



# The Budget Impact of Itopride in the Treatment of Functional Dyspepsia in Vietnam

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## Research Article

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## Abstract

**Introduction:** An estimated 7.8-22.4 million Vietnamese suffer from functional dyspepsia. Prokinetic agents, such as itopride, target this group of patients by enhancing gastric motility through amplifying and coordinating gastrointestinal muscle contractions. Itopride is currently reimbursed in public hospitals at Vietnam Central level hospitals (level 1) and provincial level hospitals (level 2) for the treatment of functional dyspepsia. This study analyses the financial impact of expanding the access of itopride for patients with functional dyspepsia to include level 3 (District level) hospitals + level 4 (Commune health stations) hospitals in Vietnam.

**Methods:** A budget impact model was developed in accordance with the good practice guidelines from the International Society for Pharmacoeconomics and Outcomes Research. The model included both drug costs and healthcare resource utilisation costs.

**Results:** The broadening of the reimbursement of itopride to include level 3+4 hospitals was estimated to provide benefit for between 13.7% (105,923) to 24.6% (89,343) more patients at only 3.3% (VND 41,742M) to 4.2% (VND 74,617M) additional costs over five years.

**Conclusion:** Itopride is deemed to represent great benefit for patients suffering from functional dyspepsia in Vietnam.

**Keywords:** Itopride; Treatment; Functional Dyspepsia

## Abbreviations

FGID's: Functional Gastro-Intestinal Disorders; FD-GERD: FD with Gastroesophageal Reflux Disease; EPS-IBS: Epigastric Pain Syndrome with Irritable Bowel Syndrome; PDS: Postprandial Distress Syndrome; BBB: Blood Brain Barrier; DAV: Drug Administration of Vietnam; ISPOR: International

Society for Pharmacoeconomics and Outcomes Research.

## Introduction

Functional Dyspepsia is a common upper gastrointestinal condition which commonly presents as postprandial fullness (post meal), early satiation, epigastric pain, and/or epigastric



burning [1]. Functional dyspepsia is part of a wider group of Functional Gastro-Intestinal Disorders (FGID's) which are often unexplained in pathogenesis. Diagnosis can be lengthy as the symptoms often overlap with other gastrointestinal conditions. Thankfully, the presence of functional dyspepsia is not associated with increase in mortality [2].

The diagnosis of functional dyspepsia is defined by the detailed 'ROME diagnostic criteria' (An Internationally established criteria developed by experts in the field of gastroenterology). The ROME criteria is now in its 4th iteration: ROME IV definition states that functional dyspepsia have at least one of four the following symptoms: 1) Postprandial fullness; 2) Early Satiety; 3) Epigastric pain; 4) Epigastric burning; and no underlying organic disease [3].

Several factors can affect prevalence from age, gender, ethnicity, smoking status, alcohol consumption, and dietary factors [4]. Modifiable risk factors encompass severe stress, chronic fatigue, smoking, abnormal BMI, and sleep patterns, while non-modifiable risk factors include advanced age, chronic diseases, and female sex [5].

The prevalence of functional dyspepsia globally is variable and has been difficult to determine due evolving definitions used in older literature. Also, the elimination of organic disease in selection of patients for clinical trials poses an inherent challenge for most population-based studies [4,6].

In a 2024 systematic review and meta-analysis by Lee et al., it was found that the global prevalence of functional dyspepsia varied from 11.9% according to the Rome I criteria to 6.8% according to the Rome IV criteria from 1990 to 2020 [7]. The results were consistent with the Rome Foundation Global Study, showing that women consistently had a significantly higher prevalence than men, and that the prevalence was higher in the 18-39 age group (9.2%) [8]. The prevalence of functional dyspepsia is higher in developing or low-and middle-income countries compared to developed or high-income countries [5,7].

The 2012 Asian Consensus report on Functional Dyspepsia has suggested that the presentation of sub-types of functional dyspepsia in Asian populations differ to those in to the West [9]. With East and South-East Asian countries, patients predominantly experience Postprandial fullness symptoms more so than the epigastric pain [9]. Two large clinical trials based on endoscopy examination of patient with dyspepsia using the ROME III diagnosis criteria demonstrate the two sperate sub conditions affecting Caucasian and East Asian populations: One trial by Ford et al 2014 based in Canada with mostly white Caucasian patients and the other by Fang et al 2014 based in Taiwan with all ethnic Chinese

patients. The Taiwanese study showed 71.9% of patients had the PDS sub-type, and Canadian study showed 40.8% had PDS sub-type and 41.2% with overlap of EPS and PDS [10,11].

