Could Dogs Serve as Hosts for the Next Flu Pandemic?

Dogs are becoming increasingly friendly hosts for a surprising array of influenza viruses, a situation that could pose a potential threat to humans. That is the finding of a new study from the Global Health and Emerging Pathogens Institute at the Icahn School of Medicine at Mount Sinai, published June 5, 2018, in *mBio*.

The results were based on scientific evidence that dogs in southern China had the capacity to serve as “mixing vessels” for influenza viruses they receive from swine and birds—two animals considered to be the most common reservoirs of influenza viral genetic diversity.

“The more diversity we see in influenza viruses, the greater the chance they could jump from one host to another,” says the study’s lead author, Adolfo García-Sastre, PhD, Professor of Microbiology at the Icahn School of Medicine, and Director of the Global Health and Emerging Pathogens Institute. He is also Director of the Center for Research on Influenza Pathogenesis, one of five National Institutes of Health (NIH) Centers of Excellence for Influenza Research and Surveillance. The research took place in the Guangxi region of southern China, an area where diverse animal species are raised in proximity to one another and intermingle in live-animal markets.

In the study, researchers swabbed the noses of some 800 dogs that had all been brought to veterinarians or clinics in the region after showing respiratory symptoms consistent with canine influenza. The scientists sequenced the complete genomes of 16 influenza A viruses obtained from the dogs. All of these strains represented introductions of H1N1 swine influenza viruses circulating in pigs.

A Focus on Wellness at the 2018 Aspen Ideas Festival

New models of care that keep people healthy—rather than intervening only when they are sick—were the focus of experts from the Mount Sinai Health System, which participated for the sixth time in the annual Aspen Ideas Festival. Presented by the Aspen Institute and *The Atlantic* magazine, the festival in Aspen, Colorado, which ran from Thursday, June 21, through Saturday, June 30, is a gathering place where thought leaders across many disciplines engage in an exchange of ideas.

“How do we keep people well? How do we keep people out of the emergency room? We think about this all the time,” Kenneth L. Davis, MD, President and Chief Executive Officer of the Mount Sinai Health System, said in “Health...
Systems of the Future,” a key panel discussion. “By moving away from the traditional fee-for-service model to population health care, we are better able to align incentives with clinical delivery. This result is keeping people healthy and out of the hospital.”

Mount Sinai demonstrated its dedication to wellness and prevention by providing more than 1,300 attendees with complimentary screenings—the most ever at the festival. Dermatologists from the Kimberly and Eric J. Waldman Department of Dermatology performed 754 skin cancer screenings and identified 28 possible basal cell carcinomas, 15 possible squamous cell carcinomas, and 2 potential melanomas. Nurses from Mount Sinai Heart performed 635 blood pressure and cholesterol screenings.

The Health System also spread its message through social media, with its biggest audience ever. On Facebook, interviews with Mount Sinai experts at Aspen received more than 1 million views, compared with 92,000 in 2017, an increase that partly resulted from more precise targeting of viewers. And on Twitter, Mount Sinai was the festival’s third biggest “influencer,” with its content displayed more than 40 million times.

In a panel discussion led by Dr. Davis, experts from Mount Sinai elaborated on the promise and practice of precision medicine and genomics, especially in treating cancer. “We are able to conduct comprehensive molecular profiling of tumors to help guide treatment options,” said Eric Schadt, PhD, Dean for Precision Medicine, Icahn School of Medicine at Mount Sinai, and founder and Chief Executive Officer of Sema4, a patient-centered predictive health company spun out from Mount Sinai. “There is also the heritable side of your DNA—what you are born with and the risk that predisposes you for certain cancers. For example, the BRCA genes for breast cancer and ovarian cancer are increasingly seen as being important for men as they could impact the treatment for prostate cancer.”

Judy H. Cho, MD, Professor of Genetics and Genomic Sciences, and Medicine (Gastroenterology), Icahn School of Medicine, and Director of the Charles Bronfman Institute for Personalized Medicine at Mount Sinai, noted, “If you know your genome and you carry one of the high-risk mutations for colon cancer, the goal is to screen early and more effectively for colon cancer.” Inflammatory bowel disease and fatty liver disease also have a genetic component. “We think this understanding will allow us to diagnose patients earlier and treat more effectively, as well as identify drugs that will be most effective in patients,” Dr. Cho said.

