



中華人民共和國香港特別行政區政府總部食物及衛生局
Food and Health Bureau, Government Secretariat
The Government of the Hong Kong Special Administrative Region
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衛生事務委員會
醫療保障計劃小組委員會
二零一四年二月十八日會議跟進事項

二零一四年三月十八日來函收悉，現按小組委員會的要求提供補充資料，詳情請參閱附件。

食物及衛生局局長

(李湘原  代行)

連附件

二零一四年四月七日

**當局就衛生事務委員會醫療保障計劃小組委員會
二零一四年二月十八日會議提供的補充資料**

(a) 項一

政府統計處在二零一一年就私人醫療保險保障進行主題性住戶統計調查，請提供調查方法、覆蓋人口、樣本規模、回應率等詳細資料。

當局的回應

有關受私人醫療保險保障的人數，最新的官方統計數字來自政府統計處在二零一一年十月至二零一二年一月期間進行、有關健康事宜的主題性住戶統計調查。調查範圍涵蓋全港陸上非住院人口(即不包括水上居民及安老院和監獄等公共機構／社團院舍的住院人士)，但不包括外籍家庭傭工。調查以屋宇單位的樣本作依據，調查樣本從全港所有供居住用途及只部分作居住用途的永久性屋宇單位和小區內的屋宇單位中選出。是次調查中，在有人居住的 13 233 個住宅單位樣本中，共有 13 411 個住戶。在這些住戶中，政府統計處成功訪問了 10 065 個住戶，回應率為 75%。調查問卷所收集的資料涉及這些住戶中的 29 187 人。

2. 在每個受訪住戶中，統計員會詢問戶主或對調查主題有認識的人士家中是否有人享有僱主給予僱員及其家屬的醫療福利；若有，則請他們說明所享有的醫療福利類別。統計員又會詢問戶主或對調查主題有認識的人士家中是否有人受個人購買的醫療保險保障；若有，則請他們說明所享有的保障類別。受私人醫療保險保障的人士是指享有由僱主提供的醫療福利(為公務員及醫院管理局人員提供的醫療福利除外)的人士，及／或受個人購買的醫療保險(包括償款住院保險及其他種類的私人醫療保險，例如住院現金、門診保險等)保障的人士。只享有為公務員及醫院管理局人員提供的醫療福利的人士，以及只受危疾保險保障的人士並不包括在內。

(b)項—

顧問估計，醫保「標準計劃」受保人的平均個人保費約為 3,600 元(按二零一二年固定幣值計算，可能變動幅度介乎-8%與+45%之間)，請提供所使用的詳細精算模式、方法和數據，以及保費的計算方法。

當局的回應

3. 醫療保障計劃(醫保計劃)的預計平均標準保費是顧問(羅兵咸永道諮詢服務有限公司)以一套精密的精算定價模型推算出來的。顧問的研究結果和分析包含了小組委員會要求的資料¹，現載於**附錄 A**(只備有英文本)，以供參考。

(c)項—

有關政府資助高風險池運作 25 年(即二零一六至二零四零年)的預計成本，

(i) 顧問估計預計成本約為 43 億元(按二零一二年固定幣值計算)，請提供所採用的詳細精算模式、方法和數據，以及成本的計算方法；以及

(ii) 醫保「標準計劃」建議為必定承保及附加保費上限訂為標準保費 200%的要求，設立 40 歲的年齡上限。假設年齡上限改為 45、50、55、60 或 65 歲，請按各年齡上限作出調整計算，並提供上文第(c)(i)段所述的預計成本。

當局的回應

4. 政府資助高風險池運作的預計成本，是顧問根據精算模型推算出來的。顧問的研究結果和分析包含了小組委員會要求的資料，現載於**附錄 B**(只備有英文本)，以供參考。

¹ 由於定價模型設計複雜，顧問提醒我們，有關資料應連同整份研究報告一併閱讀。如能委託專業精算師協助，更可避免不完整或錯誤詮釋的情況。我們將於二零一四年年中開展醫保計劃公眾諮詢，屆時將一併公布顧問的最後報告。

(d) 項一

當局會否考慮容許承保機構為年滿 40 歲，並在醫保計劃推行首年後才投購醫療保險的高風險人士，提供承保範圍不包括投保前已有的指定病症的個人償款住院保險計劃，讓這類人士能投購他們負擔得來的醫療保險保障？

當局的回應

5. 承保投保前已有病症，是醫保計劃擬議的其中一項主要「最低要求」。現時，有投保前已有病症的高風險人士或健康風險較高的人士，在獲取私人醫療保險保障方面往往會遇到困難。即使承保機構接納他們的醫療保險申請，也可能會加入額外的不承保條款，使承保範圍不包括任何由投保前已有病症直接或間接引起的索償。在這些情況下，很多在投保前已有的病症的人士，會被迫向公營醫療機構求診，以治療相關的疾病。這減少了消費者可選擇的醫療服務提供者，也有違醫保計劃的政策目標，即鼓勵和便利有能力及願意的人士使用私營醫療服務，從而紓緩公營醫療系統的壓力，促進醫療系統長遠的可持續發展。

6. 醫保計劃的另一基本目標是保障消費者。從這角度來看，要求承保機構必須承保投保前已有病症是可取的做法，因為不承保條款往往是爭議的源頭。根據保險索償投訴局的統計數字，「不保事項」是該局所接獲有關住院／醫療保險的其中一項主要投訴類別。在二零一三年審結的 161 宗個案中，50 宗與「不保事項」有關。早前的公眾諮詢結果也顯示，承保投保前已有病症的建議獲得公眾廣泛支持。在二零一零年十一月至二零一一年四月期間與醫療改革第二階段公眾諮詢一併進行的電話意見調查結果顯示，68%受訪者認為，醫保計劃應在等候期完結後承保投保前已有的病症。

7. 此外，承保投保前已有病症的要求也符合國際經驗和做法。在私人醫療保險在醫療系統中擔當重要角色的國家，如澳洲、愛爾蘭、荷蘭、瑞士和美國等，承保投保前已有病症是常見的基本要求。

8. 考慮到上述各點，我們認為從醫療政策的角度來說，將承保投保前已有病症訂為所有個人償款住院保險的強制要求，是適當而可取的做法，因為放寬這項要求，會有損醫保計劃的政策成效。