Functional dyspepsia is treated with multiple agents and varying success. The treatment of Functional Dyspepsia differs in various regions. In Western countries, such as the USA and Western Europe, acid suppression with proton pump inhibition (and or Histamine-2 receptor antagonists) is the established first-line treatment [1]. Thereafter, tricyclic anti-depressants are 2nd line treatments and prokinetics are 3rd line treatments [12].

In East and South-East Asia, both acid suppression therapy and prokinetics are established 1st line treatments. The 2012 Asian consensus report on functional dyspepsia Miwa H, et al. [9] deemed prokinetics to be a first treatment for the PDS subtype, and second-line treatment for EPS. In countries such as China and South Korea, Prokinetics are often mainstay therapy recommended for patients with PDS symptoms [13].

According to the 2023 Asia-Pacific guideline by the Asian Pacific Association of Gastroenterology, the majority of functional dyspepsia patients have an overlapping disorder that is associated with overlap conditions in the Asia-Pacific, such as FD with gastroesophageal reflux disease (FD-GERD), epigastric pain syndrome with irritable bowel syndrome (EPS-IBS), postprandial distress syndrome with IBS (PDS-IBS), and FD-Constipation. The recommended treatment for FD-GERD involves dual histamine H1/H2 receptor blockade, antisecretory agents, neuromodulators, and fundic relaxants. For EPS-IBS, anti-spasmodic agents, tricyclic agents, and dual histamine blockade are typically used. In the case of PDS-IBS, treatment may include prokinetic agents, a low FODMAPs diet, Rifaximin, and herbal medicine. Fecal evacuants, Pan-GI prokinetic agents, and reducing methane production in the gut are common approaches for managing FD-constipation [14].

Due to its' disease nature being that it is often chronic and recurring in disease course. Research estimates only 20% of patients with functional dyspepsia become symptom free in the long-term [15,16]. A significant proportion of patients with functional dyspepsia have abnormalities in gastric motility and fundal accommodation. Prokinetic agents target this group of patients by enhancing gastric motility through amplifying and coordinating gastrointestinal muscle contractions [17]. These agents include itopride, mosapride, domperidone, and so forth. In a systematic review and meta-analysis conducted by Pittayanon, et al. [17] reviewed 29 trials which included 6 prokinetic agents showed moderate effectiveness against placebo (overall global symptom improvement 40% vs placebo 26%) [18].

Itopride works by blocking Dopamine (D2) receptors and inhibiting acetylcholinesterase. This reverses the inhibition of gastric motility caused by dopamine receptors and enhances postprandial gastric motility. Itopride's benefit over other prokinetics is its' favourable adverse effect profile. It does not cross the blood brain barrier (BBB), and thus does not prolong QT interval or serious cardiac events unlike metoclopramide, and domperidone.

It is estimated that there are between 7.8 and 22.4 million Vietnamese people to with functional dyspepsia [6]. Vietnam has one of the highest rates of *Helicobacter pylori* (*H. pylori*) infection and related gastrointestinal diseases among Southeast Asian countries. A study conducted by Quach in 2022 found a higher occurrence of functional dyspepsia coexisting with gastroesophageal reflux disease (GERD) in Vietnamese patients, with postprandial distress syndrome being notably prevalent [19].

Vietnam like many other developing South-East Asian countries, most of the health care provided is through public hospitals. There are four levels of public hospitals in Vietnam Central level hospitals (level 1), Provincial level hospitals (level 2), District level hospitals (Level 3) and

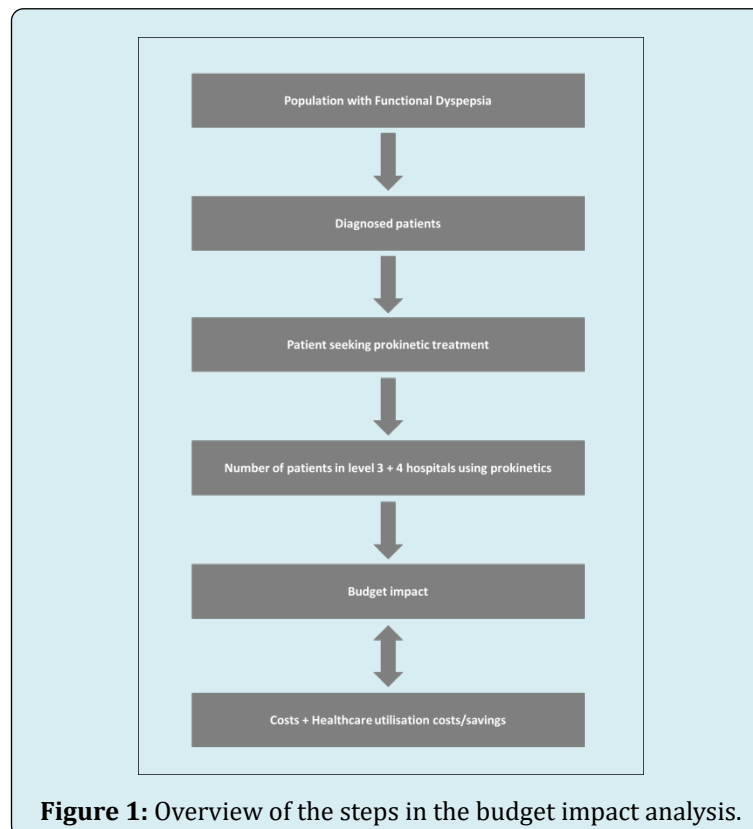
Commune health stations (level 4) [20]. Itopride is current reimbursed the only prokinetic reimbursed for the treatment of functional dyspepsia in a hospital setting in Vietnam. However, the reimbursement is only for level 1+2 hospitals. In level 3+4 hospitals patients are receiving domperidone instead to alleviate the symptoms of functional dyspepsia, though domperidone does not have formal approval from the Drug Administration of Vietnam (DAV) for the treatment of functional dyspepsia.

