

Byramjee Jeejeebhoy Medical College in India

Improving the health of women and children through research and leadership training in India

History of Collaboration

In 2009 the Byramjee Jeejeebhoy Medical College (BJMC) in Pune, India became the newest program to partner with the Weill Cornell Medicine Center for Global Health. BJMC was founded in 1871 and is among the top medical colleges in India. It is affiliated with Sassoon General Hospital, the largest government hospital in Pune, a city with a population of 4 million. Sassoon is a 1,300-bed public facility that treats underserved populations from the surrounding rural and urban communities. Its 21 outpatient clinics provide care to almost half a million patients, and its maternity ward delivers over ten thousand infants per year.

Improving Maternal-Child Health

Weill Cornell Medicine faculty led by Dr. Jyoti Mathad are focusing on improving maternal-child health in Pune. Examples of ongoing research and training include:

- **Tuberculosis and pregnancy:** A woman faces her highest lifetime risk of contracting tuberculosis during pregnancy and the immediate postpartum period. Dr. Mathad and colleagues are conducting studies to better understand why pregnancy makes women more vulnerable to tuberculosis, which is a leading cause of death in both mothers and young infants. Through this research, they hope to develop tools to identify women at highest risk for tuberculosis and to provide them with preventive therapy.



Educating children with new technologies



Dr. Mathad visiting a rural village

- **Depression during pregnancy:** In the United States, about 8% of women develop postpartum depression. In low- and middle-income countries like India, this risk is much higher and occurs more often during pregnancy, rather than after the baby is born. Pregnant women with depression are more likely to commit suicide and develop complications during pregnancy, such as preterm delivery of the baby. Their infants are more likely to have stunted growth and delayed development. Among pregnant women in India, Weill Cornell Medicine investigators have demonstrated that the prevalence of depression during pregnancy is 30% and are now working with colleagues to determine the social and biological causes and to develop interventions that can be provided during routine prenatal care.

Through its 21 outpatient clinics, BJMC provides care to almost half a million patients.



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- **Gestational diabetes:** For years, people thought that gestational diabetes (diabetes that develops during pregnancy) was a disease of the upper middle class in India. However, research in non-pregnant adults suggests that people in South Asia have a genetic predisposition towards developing diabetes. At our site in India, Dr. Mathad and colleagues documented that almost 10% of HIV-uninfected pregnant women and 18% of HIV-infected pregnant women had previously undiagnosed diabetes. Yet, most of them struggle to have enough food to eat. Dr. Mathad is now working to understand what the risk factors and long-term outcomes for gestational diabetes are in India, while advocating for universal diabetes screening and treatment for pregnant women.
- **Mosquito-borne illness in pregnancy:** India is home to the *Aedes* mosquito and is endemic to all of the diseases it carries, including malaria, zika, chikungunya, and dengue. Dr. Mathad and colleagues have found that 20% of pregnant women in India develop dengue fever, which can be life-threatening for mother and child. Symptoms of dengue infection in non-pregnant adults usually involve fever and rash, but her research team discovered that conjunctivitis was a much more common presenting sign in pregnant women. Ongoing research includes cataloging the major causes of acute mosquito-borne illness in pregnancy, determining the impact on pregnancy and infant outcomes, and developing appropriate screening and prevention strategies.



Dr. Jyoti Mathad leads a training session of female clinicians, counselors, and nurses in Pune, India



Elderly woman in Gangavati, India

Future Directions

Weill Cornell Medicine physicians are extending their research to include other common conditions that affect pregnant women, including high blood pressure. They are also addressing other women's health issues such as sexual violence and are committed to training more Indian women physician-scientists to conduct research in women's and maternal-child health. Skilled female investigators are crucial for the conduct of research on sensitive issues like maternal health, cervical and breast cancer, and gender-based violence. Therefore, Weill Cornell Medicine is providing training to women Indian doctors on research methods and leadership skills, with the goal of increasing female leadership at BJMC and improving the health of the women and children in Pune.

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