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PRESCRIPTIONS

POLICY BRIEF

Cost Utility Analysis of Colorectal Cancer in the Philippines

POLICY LESSONS

PhilHealth may introduce a benefit package for outpatient screening of colorectal cancer as any screening modality is cost effective.

G-FOBT and FIT, both followed by colonoscopy, are the cheapest strategies for PhilHealth. Further analysis (i.e. a costing study) should be done on what the optimum cost of the benefit package is given that costs of tests widely vary among facilities.

Between gFOBT and FIT, the latter is recommended to be included in any screening program that may be developed for colorectal cancer for several reasons; it is specific for human blood (as compared to g-FOBT, which returns positive results when the patient ingests red meat), it leads to an increase in QALYs, and its testing convenience (patients may take it home similar to a pregnancy test, whereas g-FOBT requires 3 stool samples and multiple visits to the health facility).

INTRODUCTION

The Philippine Health Insurance Corporation (PhilHealth) requested the implementing agency to conduct a cost-utility analysis (CUA) and budget impact analysis (BIA) of colorectal cancer (CRC) screening in order to determine the feasibility of offering a screening benefit package that may complement the existing Z Benefits Package for CRC treatment.

METHODS

A discrete event microsimulation model was used to simulate four screening modalities, (1) Guaiac-Fecal occult blood test (gFOBT) followed by colonoscopy every 10 years, (2) fecal immunochemical test (FIT) followed by colonoscopy every 10 years, fecal immunological test followed by flexible sigmoidoscopy and colonoscopy screening every 10 years. These interventions were all compared to no screening. Parameter values were taken from a rapid review of literature and primary data collection in a nationally-representative sample of tertiary hospitals.

RESULTS

All screening modalities were more effective (i.e. more QALYs gained) than no screening, and both FS every 5 years + colonoscopy every ten years and pure colonoscopy every 10 years were found to be more expensive than no screening. GFOBT + colonoscopy every 10 years was dominant, meaning it was cost-saving, with more QALYs gained for less cost. Following the recommendation of World Health Organization – Choosing Interventions that are Cost-Effective (WHO-CHOICE), the ICERs of all screening modalities except for FS every 5 years + colonoscopy every ten years fall below the threshold for cost-effectiveness of thrice the gross domestic product (GDP) per capita and the national annual GDP per capita as the threshold for being “very cost-effective”.

While three of the four modalities are cost-effective, the budget impact of gFOBT + colonoscopy every 10 years and FIT + colonoscopy every 10 years, assuming modest compliance rates, are much lower compared to colonoscopy every 10 years and FS every 5 years followed by colonoscopy. GFOBT + colonoscopy every 10 years and FIT + colonoscopy every 10 years cost around PHP 250M to 350M to implement.

A quarter of those costs go to those who need a follow-up colonoscopy. Colonoscopy is expensive in the Philippines, thus a purely colonoscopy screening program will cost PHP 2.3B. FS is also expensive as FS every 5 years + colonoscopy every 10 years is expected to cost PHP 1.6B.

CONCLUSION

PhilHealth may introduce a benefit package for outpatient screening of colorectal cancer using the screening modality of Annual FIT + colonoscopy. As seen from our results, FIT is the next best cost-effective screening modality having an ICER of 6,024.66, which is well below the WHO-recommended threshold of the country’s GDP per capita. This strategy has a budget impact of Php 350M in the first year assuming low compliance but the budget can be as high as Php 1B for the first year assuming moderate compliance.

Further analysis (i.e. a costing study) should be done on what the optimum cost of the benefit package is given that costs of tests widely vary among facilities. Identifying the optimum cost that is affordable for PhilHealth may reduce the budget impact.

Researchers would like to note that from the DES model, results have shown that gFOBT + colonoscopy is the most cost-effective strategy, however the strategy FIT + colonoscopy is recommended for a number of reasons: 1) it would lead to an increase in QALYs compared to gFOBT; 2) FIT being a more accurate screening strategy than gFOBT; 3) gFOBT may be likely inconvenient to patients given that 3 samples need to be provided and lastly; 4) gFOBT may incur additional transportation costs (which was not accounted for in this study) due to the number of samples to be provided by the patient.

