

# Screening for Hemoglobin Disorder Among the Pregnant by Combined Osmotic Fragility (OF) and Dichlorophenol-Indolephenol (DCIP) Tests: How About the Coverage Rate in Thailand?

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To the editor, Thailand is a tropical country with a reported high prevalence of inherited hemoglobin disorders. About 31.6% of the Thai present with abnormalities (homozygotes: heterozygotes about 1:10) (1). Screening for hemoglobin disorders among the pregnant became an important health policy of Thailand (1). Although homozygotes usually already have clinical symptoms, some are disguised with other endemic hematological disorders especially by iron deficiency anemia. Therefore, the aim of the screening program is to cover all pregnant women. Several trials on several screening methods for detection of hemoglobin disorders among Thai pregnant have been performed for years and the combined method between osmotic fragility (OF) and dichlorophenol-indolephenol (DCIP) is found to be the best choice giving good screening and cost effectiveness (1). The combined test is cheaper and required shorter data time performance test (0.5 US dollar, 5-10 minutes) compared to the standard hemoglobin electrophoresis (5 US dollar, 60-120 minutes) (2). It takes less than a week turnover time using the combined test to reach a plateau indicating a short period for the learning curve of this test (2). For a few years, as a health policy, the combined test has been launched in the rural hospital communities of Thailand, where the high prevalence of disorder is documented. However, systematical evaluation on the real usage of the combined test in the rural hospitals is needed. Here, the author has made an appraisal on the coverage of the program in Thai rural hospitals.

This work is designed as a descriptive study to accumulate the recent reports in the literature concerning the use of OF and DCIP-tests screening for antenatal clinics in rural communities according to the national program. The data collection was performed by literature search using Pubmed and Thai Index Medicus. According to this study, four complete reports (3-6) on the using of OF and DCIP tests screening for antenatal clinic in rural communities were recruited for further analysis. For all settings, the total number of pregnant subjects who visited the antenatal clinic is equal to 5633 cases of which only 5158 cases were enrolled in the combined screening program, giving a coverage rate of 91.6%. Although this rate is considerably high planning for reaching 100% coverage is necessary. Considering the impact of the screening, the total number of the detected cases from all settings is equal to 1299, about 25.2% of screened pregnant women.

The estimated number needed for screening to find one homozygous women and one heterozygous women are 44, 4 and 34 respectively.

Assuming that the chance for having the disorder is similar for all pregnancies, the expected number of affected cases in the 475 cases, which were not covered by the combined screening test, is estimated to be 110 cases or 2% of overall pregnant subjects in this study. This confirms the importance of the screening program and the necessity for setting of a plan to increase the coverage rate of screening. To increase the coverage rate, the health education for the pregnant to accept the usefulness of the screening program is recommended. In addition, the screening the spouse of the pregnant should also be encouraged and set as additional health policy.

## References

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**Table 1.** Reports on the using of OF and DCIP tests screening in Thailand

Authors	Number of pregnant subjects	Number of screenee
Charoenkul et al, 2004	4214	3739
Wanichagoon et al, 2002	300	300
Sangkitporn et al, 2004	863	863
Pansatiankul et al, 2003	256	256