This study analyses the financial impact of expanding the access to itopride for patients with functional dyspepsia to include level 3+4 hospitals in Vietnam.

## Methodology

### Number of people Receiving Prokinetics in Vietnam

A budget impact model was developed in Microsoft Excel in accordance with the good practice guidelines from the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) [21]. The different steps of the budget impact model are displayed in Figure 1.

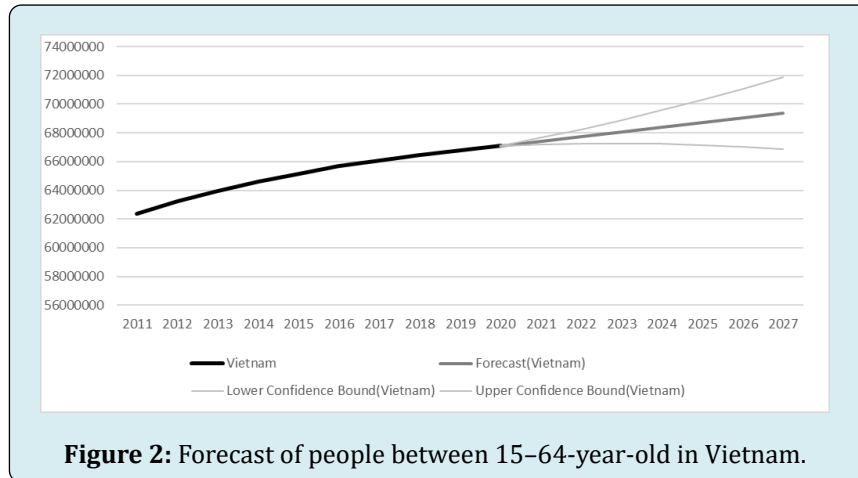


The model time frame was 5-years starting in 2023 and ending in 2027, and the perspective was from the health care

payer in Vietnam. It was assumed that Vietnamese people from the age 15-64 would be the primary group to access

itopride in level 3+4 hospitals in Vietnam. This population grew from 62.4M in 2011 to 67.1M in 2020 according to the

World Bank [22]. This is estimated to further increase from 68, 1M in 2023 to 69,4M in 2027 (Figure 2).



Ghoshal et al. estimated that 8%-23% of Asian people suffer from functional dyspepsia Ghoshal UC, et al [6] hence the midpoint of 15% was chosen for this model. Of these it is estimated that 13.29% are un-investigated for functional dyspepsia [6]. Of the remaining 86.71% (=100% - 13.29%)

the proportion of people diagnosed with functional dyspepsia is estimated to be 55.04% based on 8 studies [6,23-27]. This was calculated by weighting each study with number of patients in the study divided by the total number of studies of all the studies (Table 1).

Diagnosed	N	Proportion diagnosed	Weighted proportion
Li 2005 (23)	782	69%	4.99%
Kwan 2003 (24)	1353	43%	5.38%
Kawamura 2001 (25)	263	13%	0.32%
Kim 2004 (26)	476	70%	3.08%
Ji 2003 (27)	274	41%	1.03%
Noh 2010 (28)	2388	8%	1.79%
Mahadeva 2008 (29)	210	62%	1.20%
Wai 2002 (30)	5066	80%	37.25%
Total	10812		55.04%

**Table 1:** Estimated proportion of people diagnosed with functional dyspepsia.

There was no information in the literature with respect to the proportion of diagnosed patients receiving prokinetic treatment and an assumption was made that this was 30%. This assumption will be tested in scenario analysis.

A report by the World Bank estimates that 80% of the Vietnamese population is serviced by level 1+2 hospitals [28-31]. The proportion of people serviced at level 3+4 hospitals was therefore assumed to be the residual 20%.

