



PRESS RELEASE

21 March 2023 | FOR IMMEDIATE RELEASE

Promoting healthy longevity should start young: pregnancy complications lift women's risk of mortality in the next 50 years

Pregnancies complicated by preterm delivery, hypertensive disorders of pregnancy, and gestational diabetes are linked with an increased risk of mortality

Singapore, 21 March 2023 — In Singapore, about 15 to 20 per cent of pregnancies are complicated by gestational diabetes, 5 to 10 per cent of pregnancies are affected by hypertensive disorders of pregnancy, and more than 10 per cent of pregnancies end as pre-term delivery. Pregnancy is a critical reproductive event for women, with substantial life-long health implications.

This brings forward an important question: how would pregnancy complications inform women's risk of mortality in the long-term? However, this is often understudied due to a lack of long-term follow-up data.

Homing in on this, Professor Cuijin Zhang, Director of the Global Centre for Asian Women's Health ([GloW](#)) and a chaired professor in the Department of Obstetrics and Gynecology at the Yong Loo Lin School of Medicine, National University of Singapore (NUS Medicine), in collaboration with investigators from University of Pennsylvania and the National Institutes of Health (NIH), led a research team to investigate the question on how having pregnancy complications may inform one's long-term mortality risk, relative to those without the complications.

They studied common pregnancy complications in association with total and cause-specific mortality more than 50 years after the complicated pregnancy. This study was recently published in [Circulation](#).

The study followed up on more than 45,000 pregnant women in the United States (U.S), who were enrolled into a pregnancy study during their first pregnancy visit between the 1950s to the 1960s. Researchers recorded common pregnancy complications of preterm delivery, hypertensive disorder of pregnancy, and gestational diabetes/impaired glucose tolerance. They followed up with the participants after their index pregnancy.

Results showed that those who experienced any of these common pregnancy complications had an increased risk of mortality in the next 50 years after pregnancy. Particularly, pregnancies complicated by preterm delivery, hypertensive disorders of pregnancy, and gestational diabetes was associated with 7 per cent to 109 per cent, 9 per cent to 32 per cent, and a 14 per cent higher risk of all-cause mortality, respectively.

An interesting finding was that for women who had preterm deliveries, their risk and cause of mortality appeared to differ according to the reason for the preterm delivery. The risk of all-cause mortality, which refers to death by any cause, was highest in women who had a pre-labour cesarean delivery.

For cause-specific mortality, preterm deliveries due to spontaneous labour were associated with increased mortality from cardiovascular diseases. Preterm deliveries due to other reasons, such as premature rupture of the membrane and induced preterm were also associated with the increased mortality resulting from diabetes, kidney, and respiratory diseases.

These findings related to preterm deliveries highlight the importance of understanding the causes of preterm deliveries when assessing future risk of complications.

“Pregnancy is an early-life stress test for the mother’s underlying cardiometabolic health, as several major pregnancy complications are linked with an increased risk of high blood pressure, diabetes, and cardiovascular diseases, in studies conducted in the U.S and Europe. However, the roles of pregnancy complications on chronic diseases and long-term mortality in Asian women have not been well examined. Thus, studies among Asian women, with continued, long-term follow-ups are warranted to investigate the roles of pregnancy complications on their subsequent health status and to identify effective ways to improve the long-term health of women following complicated pregnancies” said Professor Zhang, senior author of the study.

“Our study provided compelling evidence to support the notion that promoting healthy longevity should start young and early—a concept that has been increasingly promoted by the research community at the NUS Medicine”, added Professor Zhang.

For media enquiries, please contact:

Natalie TAN
Executive, Communications
Yong Loo Lin School of Medicine
National University of Singapore
DID: +65 9011 1459
Email: nat_tan1@nus.edu.sg

About National University of Singapore (NUS)

The National University of Singapore (NUS) is Singapore’s flagship university, which offers a global approach to education, research and entrepreneurship, with a focus on Asian perspectives and expertise. We have 16 colleges, faculties and schools across three campuses in Singapore, with more than 40,000 students from 100 countries enriching our vibrant and diverse campus community. We have also established our NUS Overseas Colleges programme in more than 15 cities around the world.

Our multidisciplinary and real-world approach to education, research and entrepreneurship enables us to work closely with industry, governments and academia to address crucial and complex issues relevant to Asia and the world. Researchers in our faculties, research centres of excellence, corporate labs and more than 30 university-level research institutes focus on

themes that include energy; environmental and urban sustainability; treatment and prevention of diseases; active ageing; advanced materials; risk management and resilience of financial systems; Asian studies; and Smart Nation capabilities such as artificial intelligence, data science, operations research and cybersecurity.

For more information on NUS, please visit nus.edu.sg.

About the NUS Yong Loo Lin School of Medicine (NUS Medicine)

The NUS Yong Loo Lin School of Medicine is Singapore's first and largest medical school. Our enduring mission centres on nurturing highly competent, values-driven and inspired healthcare professionals to transform the practice of medicine and improve health around the world.

Through a dynamic and future-oriented five-year curriculum that is inter-disciplinary and inter-professional in nature, our students undergo a holistic learning experience that exposes them to multiple facets of healthcare and prepares them to become visionary leaders and compassionate doctors and nurses of tomorrow. Since the School's founding in 1905, more than 12,000 graduates have passed through our doors.

In our pursuit of health for all, our strategic research programmes focus on innovative, cutting-edge biomedical research with collaborators around the world to deliver high impact solutions to benefit human lives.

The School is the oldest institution of higher learning in the National University of Singapore and a founding institutional member of the National University Health System. It is one of the leading medical schools in Asia and ranks among the best in the world (Times Higher Education World University Rankings 2023 by subject and the Quacquarelli Symonds (QS) World University Rankings by subject 2022).

For more information about NUS Medicine, please visit <https://medicine.nus.edu.sg/>