

Chapter Six

Conclusions

The primary objective of this dissertation has been to explore the use of cervical cancer screening under the NHI in Taiwan. The main findings of the three essays contained within this dissertation are summarized as follows.

In the first essay (Chapter 3), it was found that there were significant variations in the factors affecting the utilization of Pap smear testing in the pre- and post-NHI implementation periods; indeed, it was not only women above the age of 30 years who were found to have a significant association with the utilization of Pap smear testing in the post-NHI implementation period (OR 2.39), but also those below the age of 30 years (OR 5.55).

However, since those women below the age of 30 years were not entitled to free screening under the NHI system, there were clearly other contributory factors, in addition to the NHI coverage, which would undoubtedly have played vital roles in the increased utilization rates for Pap smear screening. Nevertheless, we have also found that the coefficients of the interaction variables, South * NHI (OR 1.88, $p < 0.001$) and village/town * NHI (OR 1.99, $p < 0.001$), became significant and

positive for women above the age of 30 years, indicating that the introduction of the NHI system in Taiwan had some indirect effect, in terms of reducing the disparities in the utilization of Pap smear testing between different areas.

This study has revealed not only that the availability of free annual screening under the NHI system had a positive and significant impact on the utilization of Pap-smear screening by Taiwanese women, but also that the health promotions provided by the government authorities were of significant importance to the public. In order to significantly enhance the opportunities for women to receive Pap smear testing, and to improve the overall accessibility to such testing, the Taiwanese government focused its attention on strengthening educational activities for women and establishing a service network for Pap-smear screening (Public Health in Taiwan, 1997). Thus, as opposed to substituting each other, the relationships between the NHI and the promotion of public health by the government are complementary. The government authorities should therefore avoid reducing its efforts towards, or the funding for, the promotion of public healthcare, even under a universal health insurance system.

Through the application of a bivariate probit model, in the second essay (Chapter 4) it was demonstrated that urbanization levels had a significant impact on the utilization of Pap-smear testing. After adjusting for other factors, with the

exception of the two lowest urbanization levels, compared to the highest urbanization level (level 1), urbanization levels 2 to 6 had a significantly negative impact on cervical cancer screening. This implies that there are variations in the utilization of Pap-smear screening in Taiwan based upon levels of urbanization.

The healthcare authorities encouraged obstetric clinics and gynecological hospitals to contract with the government in order to balance the accessibility to cervical cancer screening in different areas. As a result, over 1,500 medical care institutions (more than 90 per cent of all such institutions) had entered into such contracts by 1997. The government authorities also introduced mobile testing stations to provide specimen collection services for those in the more remote regions, with the outcome being that the likelihood of the utilization of Pap-smear testing was raised significantly amongst those living in areas at the seventh and eighth levels of urbanization (the lowest levels).

In the last of the three essays (Chapter 5), the results of our two-stage econometric estimation model showed that after adjusting for other factors, women's healthcare information had a significantly positive effect ($p < 0.0001$) on the utilization of cervical cancer screening; that is, the more informed women were, in terms of the information and knowledge available to them on cervical cancer screening, the more likely they were to undergo Pap-smear testing.

We find that variations in the level of healthcare information are clearly an important contributory factor to the utilization of cervical cancer screening in Taiwan. Therefore, in addition to providing free screening under the NHI program, it is important for the healthcare authorities to place greater effort into strengthening the provision of knowledge and information on cervical cancer screening and Pap-smear testing for those who are currently less informed, so as to enhance the overall efficiency of the screening program.

In summary, the availability under the NHI program of free annual Pap-smear screening for women above the age of 30 years has clearly succeeded in reducing the disparities in the utilization of such screening, which implies that health insurance does play an important contributory role in the utilization of Pap-smear testing; this finding is supported by Carrasquillo and Pati (2004) and Rodriguez et al. (2005).

In order to further raise the utilization rates of Pap-smear testing, the healthcare authorities in Taiwan have not ceased in their efforts to promote numerous policy plans, including the construction of a service network for cervical cancer testing and the strengthening of the mass media for public education with regard to screening (Public Health in Taiwan, 1997). Of greater significance, however, was the government's success in encouraging more than 90 per cent of all obstetric clinics and gynecological hospitals to contract with the NHI program to

provide the free screening check-ups. As a result of the introduction of mobile testing stations in the more remote areas, significant improvements were also made in access to services in those regions at the lower levels of urbanization, thereby considerably enhancing the utilization of Pap-smear testing.

By applying such strategies under the NHI system, the utilization rate for Pap smear testing has risen significantly, from 10 per cent in 1995 to 32 per cent in 2003 (Health Statistics, 2004). Nevertheless, the screening utilization rate still remains at a much lower level than in most of the developed countries, where the average rate stands at approximately 70-80 per cent (Guzick, 1978). This clearly indicates the need for the government authorities to continue to exploit other appropriate plans aimed at increasing the utilization rate for cervical cancer screening.

The health authorities should, for example, place greater effort into effectively increasing the amount of information and knowledge available to women so as to raise their awareness of the importance of Pap-smear screening in the prevention of cervical cancer, particularly amongst those who are currently less informed. Most importantly, in addition to the free screening provided by the NHI system and the elimination of the barriers to access in the more remote zones, greater effort aimed at strengthening the availability of knowledge and information for those who are currently less informed will undoubtedly prove to be an important factor in raising

the utilization level of Pap-smear screening to new highs.

Beginning in November 1996, a TV public announcement campaign reported that “Pap-smear testing takes only six minutes of your time, and yet protects your whole life”; however, there are still many less-informed women continuing to ignore the importance of receiving Pap-smear testing. Therefore, further enhancement of the recognition of the danger of cervical cancer and the availability of Pap-smear testing is important to any strategy aimed at achieving a higher utilization rate for Pap-smear screening check-ups.

Nevertheless, the lower screening rate within this Chinese culture may result from embarrassment amongst Taiwanese women with regard to taking the test, particularly where the physician carrying out the test is male. In order to overcome such embarrassment and promote the better utilization of screening check-ups, the healthcare authorities should perhaps try to arrange for female physicians to undertake the screening tests. Finally, an important direction for the future would clearly be to try to promote ‘personal sampling’ for collection at home.