9. 在是否容易投購私人醫療保險和保費負擔方面，在醫保計劃下，40歲以上的高風險人士如在計劃推出的首年內投保，即可受惠於必定承保及附加保費上限(標準保費的200%)的要求。這對於目前不獲任何私人醫療保險承保或須支付高昂保費的人士來說，將是大有裨益的。而就無法負擔私人醫療保險或不願意使用私營醫療服務的人士而言，公營醫療系統會繼續擔當全港市民的安全網的角色，為有需要的人士提供實惠而平等的醫療服務。

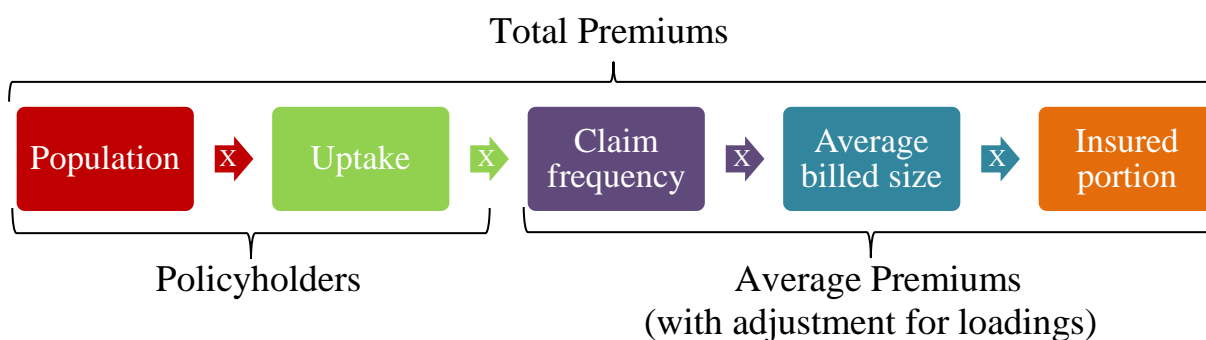
食物及衛生局
二零一四年四月

Findings and Analysis of Consultant on Health Protection Scheme

Creating a Baseline model

A model of the current indemnity hospital insurance market has been constructed using the following five key modules.

Figure 1: Approach to estimating base premiums



Note: Insured portion (%) = 1 – out of pocket contribution by policyholder (as a %)

- (a) Population multiplied by estimated uptake rates provides an estimate of total policyholders
- (b) Average billed size multiplied by the ‘Insured portion’ gives an estimate of the Average Claim size (ACS). It is noted that supplementary major medical claims costs have been excluded from analysis.
- (c) ACS multiplied by Claim Frequency and adjusted for expense/profit loadings provides an estimate of Average Premiums in the market
- (d) Multiplying all five components together gives us an estimate of total claims costs across the market

2. This analysis has been undertaken for detailed population cohorts and for different major procedures types as set out in **Table 1**. For the purposes of this analysis the Hong Kong population excludes foreign and domestic helpers. In considering the insured population the following criteria have been followed:

- Exclude foreign and domestic helpers

- Only consider people covered by indemnity hospital insurance products, therefore:
 - Exclude people with products that only provide nominal cash benefits (cash plans)
 - Exclude lump sum insurances such as critical illness products
 - Exclude people who hold outpatient plans only
- The individual market considers products purchased by individuals on behalf of themselves and their dependents. Each person, including dependants, covered by a plan are considered as separate policyholders.
- The group market considers insurance purchased by companies to cover their employees and dependents.

Estimating Health Protection Scheme (HPS) premiums

3. The impact of HPS on premiums has been estimated by considering how average premiums would change if current Ward-level policyholders (i.e. policyholders with policies designed to provide coverage for general ward class private healthcare services) had insurance benefits consistent with the proposed HPS Standard plan. Five key changes to benefits have been considered:

- (a) **New benefit structure** – proposed HPS benefit limits were applied to historical Hong Kong Federation of Insurers (HKFI) claims data to determine the insurance cost of HPS against a realistic distribution of claims and provider costs.
- (b) **Guaranteed acceptance** – increases to claims frequency are assumed to occur from the removal of case-based exclusions on many HPS policies. This has been applied to all policyholders with health conditions. In the projection analysis this effect is phased in over time as some policyholders will migrate to HPS and keep their case-based exclusions.
- (c) **New benefits** – the cost of chemotherapy / radiotherapy and advanced diagnostic tests (MRI, CT and PET) has been calculated by using local and international benchmarks for utilisation per person per annum and average cost per disability.

- (d) **The cost of the conversion option** (the proposed conversion option will allow an employee to switch to an individual Standard Plan without re-underwriting upon leaving employment or retirement) – has been estimated for the Group market, drawing on current market practice and uptake.
- (e) **Coverage of some procedures in ambulatory settings** – savings due to coverage of colonoscopies and endoscopies in an ambulatory setting, rather than an inpatient setting, have been estimated by assuming a lower average billed size for these procedures but higher overall demand.

Table 1: Summary of key model assumptions

Model area	Key considerations	Data sources
Hong Kong population	Population forecasts (by age and gender) are further considered by: <ul style="list-style-type: none"> • Company size – for the employed population • Prevalence of chronic health conditions • Monthly household income 	2011 Hong Kong census projections 2009 Thematic Household Survey
Uptake of Indemnity Hospital Insurance Products (IHIPs)	The following factors have been considered as key drivers of IHIP uptake in group and individual markets. Group market: <ul style="list-style-type: none"> • Company size • Age and gender Individual market: <ul style="list-style-type: none"> • Age and gender • Existence of chronic health conditions • Monthly household income • Impact of changes to the group market (i.e. reducing coverage in the group market will increase demand for IHIPs in the individual market) 	2009 Thematic Household Survey HKFI industry statistics – 2004 to 2011 HKFI claims and policies database – 2006 to 2010

Model area	Key considerations	Data sources
Claim frequency	Claims frequencies and claim sizes have been modelled for four separate procedure groups: Colonoscopies and endoscopies; Chemotherapy and radiotherapy; MRI, CT and PET; Other procedures. Key considerations in modelling future claim frequency rates: <ul style="list-style-type: none"> • Age and gender • Observable trends in historical data • Prevalence of chronic health conditions • Case-based exclusions on policies historical policies 	HKFI claims and policies database – 2006 to 2010 HKFI industry statistics – 2004 to 2011 Private hospital datasets
Average billed size of claims lodged	Key considerations in modelling future average billed sizes: <ul style="list-style-type: none"> • Age and gender • Observable trends in historical data • Extent of Ward level policyholders receiving treatment in private and semi-private settings where costs escalate above the level charged in Ward settings 	HKFI claims and policies database – 2006 to 2010 HKFI industry statistics – 2004 to 2011 Private hospital datasets
Insured portion of billed costs	Key considerations in modelling the insured portion (and hence out-of-pocket share) of claims: <ul style="list-style-type: none"> • Age and gender • Observable trends in historical data 	HKFI claims and policies database – 2006 to 2010 HKFI industry statistics – 2004 to 2011

Introduction to indicative HPS premiums

4. This paper includes an estimate of the premium which would be payable in respect of a **‘standard risk’** in the individual market or an **‘average member’** in the Group market for a HPS Standard plan.