### Use and cost of the Proposed Drug

The market share of itopride and domperidone in Vietnamese level 1+2 hospitals was estimated using IQVIA

market data 2021 (data on file). The market share split was 74.9% for domperidone (Motilium-M) and 25.1% for Itopride (Ganaton).

The annual drug costs of itopride 50mg are based on the assumption that a patient in a one-year cycle takes one capsule three times per day for 4-week course. The price of one pack containing 20 tablets of 50mg each is VND 105,520. This equates to VND 5,276/tablet. The recommended dose is 3 tablets of 50mg per day and therefore the cost of a 4-week course is estimated to be VND 443,184.

The annual drug costs of domperidone 10mg are based on the assumption that a takes one tablet three times per

day for a 4-week course. A pack of domperidone contains 100 tablets and a pack costs VND 181,400. This means that 4-weeks of treatment with domperidone costs:  $(\text{VND } 181,400/100) \times (3 \times 4 \times 28) = \text{VND } 152,376$ .

The costs of itopride and domperidone were obtained from the Vietnamese Ministry of Health website [32].

### Changes in Use and Costs of other Medical Services

The model assumes patients who are symptom-free will require less healthcare service utilization. This assumption is based off a systematic review and meta-analysis by

Pittayanon, et al. [17]. Itopride showed significantly lower post-treatment symptom scores, compared to placebo with a relative risk of 0.70 for risk of not being symptom free.

The type of medical services utilized related to functional dyspepsia was based on the information provided by Chuah, et al. [32], a paper on the utilization of healthcare services by patients with functional dyspepsia in Malaysia. These services included endoscopy, colonoscopy, gastrointestinal imaging, and unscheduled general practitioner/emergency department/hospital visits. Number of services per patient per year are displayed in Table 2.

Service	Services per 5 years (Chuah 2020)	Number of services per patient per year
Endoscopy	445	0.201
Colonoscopy	328	0.148
GI imaging	213	0.096
Unscheduled GP/ED/Hospitalisation visits	229	0.104

**Table 2:** Health services per patient per year.

The costs of medical services utilised as follows endoscopy from Quach, et al. [33]. We assumed the cost of colonoscopy to be the same as endoscopy. Cost of GI imaging was taken from Nguyen, et al. a cohort study of out-of-pocket costs associated with hospitalised injuries in Vietnam. Lastly,

the cost of hospitalisation/GP visits/ED visits was from a KOL survey provided by Abbott. The cost per patient per year was calculated by multiplying the cost of each service with the projected number of services per patient per year (Table 3).

Service	Cost per service	Total costs per patient per year
Endoscopy	VND 785,000	VND 158,066
Colonoscopy	VND 785,000	VND 116,507
GI imaging	VND 300,000	VND 28,914
Unscheduled GP/ED/Hospitalisation visits	VND 230,000	VND 23,833

**Table 3:** Cost of health services.

### Scenario Analysis

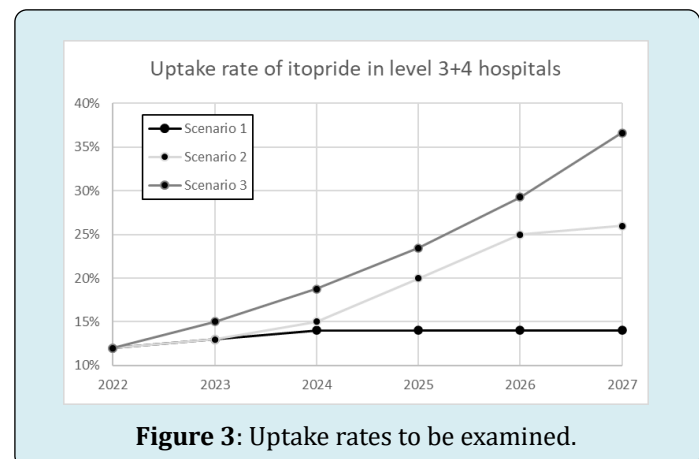
The implication for the payer is assessed by analysing different scenarios (Figure 3). The scenarios are:

**Current scenario:** itopride not reimbursed for level 3+4 hospitals.

**Alternative scenario 1:** itopride reimbursed for level 3+4 hospitals and a flat market uptake (base case).

**Alternative scenario 2:** itopride reimbursed for level 3+4 hospitals and a somewhat liberal market uptake.

**Alternative scenario 3:** itopride reimbursed for level 3+4 hospitals and high/increasing market uptake.



**Figure 3:** Uptake rates to be examined.

Sensitivity analyses are performed by varying the variables described above by +/- 25%.

