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A Summary of the Calcium Supplementation Program for Pregnant Women in Nepal for Prevention of Pre-eclampsia/Eclampsia

INTRODUCTION

In Nepal, the Ministry of Health and Population (MOHP), with technical support from the USAID-funded Maternal and Child Health Integrated Program (MCHIP), implemented a pilot to test the provision of calcium supplements to pregnant women to prevent pre-eclampsia/eclampsia (PE/E). This pilot assessed the coverage of pregnant women and their compliance when calcium was distributed to them during antenatal care (ANC) services. The results of the pilot are intended to be used by the MOHP to inform scale-up. This brief describes the pilot and the monitoring data collected over the duration of the program from June 2012 through August 2013.

Key Maternal Health Statistics for Nepal

- Maternal mortality ratio: 229/100,000 live births*
- Antenatal care, at least one visit: 84.8%**
- Antenatal care, at least one visit from skilled provider (doctor, nurse, or ANM): 58%**
- Antenatal care, four or more visits: 50.1%**
- Median months pregnant at first ANC: 3.7**
- Institutional deliveries: 35%**

Data Sources: *Nepal Maternal Mortality and Morbidity Study 2009, **NDHS 2011

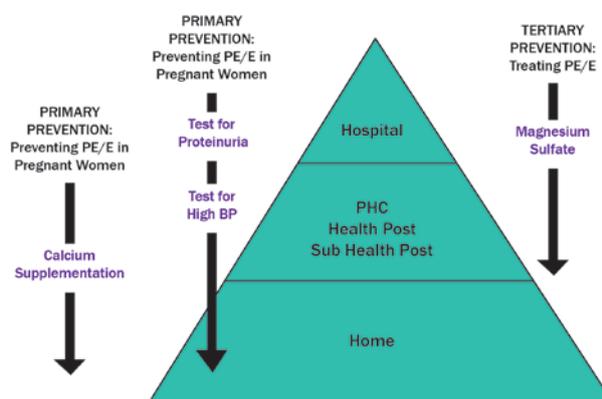
In Nepal, eclampsia is the leading direct cause of maternal mortality.¹ Interventions to prevent and treat PE/E are possible from the household level and through all levels of the health care system. Calcium has been shown to help prevent PE/E in multiple clinical trials.² The current recommendation from the World Health Organization (WHO), based on the Cochrane review, is that supplementation with 1.5–2.0 grams of elemental calcium should be provided daily during pregnancy. This supplementation should begin early in pregnancy (at about 20 weeks) and should not be taken at the same time as iron folate supplements.³

PILOT PROGRAM DESIGN AND IMPLEMENTATION

Dailekh, a large hill district in the Bheri zone of the Mid-Western Region of Nepal, was selected for the pilot by the MOHP based on recommendations of a Technical Advisory Group (TAG) formed to guide the pilot program implementation. A hill district was chosen because this is the most common type of district and has a greater population than mountain districts, but access to ANC is more difficult than in Terai (plains) districts.

To help prevent PE/E during pregnancy, all ANC care health care workers at all government health facilities in Dailekh (268 ANC workers) were trained to counsel women about the benefits of calcium supplementation during pregnancy and to distribute the calcium during ANC visits.

Figure 1: MOHP three-prong PE/E prevention, detection, and management strategy



¹ Nepal Maternal Mortality and Morbidity Study, Family Health Division, 2009.

² Hofmeyr GJ, Lawrie TA, Atallah AN, Duley L. Calcium supplementation during pregnancy for preventing hypertensive disorders and related problems. *Cochrane Database of Systematic Reviews* 2010, Issue 8.

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³ WHO. WHO Recommendations for Prevention and Treatment of Pre-eclampsia and Eclampsia, 2011.

Although this pilot primarily focused on prevention of PE/E through calcium supplementation, it also addressed the management and detection of PE/E:

- ANC providers/health workers in the district were trained in the use of magnesium sulfate (MgSO₄) for treatment of severe PE/E.
- Health facilities were provided with urine collection bottles and dipsticks to ensure the availability of universal PE/E detection services for pregnant women during ANC, at all government health facilities.

PE/E Prevention Intervention

- Health workers were encouraged to provide counseling and distribute calcium during the first ANC visit; however, all pregnant women attending ANC were offered calcium, irrespective of their gestational age and ANC visit number.
- The recommended calcium intake was 1 gram daily (2 tablets of 1250mg of calcium carbonate containing 500mg elemental calcium in each tablet), starting at 20 weeks. All pregnant women were given the entire supply of calcium for the remainder of their pregnancy.
- Women were advised to take calcium after their morning meal and to take an iron supplement after their evening meal. Iron supplementation is a national program for pregnant women in Nepal and is primarily distributed by the Female Community Health Volunteers (FCHVs).
- In addition to distributing calcium, the ANC providers also performed PE/E screening—using blood pressure (BP) measurement and urine protein tests, using a dipstick—at all ANC visits. FCHVs were trained to promote ANC attendance and compliance with the recommended calcium regimen among pregnant women who received calcium during ANC.