5. Analysis focuses on Ward-level indemnity hospital insurance plans purchased by an individual or family. Cash plans, outpatient only plans and

critical illness plans are not included in the analysis. Individual and Group products are considered separately. All results in this paper include expense/profit loadings for profit, expenses and commissions.

6. The results are presented on a hypothetical 2012 basis for ease of comparison. All elements of the proposed HPS are assumed to be fully implemented in the calculation of these indicative premiums. In reality, many product features would not be implemented until 2015 or later and several of the market changes sought through implementation of HPS would take some time to be achieved. This is considered in more detail in the projection analysis.

HPS Premiums in the Individual market

7. Throughout this paper reference is made to “Base” premiums – which relate to products commonly offered in the market today, before the impact of HPS, and “HPS” premiums, which represent the proposed HPS minimum level standard product. **Table 2** summarises the estimated impact of HPS on premiums in the individual market – **a 9% increase on average**. These numbers represent the average **standard** premium across the market, with a standard premium being the premium for someone who insurance companies consider to be a ‘standard risk’ with zero ‘risk loadings’. The premiums shown are an average across all age groups in the market, assuming that the profile of policyholders is broadly similar to what exists in the market at present.

8. It is estimated that in 2012, the average premium paid for a Ward level product was around \$3,300, for someone who is a ‘standard’ risk. The average premium for the HPS Standard plan is estimated to be **9% or \$300 higher** than this, at \$3,600. There is, however, considerable uncertainty around this estimate, and the impact may be as high as \$1,500 (45%) or as low as -\$250 (-8%).

9. The five different components which lead to this increase are described in more detail later in this paper. The most significant factor is the addition of advanced diagnostic tests – MRI, CT and PET scans - to the HPS Standard product. This estimate is also the most uncertain. Advanced diagnostics could add between 5% and 42% to the base premium, depending on the level at which the packaged prices for these tests are set, and how well demand for these services is managed when coverage expands.

10. Offsetting the premium increases arising from expanding coverage and benefits are savings arising from funding colonoscopies and endoscopies using packaged benefit limits, set consistent with the price of these procedures in ambulatory care settings.

Table 2: Individual market – Impact of HPS on average standard premium^{Note 1}

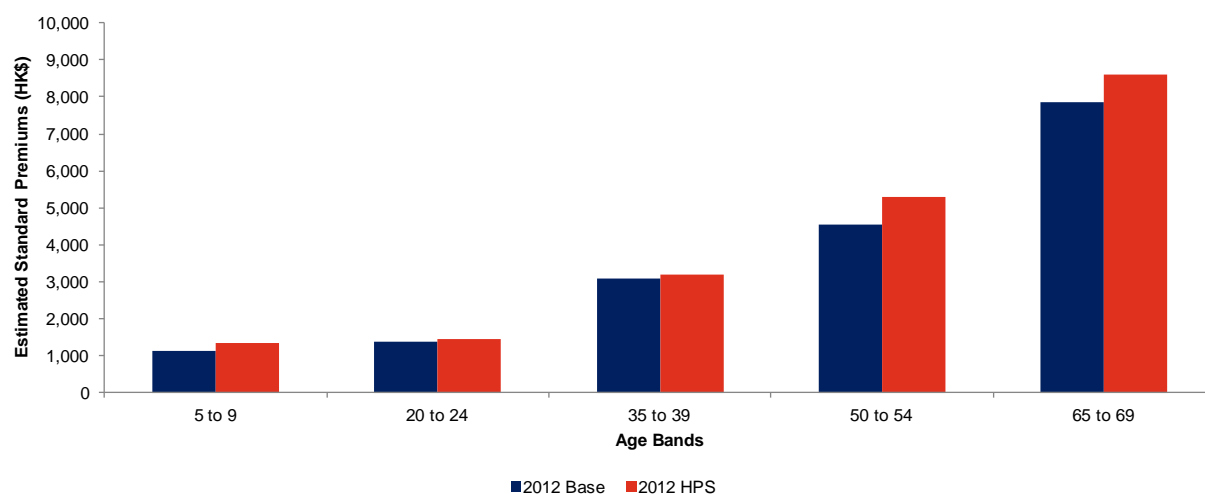
Feature	Impact (Mid Scenario)	Potential range (\$)	Potential range (%)	Explanation at
2012 baseline (before HPS)	\$3,300			
New benefit structure	-\$250 (-8%)	-\$250	-8%	Paragraphs 13 -16
Coverage of pre-existing conditions	+\$150 (+5%)	+\$150	+5%	Paragraphs 17 -19
Chemotherapy and radiotherapy	+\$250 (+8%)	+\$150 to +\$350	+5% to +11%	Paragraphs 20 -22
Advanced diagnostic tests – MRI, CT & PET (30% co-pay)	+\$550 (+17%)	+\$150 to +\$1,400	+5% to +42%	Paragraphs 23 -26
Coverage of endoscopy / colonoscopy in ambulatory setting with packaged pricing	-\$400 (-12%)	-\$450 to -\$150	-14% to -5%	Paragraphs 27 -30
2012 HPS premium	\$3,600 ^{Note 2} +\$300 (+9%)	-\$250 to +\$1,500	-8% to +45%	

Note 1: A deductible of \$2,000 would reduce the HPS premium by around 10%. A deductible of \$5,000 would reduce the HPS premium by around 22%.

Note 2: An expense and profit loading of 43% is assumed in estimating the HPS premium. Please refer to paragraphs 33 and 34.

11. **Figure 2** depicts the premium change at a number of key ages. The impact is higher for older age groups, particularly ages 50 and above, because many of the new features introduced by HPS affect these age groups to a greater extent.

Figure 2: Individual market – Estimated impact of HPS on standard premium, key ages



12. The five key elements of the HPS design which are expected to influence market premiums are now discussed in more detail.