## Results

### Current Scenario

It is estimated that there are 760,238 patients who qualify for prokinetic treatment in 2023. This is set to

increase to 774,666 in 2027. Of the 576,630 who qualify for prokinetic treatment 151,931 is estimated to receive itopride and 453,373 domperidone in level 1+2 hospitals. A total of 151,326 untreated patients are estimated to be seen in level 3+4 hospitals (Table 4).

Patient numbers	2023	2024	2025	2026	2027
Base population	68,074,158	68,397,146	68,720,135	69,043,124	69,366,112
Prevalence	10,211,124	10,259,572	10,308,020	10,356,469	10,404,917
Un-investigated	1,356,842	1,363,279	1,369,717	1,376,155	1,382,593
Patients investigated	8,854,282	8,896,292	8,938,303	8,980,314	9,022,324
Diagnosed	4,873,318	4,896,440	4,919,562	4,942,684	4,965,806
Patients seeking treatment	2,534,125	2,546,149	2,558,172	2,570,196	2,582,219
Patients qualifying for prokinetic treatment	760,238	763,845	767,452	771,059	774,666
Level 1+2 hospitals					
Domperidone	455,534	457,696	459,857	462,018	464,180
Itopride	152,656	153,380	154,104	154,829	155,553
Level 3+4 hospitals					
Untreated patients	152,048	152,769	153,490	154,212	154,933
Domperidone	-	-	-	-	-
Itopride	-	-	-	-	-

**Table 4:** Current scenario: Patient numbers.

It is estimated that a total of 770,521 patients are going to be treated with itopride over the 5-year period from 2023 to 2027.

Current estimated drug costs are estimated to be VND 136,416,724,554 in 2022 which will rise to VND

139,668,405,925 in 2027. Of these the current amount of funds spent on itopride is VND 67,333,564,284 which amounts to approximately 49% of the total drug costs. Over the 5-year period from 2023 to 2027 the total cost of itopride is estimated to be VND 341,482,787,465. Costs by year is reported in Table 5.

Drug costs (VND)	2023	2024	2025	2026	2027
Level 1+2 hospitals					
Domperidone	69,412M	69,742M	70,071M	70,401M	70,730M
Itopride	67,655M	67,976M	68,297M	68,618M	68,939M
Level 3+4 hospitals					
Domperidone	-	-	-	-	-
Itopride	-	-	-	-	-
Total costs	137,067M	137,717M	138,368M	139,018M	139,668M

**Table 5:** Current scenario: Drugs costs.



The cost of health resources is estimated to be VND 218,979M in 2023 which is set to increase to VND 223,135M in 2027. Itopride treated patients account for less than 20%

of the estimated health resource costs with VND 42,272M in 2023 and VND 43,278M in 2027 see Table 6 for further details.

Health resource costs (VND)	2023	2024	2025	2026	2027
Level 1+2 hospitals					
Domperidone	126,739M	127,341M	127,942M	128,543M	129,145M
Itopride	42,472M	42,674M	42,875M	43,077M	43,278M
Level 3+4 hospitals					
Untreated patients	49,768M	50,004M	50,240M	50,476M	50,716M
Domperidone	-	-	-	-	-
Itopride	-	-	-	-	-
Total costs	218,979M	220,018M	221,057M	222,096M	223,135M

**Table 6:** Current scenario: Health resource costs.

Total current costs for the treatment of functional dyspepsia in level 1+2 as well as level 3+4 hospitals is

estimated to be VND 356,046M in 2023 and VND 362,804M in 2027 (Table 7).

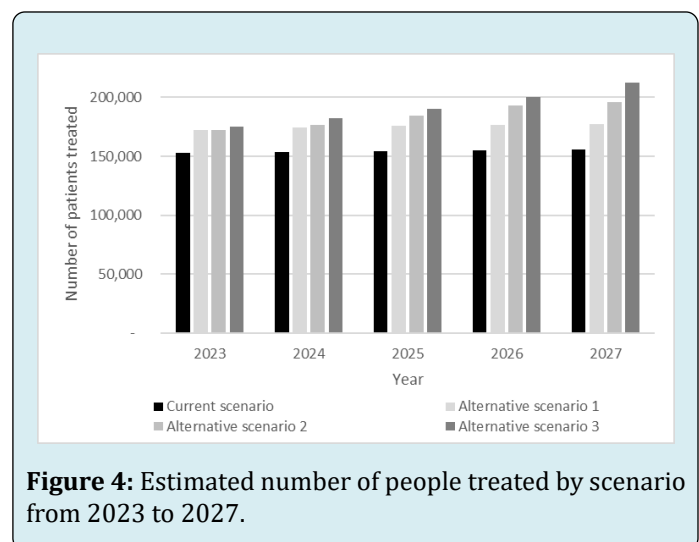
Total budget (VND)	2023	2024	2025	2026	2027
Level 1+2 hospitals					
Drugs costs	137,067M	137,717M	138,368M	139,018M	139,668M
Health resource costs	169,211M	170,014M	170,817M	171,620M	172,423M
Level 3+4 hospitals					
Drugs costs	-	-	-	-	-
Health resource costs	49,768M	50,004M	50,240M	50,476M	50,716M
Total costs	356,046M	357,736M	359,425M	361,114M	362,804M

