News

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Your opinion needed: First Link dementia support services

The Alzheimer Society of BC and the University of British Columbia are working together to evaluate the First Link dementia support services. Physicians working with older adults are invited to participate in a 15-minute survey developed by Dr Julie Robillard and her research team at UBC. The goal of the study is to better understand the strengths and areas of improvement of the First Link dementia support services. You can complete the survey even if you have never heard of or used First Link. If you are interested in sharing your perspectives on First Link or the improvement of dementia support services, please access the survey at http://bit.ly/firstlinkeval. For more information, contact Ms Mallorie Tam, research assistant, Division of Neurology, UBC, at mallorie.tam@ubc.ca. Recruitment ends December 2019.

Do discharge incentives in emergency departments lead to higher readmission rates?

In an effort to address emergency department overcrowding, pay-for-performance incentive programs have been implemented in various regions around the world, including hospitals in Metro Vancouver. But a new study from the UBC Sauder School of Business shows that while such programs can reduce barriers to access for admitted patients, they can also lead to patient discharges associated with return visits and readmissions.

The study looked at over 800 000 patient visits to the four major emergency departments in Metro Vancouver over a 3-year period from 1 April 2013 to 31 March 2016. The study focused on patients with higher acuity levels (triage level 1, 2, or 3). During the first year of the study period, two pay-for-performance incentive programs were in effect, funded by the BC provincial government: emergency departments received a $100 compensation for each discharged patient with a length of stay of less than 4 hours. Emergency departments also received a $600 compensation for admitted patients who spent less than 10 hours in the emergency department.

The government terminated both pay-for-performance programs on 31 March 2014; however, the regional health authority governing all four emergency departments studied decided to internally fund the exact same $600 admission incentive scheme, which continued without interruption. Only the $100 discharge incentive completely disappeared after the government pay-for-performance program was terminated.

"In the past, the extent to which these types of programs affected the length of stay of individual patients was not well understood because previous studies have only examined aggregate performance metrics as they relate to length of stay," says Yichuan (Daniel) Ding, study co-author and assistant professor in the Operations and Logistics Division at the UBC Sauder School of Business. "Our study took a much more granular approach, where we focused specifically on patient discharges that took place within 20 minutes of the deadline for the incentive, because we wanted to know if these patients were discharged to catch the deadline."

The study found that for those patients who were discharged home, there was a significant discontinuity around the 4-hour mark, meaning that there was a significant number of patients who were discharged right before the 4-hour mark. But after the 4-hour mark, there was a decreasing likelihood that a patient would be discharged. This phenomenon was observed in only two of the four emergency departments; the other two did not exhibit this same discontinuity.

"Our study confirmed that this type of financial incentive altered system performance. And in the positive sense, that means that the program is effective because it impacts length of stay for both discharged and admitted patients," says Eric Park, study co-author and assistant professor in the Faculty of Business and Economics, University of Hong Kong. "But when we looked more granularly at the patients who were discharged within 20 minutes before the deadline, we found that one of the four emergency departments had a greater revisit and readmission rate within 7 days—meaning that within 7 days, those patients are more likely to come back and be admitted to hospital. It is possible that this is a signal of premature discharge."

"However, we cannot assert that discharge is premature using this metric alone, especially given that it was only observed in one of the four emergency departments, but it is a potentially worrisome finding," adds Yuren Wang, study co-author with the National University of Defense Technology in Changsha, China.

The study also found that for the case of admitted patients at the 10-hour mark, the discontinuity was even more significant, and it applied to all four emergency departments, not just the two.

"Our recommendations based on this research are that setting an incentive for admitted patients improves length of stay, but the 4-hour benchmark for discharged patients should be implemented with care," says Dr Garth Hunte, study co-author and emergency physician at St. Paul's Hospital in Vancouver. "There is no sense for an incentive to discharge patients that may require admission to hospital." This is consistent with what the hospitals are actually now doing, due to the regional health authorities' ongoing funding of the admission incentive.

The article "Do Financial Incentives Change Length-of-stay Performance in Emergency Departments? A Retrospective Study of the Pay-for-performance Program in Metro Vancouver" is available in the journal *Academic Emergency Medicine*.

Commonly used antibiotics may lead to heart problems

Scientists have shown for the first time a link between two types of heart problems and one of the most commonly prescribed classes of antibiotics.

In a study published in the *Journal of the American College of Cardiology*, researchers at the University of British Columbia, in partnership with the Provincial Health Services Authority's Therapeutic Evaluation Unit, found that current users of fluoroquinolone antibiotics, such as Ciprofloxacin or Cipro, face a 2.4 times greater risk of developing aortic and mitral regurgitation, where the blood backflows into the heart, compared with patients who take amoxicillin, a different type of antibiotic. The greatest risk is within 30 days of use.