Alan B. Copperman, MD, a leader in the treatment of infertility and Chief Medical Officer of Sema4, discussed breakthroughs in screening for couples using in vitro fertilization. Genomic sequencing is advancing so fast that over the next year or two, “We should be able to routinely test for all known diseases and even tiny rearrangements and deletions of DNA. This will move us forward in a way we could never have dreamed of in figuring out...
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in Asia and Europe into these dogs. They also found a set of three new viruses (H1N1r, H1N2r, and H3N2r) in which these swine-origin canine influenza viruses exchanged genes with previously identified avian-origin H5N2 canine influenza viruses.

Flu viruses have eight mini chromosomes and when two different strains infect the same cell they can exchange genetic segments, a process known as reassortment. All pandemic flu viruses that have been tracked have involved reassortment. The 2009 H1N1 swine-origin human influenza pandemic, for example, was a derivative of two different strains of swine influenza, one that had been circulating in Asia and Europe and the other in the Americas, particularly North America. That pandemic virus traced to a very small region in central Mexico, and was responsible for more than 17,000 deaths worldwide when it jumped from pigs into humans.

There is no known case of a human contracting a canine flu. Nor is it certain that the new strains of dog flu virus discovered in China would have that transmission capability. Still, as Dr. García-Sastre points out, the potential exists, especially in light of the frequent contact between pets and their owners. Moreover, the health risk increases for humans who have not previously been exposed to these viral strains and have not built an immunity to them.

Dr. García-Sastre does not predict a new pandemic, but he says there is a need for additional research and heightened vigilance by public health authorities around the world. “We must start thinking about dogs as potential reservoirs for influenza viruses,” he says. “The more awareness we create, the more likely that countermeasures can be developed by countries to diminish the circulation of influenza virus in domestic animals.”

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which embryo has the best chance of being a healthy baby,” Dr. Copperman said.

The microbiome—trillions of bacteria and fungi that live in the gut—was the subject of a popular talk by Ari Grinspan, MD, Assistant Professor of Medicine (Gastroenterology), Icahn School of Medicine, and Director of Gastrointestinal Microbial Therapeutics, Mount Sinai Health System. Dr. Grinspan said that for patients with persistent Clostridium difficile infections, fecal transplants are “incredibly effective,” curing 90 percent of cases. And he answered questions from a very engaged audience: Is taking probiotics good for you? It doesn’t hurt, and might help. How do you maintain a robust microbiome? “Eat fiber, fiber, fiber,” Dr. Grinspan said. “And exercise.”

In a second panel led by Dr. Davis, Mount Sinai experts discussed models that allow care to be delivered to its 5.8 million patients a year in more effective ways. “We must reimagine the financial model so that we can be rewarded for keeping people healthy,” said Niyum Gandhi, Executive Vice President and Chief Population Health Officer, Mount Sinai Health System.

Another innovation is Mount Sinai at Home, which encompasses programs that deliver home-based primary care, rehabilitation, hospital care, and palliative care. One of those programs, Hospitalization at Home, has resulted in shorter hospital stays and fewer readmissions and emergency department visits. “Though the model is successful, we still cannot do this widely because few insurance companies have been able to develop a payment model for services,” said Linda V. DeCherrie, MD, Professor of Geriatrics and Palliative Medicine, Icahn School of Medicine, and Clinical Director of Mount Sinai at Home.

“Addressing the social determinants of health is critical to reducing the cost of health care and improving the lives of our patients,” said Prabhjot Singh, MD, PhD, Director of the Arnhold Institute for Global Health, and Chair of Health System Design and Global Health, Icahn School of Medicine. “We need to find smart ways to recognize the food insecurity, housing, and transportation issues that our patients face, and then incorporate the right support as a seamless part of their care.”

All of these measures help Mount Sinai to control health costs, which are rising fast across the nation. “And they allow us to maintain our core values—to take care of everybody who comes to our door and still be an Honor Roll hospital and a leader in education and in research innovation,” Dr. Davis said.
Melinda Lantz, MD, Assumes Leadership Role

Members of the American Association of Geriatric Psychiatry (AAGP) have elected Mount Sinai Beth Israel physician Melinda Lantz, MD, to become the organization’s President. Dr. Lantz, Vice Chair, Chief of Geriatric Psychiatry, and Associate Professor of Psychiatry at the Icahn School of Medicine at Mount Sinai, assumes her new role at a pivotal time. Founded in 1978 to promote the well-being of older people through education, advocacy, and career development of psychiatrists, AAGP has embraced change. Its growing ranks now include nurses, physician assistants, and mental health professionals coping with a growing geriatric population.

Every day, an estimated 10,000 people reach age 65. Behavioral health problems affect 15 percent of older adults and up to 5 percent have serious mental illnesses, according to the federal Substance Abuse and Mental Health Services Administration. In 2013, more than 7,000 people age 65 or older died by suicide. Additionally, experts say direct health care costs associated with dementia in the elderly often equal or exceed the costs for heart disease and cancer.