**Table 7:** Current scenario: Total costs.

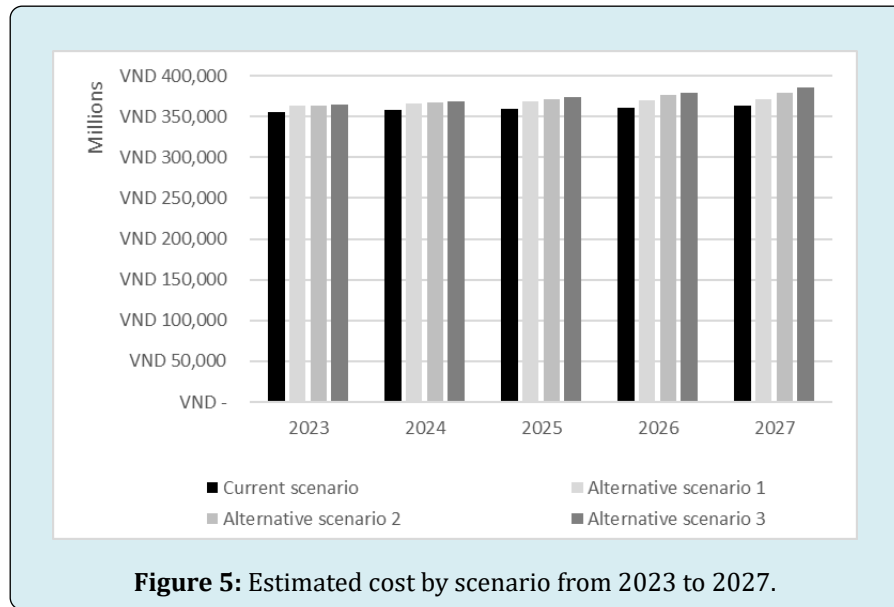
## Financial Implications of the Alternative Scenarios

The financial implications with each alternative scenario can be found in (Table 1).

Number patients over time by scenario is depicted in Figure 4. Alternative scenario 1 will result in an increase of 13.7% patients over the 5-year period however, the increase in spending is only 2.3%. Similarly for alternative scenarios 2 and 3: increase in itopride use is 19.8% to 24.6% with spend only increasing 3.3% to 4.2%. The net costs are estimated to be between VND 363,836M (Alternative scenario 1) and VND 365,034M (Alternative scenario 3) in 2023, gradually growing to VND 371,351M (Alternative scenario 1) and VND 385,163M (Alternative scenario 3) in 2027 (Figure 5).



**Figure 4:** Estimated number of people treated by scenario from 2023 to 2027.



### Alternative Scenario 1

In alternative scenario 1 the update take of itopride is assumed to only rise slightly from 13% in 2023 to 14% in 2027. A total of 19,766 patients are estimated to be treated with itopride in 2023 in level 3+4 hospitals. This number is projected to increase to 21,691 in 2027. The estimated drug costs in alternative scenario 1 are estimated to be VND 145,827M in 2023 which will rise to VND 149,281M in 2027. Of these the funds spent on itopride is VND 76,415M in 2023 and VND 78,551M in 2027 which amounts to 52%-53% of the total drug costs. Over the 5-year period from 2023 to 2027 the total cost of itopride is estimated to be VND 463,807M. The cost of health resources is estimated to be VND 218,009M in 2023 which is set to increase to VND 222,070M in 2027. Itopride treated patients account for 22% of the estimated health resource costs with VND 47,971M in 2023 and VND 49,313M in 2027.

### Alternative Scenario 2

In alternative scenario 2 the update take of itopride is assumed to grow from 13% in 2023 to 26% in 2027. A total of 19,766 patients are estimated to be treated with itopride in 2023 in level 3+4 hospitals. This number is projected to increase to 40,283 in 2027. The estimated drug costs in alternative scenario 2 are estimated to be VND 145,827M in 2023 which will rise to VND 157,521M in 2027. Of these the funds spent on itopride is VND 86,791M in 2023 which amounts to 55% of the total drug costs. Over the 5-year period from 2023 to 2027 the total cost of itopride is estimated to be VND 484,324M. The cost of health resources is estimated to be VND 218,009M in 2023 which is set to increase to VND 221,158M in 2027. Itopride treated patients account for

22%-25% of the estimated health resource costs with VND 47,971M in 2023 and VND 54,486M in 2027.