New benefit structure

13. The term ‘benefit structure’ refers to the policy limits and amounts payable in respect of procedures already covered by IHIPs. It includes the limits on amounts paid for daily room and board, attending physicians’ visits, surgical fees and so on. The proposed HPS minimum requirements approach specifies a level of minimum benefits to apply to all products in the market. This reflects minimum benefit limits that are deliberately pitched at levels slightly below average products currently on the market (except chemotherapy and radiotherapy the coverage of which is not very common at present), in order to encourage migration and product innovation through Flexi plans. For this analysis reference is made to current Ward level products on the market and HKFI claims data to provide an indicative benefit structure that would achieve these goals.

14. *The impact of the proposed minimum benefit limits is to reduce the average standard premium by approximately 8% or \$250 per annum.*

15. The proposed benefit structure is set out as in Table 3 below.

Table 3: Benefit schedule options for HPS

Benefit (Maximum benefit amount)	HPS Product	Common ward level products
Daily Room & Board	\$650 Max 180 days	\$600 – \$750 Max 90-270 days
Attending Physician’s Visit	\$750 Max 180 days	\$600-\$750 Max 90-270 days
Other Specialists’ Visit	\$2,300 / Admission	\$3,500 – \$5,500/ Disability
Surgical Limit (Surgeon, Anaesthetist, OT)	\$58,000 / Procedure and 35% OOP for inpatient, 15% for clinical surgery	\$38,250-\$68,000/ Disability for major surgeries
Miscellaneous Hospital Expenses	\$9,300 / Admission	\$7,480 – \$15,000/ Disability
Chemotherapy and radiotherapy	\$150,000 / Disability	Some products only. \$6,000-\$15,000/ Disability OR \$50,000/ Contract year
Advanced diagnostic tests – MRI, CT & PET	Lump-sum packaged benefit limit (30% co-pay)	Limited products only
Coverage of endoscopy / colonoscopy in ambulatory setting with packaged pricing	Lump-sum packaged benefit limit	Limited products only
HPS average standard premium	\$3,600	\$3,300
Out-of-pocket %	33%	27%

16. Industry claims data allows testing of the impact that this benefit structure would have had on historical claims – in order to estimate the level of insurer and patient costs into the future. Unfortunately available data on surgical fees does not allow us to identify the different levels of surgery commonly defined in the Hong Kong market (eg major, complex, super-major surgery definitions, which differ by insurer) in order to apply sub limits on each component of a claim. Given this limitation, it has been assumed that inpatient surgical fees are reimbursed at 65% subject to a maximum of \$58,000. That is a minimum out of pocket cost of 35% exists to reflect the effect of sub limits that are often present when claiming for surgical benefits. This is broadly consistent with current market practice.

Coverage of pre-existing conditions

17. Guaranteed acceptance under the proposed HPS design implies that all pre-existing conditions be covered under HPS, except for migrants who opt to retain case-based exclusions on existing policies in order to avoid re-underwriting and possible price increases. Under streamlined migration, migrants who were classified as standard risks when first underwritten can migrate to HPS without re-underwriting. They would continue to be treated as standard risks irrespective of whether their health conditions have deteriorated or not over time. This differs from the current market practice to require re-underwriting and introduce case-based exclusions where relevant.

18. This pricing analysis considers the hypothetical long term impact of HPS in an indicative sense, based on the 2012 market. Thus, the analysis assumes all case based exclusions are covered under HPS. The projection results allow for the short- to mid-term reality that this effect will phase in over time depending on the number of migrating policyholders who chose to keep existing case based exclusions on their HPS policies. Coverage of case based exclusions leads to an increase in claim costs for the proportion of current policyholders who are expected to have a health condition excluded through their policy. Projection results also test the impact if significantly more people with health conditions take up IHIPs.

19. ***The impact of covering pre-existing condition for all current members is to increase the average standard premium by approximately 5% or \$150 per annum.***

Chemotherapy and radiotherapy treatments for patients with cancer

20. It is quite rare for Ward level products currently on the market to contain adequate chemotherapy and / or radiotherapy cover for cancer patients. Under the proposed HPS minimum benefits, this would be added subject to a yearly limit of \$150,000.

21. *Including chemotherapy and radiotherapy in the minimum requirements increases the average standard premium by approximately 8% or \$250 per annum.*

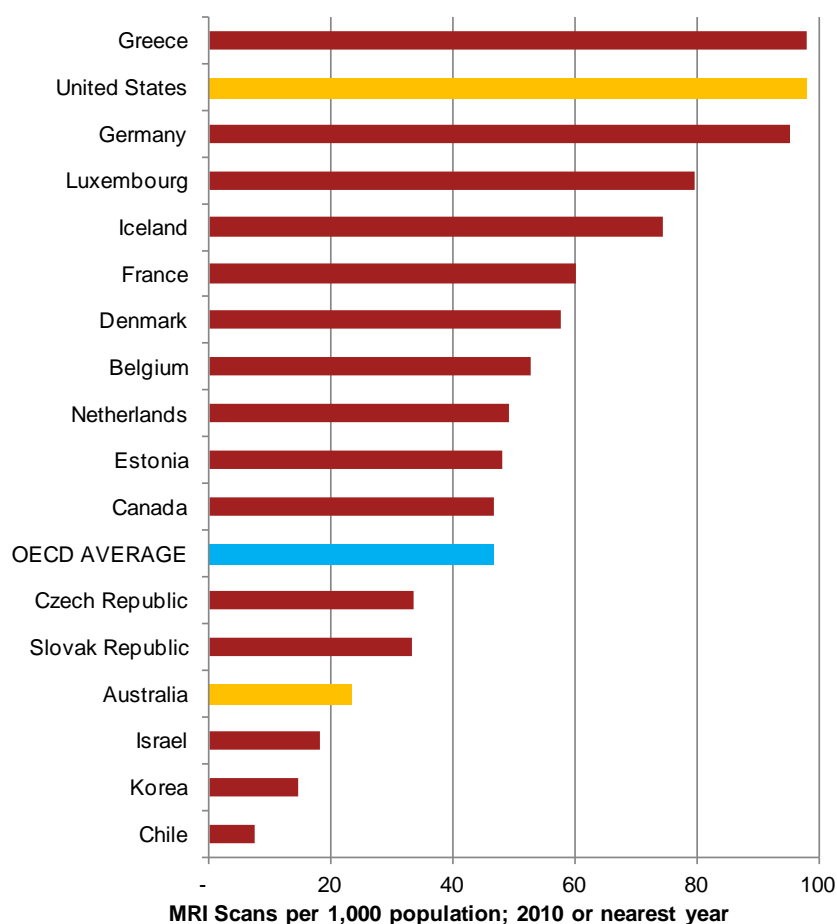
22. Hospital Authority (HA) data has been used to predict the overall required rate of treatment for people with cancer. The high and low Scenarios then consider what proportion of a policyholder's treatment will be covered by HPS and take place in the private sector. A range from 35% to 70% has been assumed for the low and high Scenarios respectively. The cost per treatment has been conservatively estimated as HA cost data grossed up for additional cover of self-financed drugs plus an additional buffer related to international comparisons (Australia and the UK).