In her role as President of AAGP, Dr. Lantz—a specialist in dementia care and geriatric mental illness—plans to address the need for additional recruitment and training by increasing interest in and availability of subspecialty fellowships in geriatric psychiatry. Boosting physician compensation for providing care to older adults with complex needs would also revitalize career opportunities. Dr. Lantz would like to see an emphasis placed on empathy during training, a critical element for older patients who often cannot advocate for themselves. Elderly patients as a whole, she says, tend to like and respect doctors and welcome human contact.

Encouraging empathy in the treatment of patients “inspired me to be in the organization,” she says. Too often, physicians lose empathy when they are stressed and have heavy workloads. “Everybody does better when they perceive empathy from physicians. One of the things that fellowships can do is help them get it back.”

After robust lobbying by the AAGP, the Centers for Medicare and Medicaid Services recently agreed to assign an insurance code to monitor the impact of geriatric psychiatry. “Getting that code suffix added was a major win,” says Dr. Lantz, who anticipates a favorable outcome once all of the factors are weighed. Tracking patients will show how geriatric psychiatry affects medical costs and resources. Having spent billions of dollars researching dementia drugs with little success, many drugmakers have pulled back, according to Dr. Lantz. Today, she adds, “There are limited drug options for dementia in the pipeline. We need to focus on care and quality of life for those with dementia.”

An area that does show promise for helping in the treatment of geriatric psychiatry is technology. For elderly patients who are less mobile, telemedicine via videoconferencing can ease loneliness and increase access to care. Dr. Lantz says technology will also expand the scope of support to other health care providers who are located in communities where there are no specialists in geriatric psychiatry.

“One of our next incentives is to build networks that allow us to consult with providers who seek some geriatric psych expertise,” she says. Contrary to common preconceptions, many geriatric patients embrace technology. “Years ago, we knew that when elderly people were asked personal questions on a computer they tended to respond with greater information than in face-to-face interviews,” says Dr. Lantz. “We always thought geriatric psychiatric care had to be face to face in the office. It turns out you can meet the needs of older adults in a lot of other ways.”

Paying Tribute to a Giant in Medicine

Family, friends, and colleagues of the late James F. Holland, MD, Distinguished Professor of Neoplastic Diseases at The Tisch Cancer Institute, gathered in May at the Mount Sinai Health System to celebrate his work as a renowned physician-scientist who helped cure acute lymphoblastic leukemia in children. Dr. Holland’s work helped establish oncology as a medical discipline. In the 1950s, when chemotherapy was a relatively new treatment, he and his colleagues began treating seemingly incurable patients with drug combinations rather than administering each one sequentially. Nine out of 10 patients successfully responded to the therapy. Combination chemotherapy remains the standard of care today. Dr. Holland encouraged physicians to share data and create common protocols. In 1972, he received the prestigious Albert Lasker Clinical Medical Research Award.

Speakers at Mount Sinai’s Celebration of Life event included many esteemed physicians from around the country whom Dr. Holland influenced and once mentored, as well as Mount Sinai leaders in academic affairs and cancer research. Dr. Holland’s six adult children attended the event, with several sharing their thoughts and memories. In his opening remarks, William K. Oh, MD, Deputy Director of The Tisch Cancer Institute and Chief of Hematology and Medical Oncology, said Dr. Holland “was absolutely committed to changing the poor outcomes of patients with leukemia, breast cancer, and other devastating cancers by investing in translational research and clinical trials, principles that drive our work at The Tisch Cancer Institute today.”
Supporting Vital Research on Ovarian Cancer

Staff members of the Women’s Health Unit at The Mount Sinai Hospital (Klingenstein Pavilion 4) recently braved the rainy weather to participate in the New York City chapter of the National Ovarian Cancer Coalition’s Run/Walk to Break the Silence on Ovarian Cancer, which was held on Roosevelt Island.

Led by team captain Irena Durkovic, RN, the staff raised $5,095 for the 5k fundraiser—the second highest amount of any participating group. In total, the event collected $86,920 that will be used by the National Ovarian Cancer Coalition to promote awareness, provide support, and fund vital research on ovarian cancer.

“As health care providers, we were grateful to be able to take a moment to commemorate the lives of the brave women we have lost and celebrate the lives of our incredible survivors,” said Godsfavour Guillet, RN, Clinical Nurse Manager, Women’s Health Unit, who participated in the event.