### Alternative Scenario 3

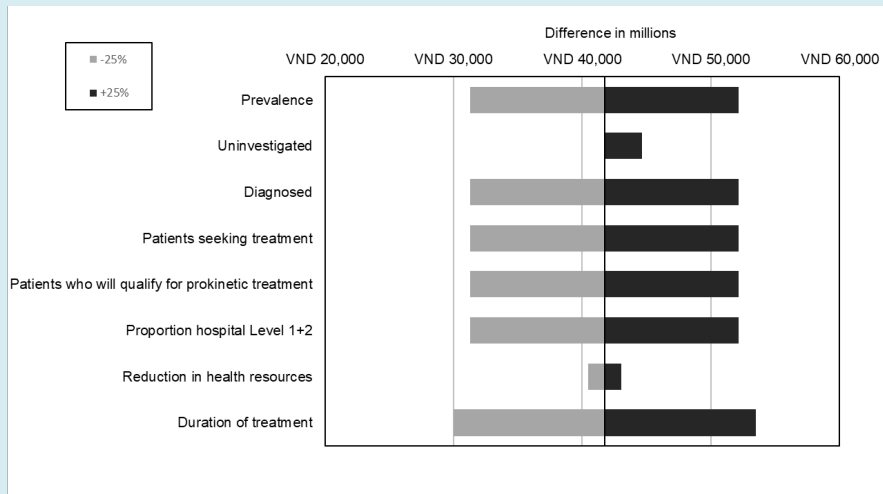
In alternative scenario 3 the update take of itopride is assumed to grow from 13% in 2022 to 37% in 2027. A total of 19,766 patients are estimated to be treated with itopride in 2023 in level 3+4 hospitals. This number is projected to increase to 56,738 in 2027. The estimated drug costs in alternative scenario 3 are estimated to be VND 145,827M in 2023 which will rise to VND 164,814M in 2027. Of these the funds spent on itopride is VND 94,084M which amounts to 57% of the total drug costs. Over the 5-year period from 2023 to 2027 the total cost of itopride is estimated to be VND 500,778M. The cost of health resources is estimated to be VND 218,009M in 2023 which is set to increase to VND 220,350M in 2027. Itopride treated patients account for 27% of the estimated health resource costs with VND 59,069M in 2027.

### Sensitivity Analysis

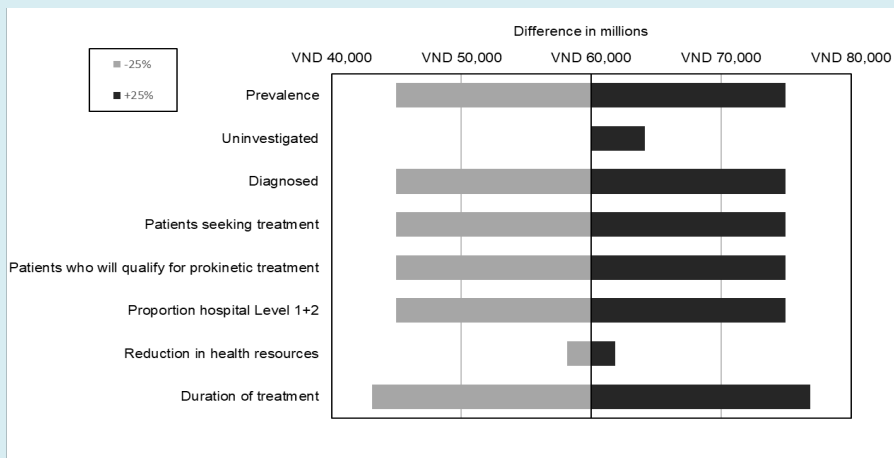
The sensitivity analysis showed that duration of treatment and variables that influence the final number of patients who receive prokinetic treatment are the main drivers of the financial impact. The difference ranges from VND 30,006M to VND 53,479M for alternative scenario 1, from VND 43,121M to VND 76,851M for alternative scenario 2 and from VND 53,639M to VND 95,596M for alternative scenario 3 (Figure 6).