Advanced diagnostic testing - MRI, CT and PET tests

23. *Covering MRI, CT and PET scans with a 30% patient co-payment increases the average standard premium by approximately 17% or \$550 per annum.*

24. International experience suggests that coverage of advanced diagnostic tests must be closely monitored and controlled due to the substantial risk of over servicing. Scenarios are used to emphasise the risks present if strong cost control measures are not in place. As such it is recommended that these benefits only be included with a significant co-payment (30%) and on a packaged pricing basis. The mid-point estimate assumes per-person usage of advanced diagnostic services will be consistent with the Organisation for Economic Co-operation and Development (OECD) average, and costs per test in line with Australian experience, which is amongst the lowest in OECD countries. However, as **Figure 3** shows, utilisation patterns vary considerably across the OECD and experience from the US shows that both high usage and high per-test costs - as much as three to five times Australian costs – could arise if implementation is poorly managed.

Figure 3: MRI usage rates – OECD data



Source: OECD Health Data 2012

25. The range of Scenarios tested is shown in **Table 4** below.

Table 4: MRI, CT and PET scans - summary of pricing Scenarios

Scenario	Utilisation rate	Average cost
Low	Australia	Specified price of an advanced diagnostic MRI / CT scan covered by Australian Medicare plus lower bound levels of out of pocket costs.
Mid	OECD average	Specified price of an advanced diagnostic MRI/CT scan covered in Australia by Medicare plus common levels of out of pocket costs.
High	United States	Specified price of an advanced diagnostic MRI/CT scan covered in Australia by Medicare plus upper bound levels of out of pocket costs.

26. A small but growing proportion of Ward level products implicitly cover advanced diagnostic testing. However, consultation with the industry indicates that this activity is often covered only on an inpatient basis, which is significantly more expensive than an ambulatory setting. This has been allowed for in the estimation of base market premium but some savings have also been realised from shifting this activity to an outpatient setting under HPS.

Coverage of endoscopy and colonoscopy in an ambulatory setting with packaged pricing

27. Covering endoscopy & colonoscopy through packaged pricing in ambulatory settings would decrease the average standard HPS premium by approximately 12% or \$400.

28. Analysis performed on the HKFI database (over 2006 to 2010) indicated that more than 70% of endoscopy and colonoscopy procedures covered by individual IHIPs were provided on an inpatient basis. While many insurers now offer products which encourage greater use of same day and clinic facilities, there remains significant inpatient utilisation of these procedures.

29. Given the cost of an inpatient endoscopy procedure can be several times more expensive than in an ambulatory setting, the potential cost savings of shifting the location of activity are enormous. As a benchmark, analysis of Australian Hospital Statistics shows that just 10% of these procedures were performed as inpatient overnight procedures in 2010-11. It has been assumed that inpatient procedures reduce from 70% to 15% of endoscopies and colonoscopies in HPS. Packaged benefit limits, set consistent with the price of these services in ambulatory settings, has been recommended as a tool to drive this behaviour change.

30. Given so little of the current activity in the individual market occurs in an ambulatory setting it is likely that covering these services in an ambulatory setting would increase overall demand for these services. Any increase in demand will moderate the level of savings available to the market under HPS. A 35% increase in the volume of services covered by insurance has been allowed for in the mid-point estimate. There would also likely be an increase in the volume of advanced diagnostic tests performed in the overall private Hong Kong market. However given limited data on current activity it is difficult to quantify the future increase.

Other items

Guaranteed Renewal

31. The impact of Guaranteed Renewal on HPS premiums is not reflected in the current estimation. This is because the impact will occur only gradually and modestly in the long term when there could be offsetting factors through improved market dynamics (e.g. keener price competition in a more transparent environment; economies of scale). Hence this aspect is not considered material to the analysis.

Deductible

32. The potential impact of a range of deductibles has been tested on historical claims data from the HKFI. The deductible is defined as being per claim, and acts on top of any existing out of pocket costs above pre-determined insurance cover limits. A deductible of \$2,000 would reduce the average standard HPS premium by 10% or \$350 per annum. Deductibles have a far more pronounced impact on younger policyholders, because they have smaller claims on average than older people, and so the deductible represents a far bigger amount compared to their claim.

Table 5: Estimated impact of deductibles on average standard premiums – Individual market

Deductible amount	% Reduction in premium	Reduction to average HPS premium
\$2,000	10%	\$350
\$5,000	22%	\$800
Co-payment of 10% for the first \$100,000 of a claim capped at \$10,000	9.5%	\$350

Expense and profit loadings

33. According to HKFI industry statistics the average insurer loading for expenses and profit across the entire individual market is 43% of premiums. This figure includes costs to the insurer from, among others:

- Commissions and broker fees
- Profit and solvency margins

- Direct expenses e.g. claims handling costs
- Indirect overhead expenses e.g. accounting

34. For the purposes of estimating indicative HPS premiums, this loading has been left unchanged. The projection analysis includes consideration of the impact that improved efficiencies may have on the market going forward.

Findings and Analysis of Consultant on Health Protection Scheme

High Risk Pool

The key parameters used to cost the High Risk Pool (HRP) are:

- a) Entry premium is 3x standard premium (including expense/profit loadings)
 - b) The cost of a HRP member is assumed to be 6x that of an average risk
 - The difference between an average risk (1x) and a high risk (6x) is primarily related to the coverage of pre-existing conditions
 - c) The policy would be equivalent to a HPS Standard plan meaning that no case-based exclusions would exist
 - d) Waiting periods exist for coverage of pre-existing conditions:
 - 0% coverage in the first year
 - 25% cover in the second year
 - 50% cover in the third year
 - 100% cover from year four on
 - e) Care management costs are assumed to be 5% of gross claim costs. These costs are already included in the 6x factor noted above, and during the waiting period, the additional costs of care coordination are included from year one onwards such that the actual cost of a person in the HRP in year 1 is equivalent to 1.3 times that of an average risk.
2. A brief analysis of the likely health conditions present in the HRP has been included in **Annex**.