Implementation Steps

A TAG was formed from the beginning to guide the testing of the service delivery model for future scale-up. This TAG was chaired by the Family Health Division (FHD) Director, and the Director General of the Department of Health Services (DOHS) was the advisor. Members of the group included the directors of the National Health Training Centre (NHTC); Logistics Management Division (LMD); National Health Education, Information and Communication Centre (NHEICC); Child Health Division (CHD); Department of Drug Administration (DDA); Nepal Health Research Council (NHRC); Paropakar Maternity and Women's Hospital; and other stakeholders (e.g., USAID, UNICEF, UNFPA, WHO, Nepal Health Sector Support Programme [NHSSP], Jhpiego). MCHIP carried out the following activities in consultation with the TAG:



- Developed a training package on calcium consisting of a health worker's manual, an FCHV manual, and reference materials
- Developed behavior change communication (BCC) materials, including a bag printed with calcium information, a brochure, posters with information on calcium, and two pages on the FCHV Birth Preparedness flip chart
- Developed monitoring and evaluation (M&E) tools for the pilot in line with the health management information system tools (specifically, a calcium register for use by ANC providers, a revised FCHV register, and compilation/reporting forms for the village health workers/maternal child health workers and at the health facility level)
- Purchased 16,500 bottles of calcium, in 2012, from Missionpharma India (USD 0.01/tablet or Nepali Rupees 0.65/tablet) and 10,000 bottles, in 2013, from Curex Pharmaceuticals Nepal (USD 0.016/tablet or Nepali Rupees 1.35/tablet)

- Organized a half-day orientation for district level stakeholders including the Chief District Administration Office, District Health Office, District Education Office, Local Development Office, district security officials, and existing partner agencies/nongovernmental organizations (NGOs)
- Supplied calcium and offered logistics support to all health facilities prior to facility level training
- Conducted district level training of trainers, and trained all the ANC health workers, both skilled and other (268) and FCHVs (810) in Dailekh district
- Covered (during the pilot) all Village Development Committees of Dailekh, including all government health facilities
- Conducted a meeting in November 2012, with participation from 119 health workers, to review the pilot and to discuss progress, any implementation bottlenecks, and next steps

Monitoring and Evaluation

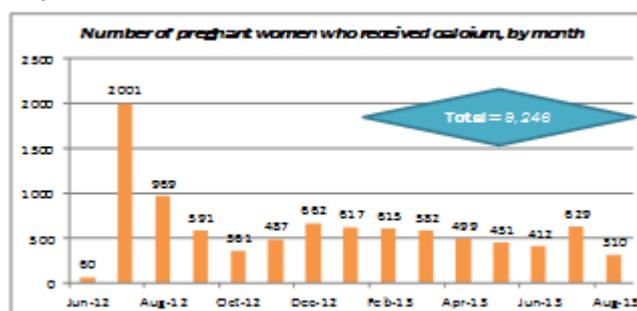
Primary and secondary data were collected to determine program results and challenges:

- As part of the program evaluation, the Population, Health and Development Group (PHDG), a local research agency, conducted post-intervention household interviews with recently delivered women to measure ANC coverage, calcium coverage, and compliance with the recommended calcium supplementation regimen. Interviews were also conducted with ANC workers and FCHVs at the end of the program.
- Monitoring data collected by MOHP staff during supervision visits to ANC health care workers and FCHVs were analyzed.
- Monitoring data collected by FCHVs during home visits and by ANC health workers during antenatal care visits were analyzed.

SUMMARY OF PROGRAM MONITORING DATA

- A total of 23,210 bottles (2,321,000 tablets) of calcium were distributed to 9,246 pregnant women from June 2012 to August 2013 (Figure 2). The number of women who received calcium exceeded the number anticipated at the beginning of the study, possibly because some women from neighboring districts came to Dailekh to participate in the calcium program. Also, the initial assumption about the number of calcium recipients was based on the Nepal

Figure 2: Distribution of calcium by month of program implementation



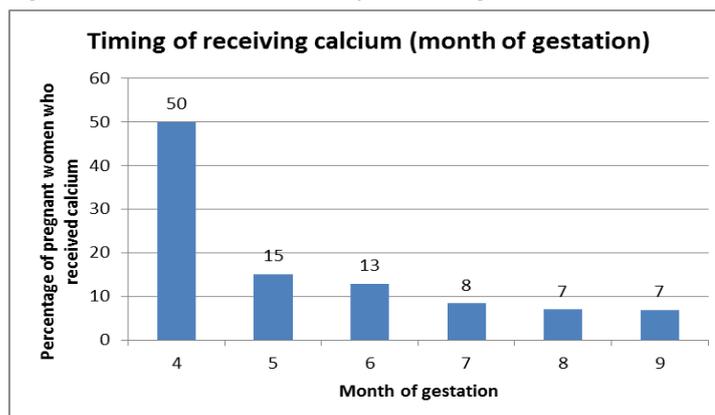
Demographic and Health Survey (NDHS) Mid-Western Region ANC attendance rate of 60%; however, in reality, ANC first visit coverage was nearly 100% in Dailekh.

- The District Health Office, with support from MCHIP, conducted technical support visits to health facilities and FCHVs.
- The Government of Nepal/Family Health Division (GON/FHD) and USAID/MCHIP made field trips from the national level to Dailekh for supervision and program monitoring.
- Half of the women who received calcium, received it at the fourth month of pregnancy, as desired; this number increased as the pilot progressed. However, in the first few months of the program, many women were already in the later months of their pregnancy when they received calcium.
- Data were collected analyzed, and shared in regular meetings with the FHD and TAG.

SCALE-UP PLAN AND SUSTAINABILITY

Leadership from the MOHP and the TAG, which was fundamental to help guide program implementation and monitoring, will be important in the future as well. The scale-up plan was discussed during the calcium TAG meeting held on November 21, 2013. The FHD has planned to scale up the program in two Terai districts in which PE/E caseload, number of pregnancies, and availability of partner agencies are high. To make this scale-up happen, the GON/FHD has requested support from concerned stakeholders.

Figure 3: Distribution of calcium by month of gestation



Data source: ANC calcium register

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