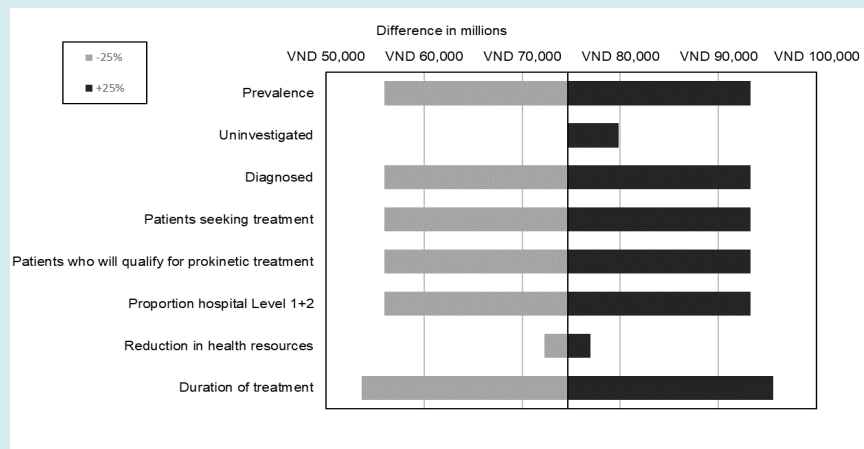
a) Alternative scenario 1



b) Alternative scenario 2



c) Alternative scenario 3



**Figure 6:** Tornado plot for sensitivity analyses.  
 a) Alternative scenario 1 b) Alternative scenario 2 c) Alternative scenario 3

## Discussion

This analysis examined the potential budgetary impact of expanding access to for level 3+4 hospitals in Vietnam. The model included both drug costs and healthcare resource utilization costs. In the base case scenario model, it assumes the base population (itopride not reimbursed for level 3+4 hospitals) treated with itopride to be 779,000. The base case cumulative net spend on Itopride is estimated to be VND 1,797,125M over 5 years.

Three alternative scenario analyses were undertaken using the model and these were 1) flat market uptake, 2) liberal market uptake, and 3) high/increasing market uptake. All three scenarios demonstrate a net budget impact range from VND 41,743M to VND 74,617M cumulative net spend on itopride (2.3% to 4.2% increase drug cost spend) over 5 years. This is considering both the drug costs of itopride and direct medical costs from the Vietnamese government payer perspective. Assuming the high market uptake scenario would only result in a 4.2% increase in overall net spend, and an increase of access treatment to an additional 195,023 patients cumulative over 5 years. Thus, within the context of Vietnamese healthcare budget, this investment would allow more patients to gain access to an efficacious treatment for functional dyspepsia who are mostly in more improvised and rural areas of Vietnam (level 3+4 hospitals).

There are different limitations related to this study. The analyses relied upon several assumptions as well as data availability. Key inputs such as prevalence of functional dyspepsia in Vietnam and proportion of patients treated for functional dyspepsia in Vietnam were based on values reported in non-Vietnamese settings and published clinical trials, many of which were conducted as multinational studies. Another limitation is that clinical inputs specific to the population of patients suffering from functional dyspepsia do not presently exist. However, while data gaps preclude investigating possible implications, this limitation is not expected to bias the results of the analysis, since the same consideration could apply to many of the interventions included in the study.

Through the sensitivity analysis of all scenarios confirmed that the main drivers of cost in the model to be the patient numbers (prevalence, diagnosed, uptake), and duration of treatment. A small cost-saving of VND 49,098 (health resource cost) per patient from reduction of health services when symptom free or experience symptom improvement. However, this does not appear to heavily affect overall financial impact. From the Vietnamese Government budgetary perspective, the financial impact of expanding funding of itopride into level 3+4 hospitals is unlikely to result in a significant financial impact. This was evidenced

by the three different scenarios.

Studies examining the budget impact of pharmaceutical investments in Vietnam is limited. One example by Tran, et al. examining the Budget Impact Analysis of Erlotinib in Vietnam demonstrated that the funding of this oncology agent would cost the Vietnamese Government 107.8 billion VND.

Functional dyspepsia is a chronic condition and often incurable with significant financial impacts on both the patients and wider healthcare system. Itopride is a relatively inexpensive prokinetic used commonly in Asia. Although some of the clinical evidence for prokinetics in functional dyspepsia is mixed, it should be noted that most of these studies were conducted on western patients (mostly Caucasian) and a significant proportion had already been treated with other agents. The research from Asian literature suggests that the sub-condition affecting East and South Asian populations is postprandial distress syndrome. Logically, prokinetics such as itopride should be more beneficial for PDS, and this is substantiated by the 2012 Asian consensus report and the 2023 Asian-Pacific guidelines and real-life purchasing data from these regions.

## Conclusion

Itopride has a unique dual MOA on esophagus and stomach to promote gastric motility and helps patients restore their gastric natural tone. Itopride increases lower esophageal sphincter pressure, accelerates gastric emptying and improves gastroduodenal coordination and does not prolong QT Interval that is devoid of extrapyramidal side effects.

As such the broadening of the reimbursement of itopride to include level 3+4 hospitals will provide benefit for between 13.7% (105,923) to 24.6% (89,343) more patients at only 3.3% (VND 41,742M) to 4.2% (VND 74,617M) additional costs over five years. Itopride is deemed to represent great benefit for patients suffering from functional dyspepsia in Vietnam.

## Funding

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