Financial results

3. **Table 1** summarises the expected costs of operating the HRP with Group “Conversion option only”¹. Finances are categorised by source (policyholder versus Government contributions) and type (claims versus administration costs). All dollar figures cover the entire HPS projection period from 2016 to 2040 and are presented in constant 2012 values. In addition, no discounting of future cash flows has been applied.

Table 1: Summary of HRP cost, 2016-2040

2016 – 2040 (in 2012 dollars)	Current Proposal
Admin cost – 12.5% of claim costs to operate the scheme	\$2.0 bn
Cost of claims (6x average cost; including net benefit of care management)	\$15.8 bn
Total cost to operate	\$17.8 bn
Premiums collected (3x standard risk)	\$13.5 bn
Cost to Government	\$4.3bn
Members in 2016 (as a % of total PHI)	69,800 (3.6%)
Members in 2040 (as a % of total PHI)	10,900(0.5%)
Total cost per member per annum	\$29,700
Cost to Government per member per annum	\$7,200

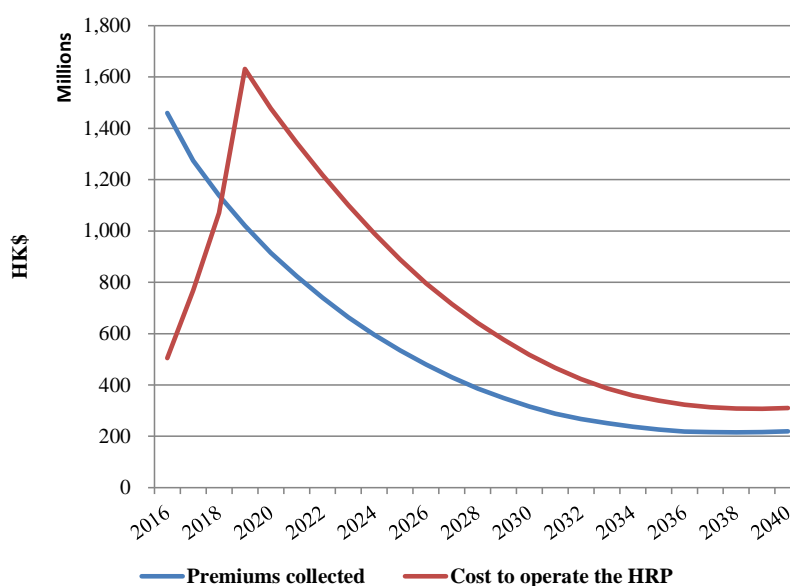
4. Between 2016 and 2040, the total cost to operate the HRP tallies to approximately HK\$17.8 billion, of which HK\$15.8 billion represents the cost of claims. The remaining HK\$2.0 billion is the expected administrative cost of running the HRP. As premiums are capped at 3x a standard premium, total premiums collected by the HRP total only HK\$13.5 billion. The required

¹ Expected costs of operating the HRP under Scenario B with Full Group HPS are not materially different

Government funding injection is thus HK\$4.3 billion to finance the HRP over the period.

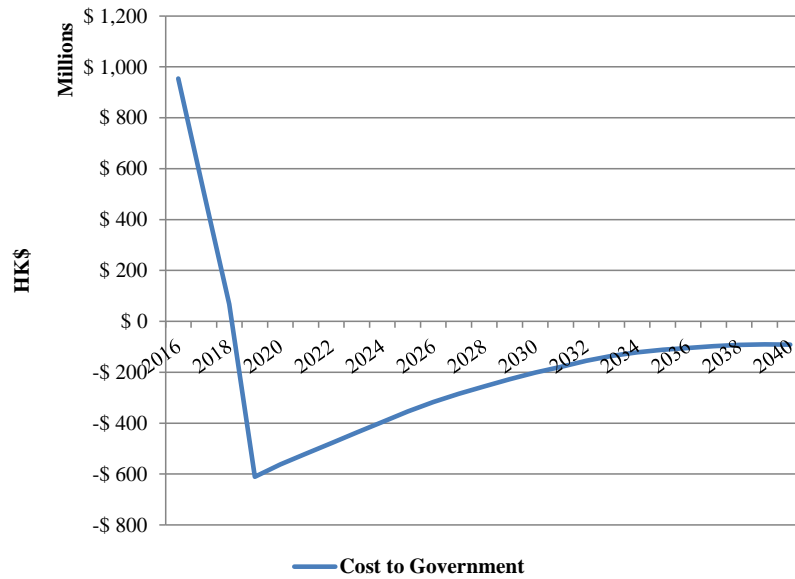
5. **Figure 1** plots total premiums collected and costs paid from the HRP. During the first three years of the HRP, total premiums collected are greater than the costs of the HRP. This is due to waiting periods for pre-existing conditions, which severely restrict claims costs in the first few years after a new policyholder enters the Pool. Costs increase quickly between 2016 and 2020 as the large number of new entrants in 2016 will have served their waiting periods and become eligible for full benefits by 2020. Costs peak in 2020 when the influx of new entrants in 2016 become eligible for full benefits, and start to decline thereafter, consistent with a gradual decline in Pool membership.

Figure 1: Yearly total premiums collected and costs paid from the HRP, 2016-2040



6. **Figure 2** shows the yearly cash flow to Government from underwriting the HRP. Cash flow is equal to the difference between total premiums collected and costs paid from the HRP as shown above.