Two Honors for a Leader in Emergency Medicine Education

Saadia Akhtar, MD, Associate Dean for Graduate Medical Education at the Icahn School of Medicine at Mount Sinai, and Program Director for the Emergency Medicine Residency training program at Mount Sinai Beth Israel, has received two national awards for educators who foster innovation in graduate medical and emergency medicine education and who demonstrate a deep love of teaching. Dr. Akhtar received the Michael P. Wainscott Program Director Award from the Council of Emergency Medicine Residency Directors. She also received the 2018 Parker J. Palmer Courage to Teach Award, which was given by the Accreditation Council for Graduate Medical Education to only nine Program Directors nationwide.

“Dr. Akhtar continues to exemplify excellence in our teaching mission at Mount Sinai,” says I. Michael Leitman, MD, Dean for Graduate Medical Education, Icahn School of Medicine at Mount Sinai.

Residents Win a Fun Quiz Show on Emergency Medicine Fundamentals

A team from Mount Sinai Beth Israel recently won the Emergency Medicine Residents Association Quiz Show, competing against 12 teams of residents from across the country at the Council of Emergency Medical Directors Academic Assembly in San Antonio, Texas. In the lighthearted spirit of the contest, the Mount Sinai team wore I ♥ NY T-shirts and foam Statue of Liberty crowns; others were dressed as pirates or Dr. Seuss characters. But the medical questions were detailed and serious. For example, when a patient has a rapidly swelling eye, what is the ocular pressure at which a vision-saving lateral canthotomy is indicated? (For the record, the answer is 40 mmHg.) “Congratulations to our team for coming out on top in this national competition,” says Jeremy Boal, MD, President of Mount Sinai Downtown, adding, “Best uniforms ever.”
Presentation by 2018 Summer Research Fellows in Biomedical Big Data Science

The Ma’ayan Laboratory and the Mount Sinai Center for Bioinformatics invite faculty, students, and staff to a presentation of research projects by the BD2K-LINCS Summer Research Fellows. The Summer Research Training Program in Biomedical Big Data Science, sponsored by the BD2K-LINCS Data Coordination and Integration Center (DCIC), is a research-intensive 10-week training program for undergraduate and graduate students interested in innovative projects that solve data-intensive biomedical problems.

Presentations will include:

• Predicting Gene Expression Signatures for Understudied Small Molecules
• modEnrichr: Enrichment Analysis Platform for Yeast, Worm, Fly, and Fish
• Integrative Analysis to Suggest Combination Therapies for Ovarian Cancer
• JOIN: The Journal of Online Interactive Notebooks
• Predicting Diabetes Risk from Labs and Vitals with Machine Learning
• ChEA3: Transcription Factor Enrichment Analysis Portal
• Jupyter Notebook Analysis Reports from Interactive Selection of GTEx Portal Samples
• FAIRshake: Toolkit to Assess the FAIRness of Biomedical Digital Objects
• Open and Standard API to Enable Semantic Integration of Bioinformatics Tools and Resources.

Thursday, August 9
10 am – Noon
Annenberg Building
Room 19-79

August 31 Is International Overdose Awareness Day

Sponsored by the Respectful and Equitable Access to Comprehensive Healthcare (REACH) Program in the Division of General Internal Medicine and by the Mount Sinai Center for Spirituality and Health, this event — open to all — will honor the memory of those who have been lost to drug overdoses and offer strategies on how to prevent future deaths from drug overdoses. For more information, call 646-951-1693.

Friday, August 31
10:30 am – Noon
Hess Center for Science and Medicine
1470 Madison Avenue
Davis Auditorium
Second Floor

Group Support for Alcohol And Drug Abuse

The Respectful and Equitable Access to Comprehensive Healthcare (REACH) Program in the Division of General Internal Medicine offers a weekly support group for people seeking help for alcohol and/or drug use. The group, led by Katy Amory, LCSW, is open to the public and does not require advance registration or screening. Participants can be at any stage of alcohol and/or drug use or in sobriety. For information, contact Nathalia Gibbs at 212-824-7454.

Wednesdays
4 – 5 pm
17 East 102nd Street
Third Floor Conference Room

“Breathe Free” Smoking-Cessation Program

The Mount Sinai – National Jewish Health Respiratory Institute and the Mount Sinai Health Network offer free personalized smoking-cessation coaching for patients undergoing a diagnostic or surgical procedure. Participants will be assigned a supportive, personal coach to assist in creating a care plan, which will include tools to identify and overcome barriers to smoking cessation and working with a medical team to identify appropriate medications. For more information, or to schedule an appointment, email wellness@mountsinai.org.

Mount Sinai Transformation Update

For the most recent updates on Mount Sinai’s downtown transformation, please go to:
http://www.mountsinai.org/locations/downtown

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