ISAC-3-6  The Effect of Public Health Expenditures and Quality of Governance on Maternal and Child Health

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[Background] The effect of public health expenditure on health outcomes, such as maternal and child mortality, is a heavily disputed issue. In the run-up to the Millennium Development Goals (MDG) endpoint by 2015, there is an on-going debate as to how best to put slow- or non-performing countries on track. One view is that health expenditure advances health outcomes and, therefore, proposes a massive scaling up of public health expenditures, especially in low income countries. Others, however, believe that there are other determinants necessary to achieve improved maternal and child health, and that when governance quality is controlled for, health expenditure is either small or insignificant. We revisit this important issue with using a more extensive set of controls and with emphasis on two measures of governance quality, namely, government effectiveness and control of corruption.

[Objectives] This research aimed to determine the effect of public health expenditures (PHE) and quality of governance as measured by two governance indices—government effectiveness and control of corruption—on infant mortality (IMR), under-five mortality (<5-MR) and maternal mortality (MMR) across different country income levels, controlling for countries' socio-economic conditions such as Gini Index and adult female literacy rate.

[Methods] This was an ecological cross-country study using secondary data from 89 countries. To examine for relationships, econometric methods using multiple regression analyses were done to test the impact of PHE and governance on IMR, <5-MR and MMR initially on all countries, and subsequently across different country income categories.

[Results] The results indicate that, in general, public health expenditure does reduce maternal and child mortalities significantly. This effect did not only hold true; it was enhanced with good governance. Across different country income classifications, PHE's effect on the three health indicators was most evident in middle-income countries. High-income countries benefited from PHE only on its effect on MMR. PHE had no significant impact on low-income countries. Government effectiveness had a negative and significant impact on middle- and high-income countries' IMR, and on middle-income countries' <5-MR (reduction in child mortality) but had no impact at all on maternal mortality.

[Conclusions] The results of this paper have shown that government effectiveness has a very robust positive effect on maternal and child health outcomes, most especially in middle-income countries. Control of corruption, however, strangely, is insignificant. For low-income countries, determinants of better maternal and health neither lie on PHE nor of governance, but rather on socio-economic factors outside of the health system.

ISAC-3-7  Cambodia’s successful efforts to reduce maternal mortality

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[Objectives] To measure the impact of interventions in essential obstetric and newborn care to reduce maternal mortality.

[Methods] Situations analysis of women Health in Cambodia based on Cambodian Demographic Health survey (CDHS).

[Result] In year 2000, the maternal mortality ratio (MMR) is estimated to be 473/100000 live births (LB). The infant mortality rate (IMR) is 89/1000 LB. The rate of antenatal care (ANC) visit is low (42% 1 visit). Home delivery rate is high (85%). Fifty six per cent of deliveries are attended by traditional birth attendants. Caesarean section rate is very low (0.5%). In 2008, the Royal Government of Cambodia announced a Fast Track Initiative (FTI) for improving reproductive, maternal, newborn and child health. The FTI Road Map for Reducing Maternal & Newborn mortality, describes components of government’s existing programs including increasing skilled birth attendance and providing financial incentives for midwifery deliveries and equity funds. According to the CDHS, the MMR decline 206 in 2010. The IMR and under five mortality rate (UMMR) decline respectively from 2005 to 2010, from 56 to 45 for IMR and from 83 to 54 for UMMR. The ANC (2 visits) increase to 61.4%, the facility delivery increase to 71.7% and the delivery assisted by skilled provider increase to 86.2% in 2011.

[Conclusion] The strong political commitment from the government and the development partner made it possible to develop, update, and revise policies, guidelines and strategies according to the current requirement and improve the accessibility and utilization of health care facilities and referral of emergency situation.

ISAC-4-1  SIRT3 positively regulates folliculogenesis and luteinization by tackling oxidative stress in human luteinized granulosa cells

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[Objective] Appropriate control of reactive oxygen species (ROS) generation plays pivotal roles in human reproduction. We aimed to investigate SIRT3 expression and SIRT3-mediated ROS in human luteinized granulosa cells (GCs).

[Methods] IRB approval was obtained for the use of specimens. Human ovarian tissues were subjected to immunohistochemistry to localize the SIRT3 expression. Hydrogen peroxide (H2O2) and human chorionic gonadotropin (HCG) were added to GCs to detect the relationship between ROS, SIRT3 and antioxidants by RT-PCR and Western blot. Intracellular ROS levels were investigated by fluorescence after siRNA-mediated SIRT3 knockdown in human GCs. To reveal the role of SIRT3 in folliculogenesis and luteinization, mRNA levels of related genes were analyzed by RT-PCR.

[Results] Expression of SIRT3 in GCs of human ovary was confirmed. The mRNA level of SIRT3, catalase and superoxide dismutase 1 was stimulated by H2O2 in GCs, while HCG treatment decreased them. Knockdown of SIRT3 markedly elevated ROS generation in human GCs. Additionally, depletion of SIRT3 results in the decreased mRNA levels of aromatase, 17β-HSD1, STAR, P450scK and 3β-HSD in GCs.

[Conclusion] Our results suggest that SIRT3 might play a crucial role in folliculogenesis and luteinization processes in GCs possibly by sensing and regulating ROS production, and thereby help to sustain human reproduction.