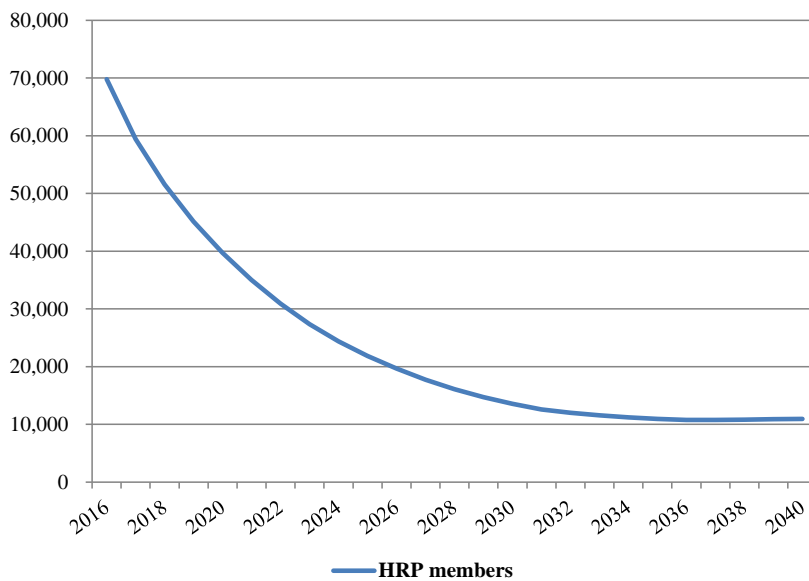
Figure 2: Government's yearly cashflow position relative to the HRP, 2016-2040



Number of people covered by the HRP

7. **Figure 3** identifies the total number of HRP members by year. All migrants are eligible for the HRP in year one, as are all new entrants regardless of age, and so a large influx results. In the long run, only new HPS members aged 40 or below can join the HRP, and so new entrants and total HRP membership decline rapidly to a stable level of around 11,000 people.

Figure 3: HRP membership, 2016-2040



8. In the first year of HPS operation insurers are likely to be quite risk averse when pricing individuals with significant health conditions. In particular smaller insurers will have little or no data on which to accurately price these individuals. Thus it is likely a high proportion of people, both migrating and new to HPS, will be priced at 3x standard premiums.

9. Around 30,000 of the year 1 HRP membership are expected to migrate from existing policies. This is estimated based on the assumption that most current policyholders with cancer (around 8,000 people²) will automatically join the HRP as they are unlikely to receive affordable chemotherapy or radiotherapy coverage. Over 210,000³ policyholders are expected to migrate to HPS with significant health conditions, and some 22,000⁴ of these are assumed to be eligible for the HRP.

10. A further 40,000 of year 1 HRP members are assumed to join as new members. There were over 440,000⁵ people in Hong Kong in 2009 (THS data, figure will be materially higher in 2016) with cancer or other high severity health conditions. 80,000 of them had monthly income above \$30,000 and represent a likely pool of HRP entrants⁶.

The average claims cost of a high risk individual

11. The claims cost of a person in the High Risk Pool is assumed to be approximately seven times that of a 'standard risk' in the HPS market and, if effective care co-ordination is put in place, this would reduce to six times the cost of a 'standard risk'. The pattern of claims costs of people currently insured in Hong Kong has informed this estimate, and international experience has also been reviewed.

² The figure of 8,000 is estimated from the number of insured people with cancer (10,362) as reflected in the THS 2009 results (Table 4 of Annex), taking into account the adjustment factors of (a) organic growth from 2009 to 2016 (when HPS is assumed to be implemented); and (b) the estimated insured persons with cancer who choose to be grandfathered.

³ The figure of 210,000 is estimated from the number of insured people with health conditions other than cancer (376,782) as reflected in the THS 2009 results (Table 4 of Annex), taking into account the adjustment factors of (a) organic growth from 2009 to 2016 (when HPS is assumed to be implemented); and (b) the estimated insured persons with non-cancer health conditions who choose to be grandfathered.

⁴ Assuming 22,000 people have severe health conditions and choose to remove their existing case-based exclusions when migrating to HPS.

⁵ The figure of 440,000 is different from the figure of 510,864 in Table 4 of Annex due to the need to take out double-counted cases with more than one health condition.

⁶ Assuming half of the 80,000 (i.e. 40,000) will choose to join HPS and the HRP in the first year of HPS implementation.

Analysis of Hong Kong IHIP market claims experience

12. The HKFI claims database was analysed to consider the distribution of claims and claim costs per person across the entire dataset. The top 2% of claimants were considered the “high risk claimants”. This is broadly consistent with the 2% of policyholders across the projection period who are assumed to be eligible for the High Risk Pool (3% in the short term and 0.5% in the long term).

13. The claim rate of claimants in the top 2% was 5.8 times the claim rate of the bottom 80%. The claim cost relativity of claimants in the top 2% was 6.6 times the average claim cost for the bottom 80%. This analysis allows for the fact that the benefit limits and caps of the HPS product would limit the upside risk of high cost claims.

Analysis of US market experience

14. A similar approach was used to analyse US claims data looking at claims cost per person as well. The data was from 1990 and sourced from Yen (1994). Analysis of this data suggests that high cost claimants comprised the top 5% of policyholders and had claims experience of 12 times the average for the whole group.

Experience from the US Pre-existing Condition Insurance Program

15. Around 135,000 people are covered by the US Pre-existing Condition Insurance Program (PCIP), in addition to roughly 200,000 people covered by state-run high-risk pools which existed prior to the PPACA law. In PCIP’s 2011 annual report (CCIIO, 2012) a comparison between enrollees in a typical federal employee health benefits plan and those enrolled in the Federally-administered PCIP was discussed. The comparison showed that PCIP enrollees had much greater health care needs. Compared to the benchmark plan, PCIP enrollees:

- Had more than 1.5 times as many claims, office visits, emergency room visits, and procedures.
- More than 5 times as many hospital admissions.
- Were about 3.5 times more likely to have claims exceeding \$10,000.

16. Between those highest-cost enrollees in both plans, the differences were even more striking:

- More than 3 times as many emergency room visits
- More than 3.5 times as many claims, office visits, and procedures
- More than 8 times as many hospital admissions
- Almost twice the average cost per claim.

17. The evidence relating to hospital costs suggests high risk claimants have costs of perhaps ten times the average.

18. Translating this experience suggests that these estimates are an ‘upper bound’ for Hong Kong:

- Since 1990, claims costs have become ‘less concentrated’ in the top groups (Berk M.L. & Monheit A.C., 2001). So the 12x estimated for the US market in 1990 may now be lower.
- The care being financed through the US schemes and the PCIP is only partly relevant to Hong Kong’s HRP. PCIP has no waiting period for coverage of pre-existing conditions, and people entering the US PCIP had a ‘backlog’ of treatment needs which had built up prior to entering the PCIP because there was no public health system to fall back on. This would have significantly increased the PCIP’s relative claims cost.

19. The role of Hong Kong’s private hospitals is narrower than US private hospitals, and it is reasonable to expect the highest cost and emergency hospitalisations to continue to fall on Hong Kong’s public hospital system – whereas the US PHI system funds all types of care.

