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Study leads to introduction of rapid syphilis tests to help pregnant women and babies

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Pregnant women are benefiting from new rapid tests for syphilis in six countries thanks to influential research by the London School of Hygiene & Tropical Medicine.

The study, published today in *PLoS Medicine*, was so successful that it resulted in China, Peru, Brazil, Zambia, Uganda and Tanzania introducing the tests to help save the lives of unborn children before the research was published, demonstrating the value of including policymakers throughout the process.

The research, funded by the Bill & Melinda Gates Foundation, sought to determine the feasibility of introducing new point-of-care-tests for pre-natal syphilis screening into a range of different countries. The project has shown that these new simple tests can be effectively introduced into a range of locations, from urban areas in China and Peru, to remote villages in East Africa, and even more remote indigenous populations deep in the Amazon rain forest - and that the lives of up to one million children could be saved every year if they were rolled out globally.

It is estimated that two million pregnant women are infected with syphilis every year and that over half of these pass it on to their unborn child during their pregnancy. If untreated during pregnancy, syphilis is associated with spontaneous abortion, stillbirth, premature delivery, low birth weight, and perinatal death. In Africa alone, syphilis causes almost 400,000 stillbirths and newborn deaths a year.

Lead author Professor Rosanna Peeling, of the London School of Hygiene & Tropical Medicine, said: "By working closely with each of the governments prior to and during the research, we've been able to bring about rapid changes in policy within each of the countries. This has happened remarkably quickly, given that the project was only completed in 2011.

"We hope that the clear results of working closely with governments and decision-makers from an early stage in our project may lead to other similar studies being given high priority within the health system in future, thus overcoming the well-known lag between research and action through policy change."

Unlike conventional syphilis tests, the rapid syphilis test used in the research requires minimal training, can be used on whole blood, plasma, or serum, and does not require laboratory equipment, cold storage, or electricity.

Professor David Mabey, also of the London School of Hygiene & Tropical Medicine and one of the key authors of the study, said: "Policies for screening pregnant mothers for syphilis have been in place in most countries for years, yet over 70% of pregnant women with syphilis are not screened. This is, in part, due to logistical challenges with current testing methods, which require electricity, refrigeration and laboratory equipment.

"There has been significant progress in reducing mortality in under-fives, but the number of newborn babies who die in their first month of life is not declining. 2015 is only three years away and many countries will not achieve Millennium Development Goal 4 unless they can reduce neonatal mortality rates. Syphilis is one of the major causes of stillbirths and newborn deaths, yet it can be treated easily and cheaply if detected early enough.

"Screening pregnant women for syphilis is one of the most cost-effective health interventions available. If all pregnant women were screened, and those who tested positive were treated with one dose of penicillin before 28 weeks' gestation, no stillbirths or neonatal deaths would be due to syphilis. It's as simple as that. These new rapid tests are easy to use, affordable and give a result in just 15 minutes at the cost of less than £1 per women screened."

As a result of the London School of Hygiene & Tropical Medicine study, the Ministry of Health in Brazil announced that syphilis screening for remote populations who previously have never had access to it would be one of the three main priorities for the national programme for the control of HIV and Sexually Transmitted Infections. In Peru, the Ministry of Health announced they would be rolling out rapid syphilis tests for pregnant women, with the aim of reducing the incidence of congenital syphilis from 1.7% to 0.5% per 1000 people by 2015.

In Uganda and Zambia, findings from the study were presented to the Ministries of Health, which now both incorporate rapid syphilis testing in their standard package of PMTCT (Prevention of Mother-to-Child Transmission) services and antenatal care. In Zambia, the Ministry of Health, with support from the Elizabeth Glaser Paediatric AIDS Foundation, is procuring Point-Of-Care-Tests (POCTs) for syphilis and supporting national trainers as part of a national rollout plan to support rapid syphilis testing of pregnant women across the country.

In addition, on the back of the study's findings, the Global Congenital Syphilis Partnership was launched in March. The partnership seeks to build on the success of the project by expanding strategic partnerships, strengthening global advocacy and supporting the implementation of Point-of-Care tests for syphilis. Members of the group include London School of Hygiene & Tropical Medicine, Save the Children, Centers for Disease Control and Prevention, University College London, and the Bill

& Melinda Gates Foundation.

More information: Paper: www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.1001233

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