby improving outcomes related to cardiometabolic disease, such as insulin sensitivity and the lipid profile.

"After the eight-week intervention, despite the recommendation to consume a weight-maintaining diet, the group consuming the very low-carbohydrate diet lost more weight and total fat mass than the control diet group," Goss said.

Egg consumption was an important part of the VLCD prescription. Goss and her team provided eggs to the participants in this diet group and asked them to consume at least three per day.

"While eggs were a part of this study, we can't conclude that our findings are a result of daily egg consumption, but I think what we can conclude is that whole eggs can be incorporated into the diet in a healthful way without adversely impacting blood cholesterol in older adults," she said.

The primary difference in fat loss between the two groups was from the abdominal cavity and the skeletal muscle depots.

"We also found significant improvements in the overall lipid profile that would reflect decreased risk of cardiovascular disease," Goss said. "Further, insulin sensitivity improved in response to the very low-carbohydrate diet reflecting reduced risk of Type 2 diabetes. Overall, we observed improvements in body composition, fat distribution and metabolic health in response to an eight-week, very low-carbohydrate diet."

Goss says VLCDs are a therapeutic option for many conditions, including Type 2 diabetes, obesity and non-alcoholic fatty liver disease.

"This study extends previous research to show that it can be a safe, therapeutic option for older adults as there is no experiencing obesity," she said. "This is the first study to demonstrate depletion of more abdominally harmful fat depots while preserving skeletal muscle during weight loss in response to a VLCD in older adults."

Goss adds that there is quite a bit of evidence about the benefits of a very low-carbohydrate diet in younger populations, and this study was one of the first to test this dietary approach to improve outcomes related to obesity in adults older than age 65 — a population at particularly high risk of other diseases and in need of therapeutic interventions to improve health while preserving skeletal muscle mass to prevent or delay functional decline with age.

"Historically, eggs have received a bad rap beginning with the nutrition guidelines on egg consumption set forth by the American Heart Association in 1968," Goss said. "It was recommended that no more than three whole eggs be consumed each week."

Goss adds that the concern stemmed from the cholesterol and saturated fat content of the egg yolk. Since then, these recommendations have lessened because more recent research demonstrated the negligible impact of dietary cholesterol on blood cholesterol. And just this month, the Dietary Guideline Advisory Committee issued recommendations to increase the consumption of eggs across the lifespan, including pregnant and lactating women, and also as a first food for infants and toddlers.

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Exoskeleton research marches forward with study on fit

A shoddily tailored suit or a shrunken T-shirt may not be the most stylish, but wearing them is unlikely to hurt more than your reputation. An ill-fitting robotic exoskeleton on the battlefield or factory floor, however, could be a much bigger problem than a fashion faux pas.

Exoskeletons, many of which are powered by springs or motors, can cause pain or injury if their joints are not aligned with the user's. To help manufacturers and consumers anticipate these risks, researchers at the National Institute of Standards and Technology (NIST) developed a new measurement method to test whether an exoskeleton and the person wearing it are moving smoothly and in harmony.

In a new report, the researchers describe an optical tracking system (OTS) not unlike the motion capture techniques used by filmmakers to bring computer-generated characters to life.

The OTS uses special cameras that emit light and capture what is reflected back by spherical markers arranged on objects of interest. A computer calculates the position of the labeled objects in 3D space. Here, this approach was used to track the movement of an exoskeleton and test pieces, called "artifacts," fastened to its user.

"The ultimate goal is to strap these artifacts on to the person, put on the exoskeleton, compare the difference in the person wearing these artifacts versus the exoskeleton and see if they move the same," said Roger Bostelman, a robotics engineer at NIST and lead author of the study. "If they move in concert with one another, then it fits correctly; if they move differently, it's not fit correctly, and you could demonstrate adjustments from there."

Mild COVID-19 cases can produce strong T cell response

Mild cases of coronavirus disease 2019 (COVID-19) can trigger robust memory T cell responses, even in the absence of detectable virus-specific antibody responses, researchers report August 14 in the journal Cell. The authors say that memory T cell responses generated by natural exposure to or infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) — the virus that causes COVID-19 — may be a significant immune component to prevent recurrent episodes of severe disease.

"We are currently facing the biggest global health emergency in decades," says senior author Marcus Buggert (@marcus_buggert) of the Karolinska Institutet. "In the absence of a protective vaccine, it is critical to determine if exposed or infected people, especially those with asymptomatic or very mild forms of the disease who likely act inadvertently as the major transmitters, develop robust adaptive immune responses against SARS-CoV-2."