The role of the HRP in the long term

20. The number of people with health conditions who are covered by insurance will continue to grow as Hong Kong’s population ages. Initially, many will be covered through the High Risk Pool, as a result of guaranteed acceptance at all ages in the first year of operation. Gradually, HRP membership will decline, and the proportion of people with health conditions in the regular insurance market will grow. The new entrants who joined HPS

Standard plans early to take advantage of guaranteed acceptance (aged 40 or below) will gradually age and develop health conditions.

21. By this time the HRP will have been in operation for some time and will have collected substantial data on the drivers of claims costs for these individuals. Sharing this improved data across the industry will allow insurers to more accurately predict future claims costs and thus appropriately price standard products for this longer term risk as well as manage costs more effectively.

Administration costs

22. Administration costs relate to the expenses required to operate the HRP, including claims management and an allowance to insurers for administration and acquisition costs. It does not include care coordination costs, which are included already within claims costs. There are several reasons why the cost of operating the HRP is significantly lower than expense/profit loading currently charged by insurers in the individual market (43% of premiums as at 2011):

- The HRP is not profit-making.
- The financial risk is borne by Government who, unlike private insurers managing similar portfolios, will not maintain risk margins to cover the risk of higher than expected costs.
- Cost of sale will reduce significantly as the HPS Standard plan is the only product option for high risk individuals and the fee for sale will be set by Government.
- Claims management is proposed to be outsourced to a single claims manager and the tender process for such a large single pool of claimants should yield some efficiencies.

23. Administration costs are assumed to be 12.5% of claims cost (11% of total HRP cost to operate) based on a review of international benchmarks and comparable Hong Kong experience.

Table 2: Local and international benchmarking of administration costs for the HRP

Scheme	Administration cost (% of claims)	Comments
US PCIP	9%	Significantly larger than HRP (100,000 members) and administered by GEHA, which insures more than 1 million lives.
US Medicaid	6%-7%	Government scheme covering low income earners, so members are relatively higher risk. Medicaid is much larger (50 million members) and as a Government manager, makes no profit. Hence, expect HRP costs to be higher.
US HMO's	8%-12%	Comparable use of 'in network' doctors, but operating in a very competitive market.
Hong Kong Group PHI Market	23%	Expect HRP to be lower as this figure includes underwriting costs and commissions.
Hong Kong Network Provider	8%-10%	Estimate of third party administration cost across both outpatient and inpatient claims.

Indicative impact of the Guaranteed Acceptance age on the cost to Government of the High Risk Pool

24. Rules around guaranteed acceptance age directly impact cost estimates of the HRP. A higher guaranteed acceptance age would increase the number of people entering the HRP at older ages, likely with significant health conditions. In contrast, under a lower guaranteed acceptance age scenario some of these very high risk individuals would have purchased cover younger and healthier and never entered the HRP (that is, they would be covered by their insurer and possibly pay a premium loading less than 2x the standard premium). An indicative estimate of the impact of changing the guaranteed acceptance age is shown below.

Table 3 Indicative impact of the Guaranteed Acceptance age on the cost to Government of the High Risk Pool

Guaranteed Acceptance age	40	45	50	55	60	65
Cost of the HRP to Government	\$4.3 bn	\$4.6 bn	\$5.3 bn	\$6.4 bn	\$8.0 bn	\$11.9 bn

25. A lower guaranteed acceptance age limit has the advantage of encouraging more people to enroll in HPS when they are young and healthy. At a young age, a policyholder is more likely to be healthy and thus may be able to lock in an underwriting risk class which attracts a lower premium. The policyholder can maintain the same underwriting risk class without re-underwriting even when he develops health conditions at a later age. In comparison, with a higher guaranteed acceptance age limit, a policyholder is likely to enroll in HPS at an older age when he may have already developed health conditions. The policyholder would then need to pay a higher premium than he would otherwise have to pay if he enrolls in HPS earlier.

26. For those who choose to subscribe to HPS after the guaranteed acceptance age limit (40), they can still enjoy all the benefits of HPS Standard Plan except for guaranteed acceptance (their applications may be declined by insurers) and premium loading cap. This will be the same as the current market situation where insurers can decide whether to accept a health insurance application as well as its premium loading.

Likely Health Conditions of High Risk Pool Members

The 2009 THS asked a number of questions related to health condition status including:

- Have you been previously diagnosed with any specified health conditions?
- How many times has each person been admitted to hospital over the previous 12 months?

2. People who identified themselves as having been previously diagnosed with cancer had the highest average number of hospital admissions. This was 16 times higher than for a person who identified themselves as having no health conditions.

3. The health conditions associated with the highest average number of hospital admissions are shown in **Table 4**. This can be used to give an idea of what health conditions might be common for people in the High Risk Pool. The average numbers of hospital admissions shown are age-standardised and cover all HK hospitals.

Table 4 Top 10 health conditions ranked by average number of hospital admissions per person with that health condition

Health Condition	Relativity to people with no health conditions - by hospital admissions	Number of insured people with indicated health condition	Number of uninsured people with indicated health condition
Cancer	16.3	10,362	53,007
Diseases of the Nervous System	12.9	1,345	16,653
Complications of Previous Injury	12.5	0	10,503
Heart Diseases	11.4	14,389	121,539
Kidney or Reproductive System Disease	11.2	8,820	46,272

Health Condition	Relativity to people with no health conditions - by hospital admissions	Number of insured people with indicated health condition	Number of uninsured people with indicated health condition
Stroke	10.9	462	37,293
Liver Disease	6.5	15,503	35,783
Mental Disorder	6.3	6,858	72,381
Respiratory Diseases	6.2	11,082	44,610
Stomach & Intestinal Disease	5.9	15,159	72,823
<i>Sub total</i>		83,978	510,864
Any Health Condition	4.2	376,782	1,448,714
No Reported Health Conditions	1.0	1,428,427	3,384,007

Source: THS 2009

4. Most people previously diagnosed with cancer will join the High Risk Pool if they join the HPS. This is because of their high average number of hospital admissions and the high cost of treatment. The exception will be those who currently have cancer excluded as a pre-existing condition, migrate to HPS and elect to keep this exclusion. This group is expected to be small as cancer treatments are not common under current insurance policies and so exclusions for cancer should be rare.

5. For the top six health conditions listed, a high proportion of the population are not currently covered by PHI. This represents a group of people who would benefit from the protection offered by the HRP, subject to affordability constraints. Most health conditions in the table above are likely to be prevalent in the HRP.