Recent studies have also linked the same class of antibiotics to other heart problems.

Some physicians favor fluoroquinolones over other antibiotics for their broad spectrum of antibacterial activity and high oral absorption, which is as effective as intravenous treatment.

"You can send patients home with a once-a-day pill," said Mahyar Etminan, lead author and associate professor of ophthalmology and visual sciences in the Faculty of Medicine at UBC. "This class of antibiotics is very convenient, but for the majority of cases, especially community-related infections, they're not really needed. The inappropriate prescribing may cause both antibiotic resistance as well as serious heart problems."

The researchers hope their study helps inform the public and physicians that if patients present with cardiac issues, where no other cause has been discovered, fluoroquinolone antibiotics could potentially be a cause.

"One of the key objectives of the Therapeutic Evaluation Unit is to evaluate different drugs and health technologies to determine whether they enhance the quality of care delivered by our programs or improve patient outcomes," said Dr Bruce Carleton, director of the unit and research investigator at BC Children's Hospital. "This study highlights the need to be thoughtful when prescribing antibiotics, which can sometimes cause harm. As a result of this work, we will continue working with the BC Antimicrobial Stewardship Committee to ensure the appropriate prescribing of this class of antibiotics to patients across British Columbia, and reduce inappropriate prescribing."

For the study, scientists analyzed data from the US Food and Drug Administration's adverse reporting system. They also analyzed a massive private insurance health claims database in the US that captures demographics, drug identification, dose prescribed, and treatment duration. Researchers identified 12 505 cases of valvular regurgitation with 125 020 case-control subjects in a random sample of more than 9 million patients. They defined current fluoroquinolone exposure as an active prescription or 30 days prior to the adverse event, recent exposure as within 31 to 60 days, and past exposure as within 61 to 365 days prior to an incident. Scientists compared fluoroquinolone use with amoxicillin and azithromycin.

The results showed that the risk of aortic and mitral regurgitation, blood backflow into the heart, is highest with current use, followed by recent use. They saw no increased risk aortic and mitral regurgitation with past use.

Etminan hopes that if other studies confirm these findings, regulatory agencies would add the risk of aortic and mitral regurgitation to their alerts as potential side effects and that the results would prompt physicians to use other classes of antibiotics as the first line of defence for uncomplicated infections.

This study was funded and conducted by the Department of Ophthalmology and the Therapeutic Evaluation Unit at the Provincial Health Services Authority.

Lack of racial diversity in cancer drug trials

New research published in *JAMA Oncology* has found a lack of racial and ethnic diversity in clinical trials for cancer drugs.

The study—conducted by researchers from UBC, the University of Texas MD Anderson Cancer Center, the Fred Hutchinson Cancer Center in Seattle, and Baylor University in Texas—raises concerns about the effectiveness of cancer drugs in some patients, especially since genetic differences may affect how well a patient responds to a drug.

The researchers found that fewer than 8% of cancer drug trials reported participation from the four major races in the United States—white, Asian, black, and Hispanic—between 2008 and 2018. Black and Hispanic patients were particularly underrepresented at 22% and 44%, respectively, considering their populations' incidence of cancer. The findings show that the science might not be applicable to the population that's going to receive the medications. The researchers found that both reporting about race in trials and enrolment rates had changed minimally over the decade.

For this study, Dr Jonathan Loree (assistant professor, UBC Department of Medicine, Division of Medical Oncology) and colleagues reviewed all reported trials supporting US Food and Drug Administration oncology drug approvals granted between July 2008 and June 2018. They scrutinized 230 trials with a total of 112 293 participants. They calculated the US population-based cancer estimates by race using National Cancer Institute and US census data.

Although the researchers used US data, Dr Loree says the findings are relevant in Canada, as well. Pharmaceutical companies typically apply for drug approvals through the FDA first, because it serves the largest market, and then submit to the European Medicines Agency and Health Canada. The trials considered in the approvals are usually the same.

Dr Loree also notes that they weren't able to analyze the participation of Indigenous people in trials because there were only 13 patients reported out of a total of 112 000 participants.

The researchers are now looking at whether clinical trials represent the same gender ratio as the general population to ensure the drugs are effective in all people.

Author correction: Ultrasound and hernias

Dr David Konkin, author of the letter "Avoid the routine use of ultrasound in evaluating clinically apparent inguinal and umbilical hernias" (*BCMJ* 2019;7:276) has identified an error. The second paragraph should begin, "It is best to examine the patient standing and then lying supine" (rather than prone).