RECOMMENDATIONS

Three types of recommendations were made based on the findings of this study: for research, for policy, and for action. Recommendation for research are factors that can be explored by researchers who may delve into future studies related to Colorectal Cancer. It is very important to explore knowledge about the disease relevant to the Philippine context in terms of quantity and quality. Policy recommendations are guidelines for policy and decision makers to improve or make necessary policy adjustments based on the finding of this study. Recommendations for action are for hospitals stakeholders should PhilHealth and DOH pursue the implementation of a national screening program for colorectal cancer.

Research Recommendations

1. Local Epidemiology. The Philippines has very little data available for the disease in question. Updated local epidemiology is needed to accurately estimate the economic burden of the disease. Future research related to local epidemiology of colorectal cancer are encouraged to improve the volume, significance, and relevance of knowledge about colorectal cancer in Philippine context. Specific risk factors, incidence and prevalence need to be established and updated to determine the appropriate interventions.

2. Patients with CRC Family History. Early diagnosis will be beneficial for individuals with a family history of CRC. Although this study intended to document the health seeking behavior of high risk individuals, the lack of information and access to patient-level data became a challenge. Future research may explore the provision of a more accurate recommended screening age for high risk individuals. Future research may also develop local parameters to calculate transition probabilities from one state of health to another.

3. Sampling. This study is limited to tertiary private and public hospitals. Future research may explore Level 2 Hospitals. The only difference between level 2 and level 3 hospitals is the presence of a teaching component.

4. Health Systems for Colorectal Cancer Management. Future research may also explore the variation of health systems established in health care institutions across the country. Clinical guidelines and costings vary among the participating HCIs across the country. It is also encouraged to document colorectal cancer management in hospitals with established cancer care centers such as: 1. UP-Philippine General Hospital 2. The Medical City 3. St. Luke's Medical Center 4. East Avenue Medical Center 5. Jose Reyes Medical Center 6. Rizal Medical Center 7. UST Hospital

Policy Recommendations

1. Screening Program and Gatekeeping in Primary Care. PhilHealth may introduce a benefit package for outpatient screening of colorectal cancer with FIT as a screening method followed by colonoscopy. However, in order for patients to avail of PhilHealth's existing ambulatory case rate for colonoscopy, there must be gatekeeping in primary care facilities such that patients will only be able to proceed if they test positive for FIT.

2. Uniform recording of colorectal cancer cases in the Philippines. One of the data collection blocks of this study is the lack of cancer documentation in some health care institutions. It is important to establish a system that will ensure recording of local cancer incidence and prevalence. These hospitals reported the absence of a system to document cancer patients' information such as health seeking behavior, cancer stage, and frequency. More information will be important in policy making and economic evaluation of health interventions.

Inclusion of some prescribed CRC Drugs in the PNF. This study found out that some CRC prescribed drugs were not part of the Philippine National Formulary (PNF). The **Formulary Executive Council (FEC)** may consider including the following CRC drugs:

- 5-Fluorouracil (50 mg/mL, 5mL vial)
- Bevacizumab (25mg/mL, 4mL vial)
- Bevacizumab (25mg/mL, 16 mL vial)
- Cetuximab (5mg/mL, 20mL vial)
- Oxaliplatin (5mg/mL, 10mL vial)
- Oxaliplatin (5mg/mL, 20mL vial)

Action Recommendations

Should DOH and PhilHealth lean towards implementing a national screening program for CRC using FIT with colonoscopy, the screening modality must be available across the country. Based on the results of the study, FIT is available in only 23 (43.3%) facilities out of the 61 facilities facilities surveyed.

Original Research

Wong, J., Co, S., Bagas, J., Reyes, M., Cortez, J., Lim, H., and Haw, N. (2018) *Cost-Utility Analysis of Colorectal Cancer Screening in the Philippines*. Makati City: EpiMetrics, Inc.

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