



cutting through complexity

UHI Premia Costing Report

submitted to the Health Insurance Authority

September 2015



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Private and confidential

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22 September 2015

Dear Mr Lynch

UHI Premia Costing Report

The Health Insurance Authority ('HIA') has requested us to perform a costing of the three suggested Universal Health Insurance ('UHI') baskets as provided by the Department of Health ('DOH'). We note the baskets were subsequently defined by the DOH and forwarded to the HIA. In accordance with our methodology note ('Projection model of the costs of various UHI packages: Data and Methodology') dated 21 November 2014 (our 'Methodology Note'), adjusted in light of discussions with you and the DOH, we set out the proposed costing of the three suggested UHI baskets that the DOH have proposed. Our revised scope includes:

1. Production of a spreadsheet model detailing the UHI premium calculations (the 'Model');
2. Documented results from the Model in respect of each of the scenarios presented; and
3. Documented assumptions underpinning each variable/ range of variables in the Model.

This final written report supersedes all previous oral, draft or interim advice, reports and presentations, and that no reliance will be placed by you on any such oral, draft or interim advice, reports or presentations other than at your own risk.

Our analysis is a point in time estimate based on 2013 cost data where available, in order to determine the potential cost of providing the corresponding services in an insured environment. This research was part of the Initial UHI Costing Project. The DOH provided advance findings on current health expenditure in 2013 from Wren, Connolly and Cunningham (2015) *An examination of the potential costs of Universal Health Insurance in Ireland*, ESRI Research Series Report. Dublin: ESRI. For consistency our analysis uses the same estimates unless otherwise stated.

The figures contained in this report do not allow for potential changes to the underlying costs between now and ultimately the implementation date of UHI, which could be influenced by changes to underlying demographic experience, supply/demand and cost control factors, administrative / salary costs and medical and price inflation amongst other things.

Our report is structured as follows:

1. Executive Summary
2. Reliances and Limitations
3. Overview of Modelling Approach
4. Basket Compositions
5. Assumptions – Risk Premium Adjustments
6. Assumptions – Insurance Loadings
7. Results
8. Appendices

We note cost data in respect of a number of basket line items was not available. In these instances an estimate of the total cost was used. Where an adjustment to the cost data was made this was agreed in advance with the DOH. This is documented in Appendix 3. There are therefore considerable uncertainties with the data used. Specific points and more general reliances and limitations are set out in Section 2.

Our report is for the benefit and information of the addressee only and should not be copied, referred to or disclosed, in whole or in part, without our prior written consent. The report may be provided to the DOH, the Minister and the ESRI.

This report should be read in full, as any part read in isolation may be misleading. This report has been written on the assumption that readers are technically competent in health insurance matters. Clarification should be sought by users of the report for any part of the report that is unclear.

Yours faithfully

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1. Executive Summary

The table below sets out the calculated UHI premiums for each of the proposed baskets by cohort (i.e. adults, students and children). The results are shown in respect of adults both including and excluding cost of dependants. This allows us to see the true adult premium in respect of their expected costs under UHI and the potential impact on premiums if adults were to cross subsidise children and students. A more detailed analysis of the results is included in Section 7. Costing analysis of average premiums across all lives is included in Appendix 1. As outlined in Section 5 it is assumed that expenditure on non-PHI financed services would increase by 4.1% to take account of unmet need and that some efficiencies in the delivery of hospital care would occur. However, the model does not take account of demographic and epidemiological trends, price inflation or other cost drivers, or any changes to supply and demand for acute healthcare due to changes in the institutional financial framework other than effects that are explicitly identified in this report. This has been agreed with the DOH and the HIA.

	Basket 1			Basket 2			Basket 3		
	Adult	Student	Child	Adult	Student	Child	Adult	Student	Child
Risk Premium – Excluding Cost of Dependants	€1,989	€539	€690	€2,283	€622	€800	€2,885	€803	€800
Customer Premium – Excluding Cost of Dependants	€2,228	€603	€773	€2,557	€696	€896	€3,232	€899	€896
Customer Premium – Including Cost of Dependants	€2,565			€2,948			€3,641		
Premium Increase due to inclusion of cost of dependants	15%			15%			13%		

The key driver behind the UHI premiums is the underlying cost of health services provided. We expect that the impact of providing health services in an insured environment will add an additional loading of 12.0% to the underlying claims cost. This is broadly consistent with loadings currently observed in the private health insurance market. In 2013 incurred claims represented 87.7% of earned premiums across the private health insurance market after allowance for risk equalisation (Source: HIA data).

Based on the allocation of cost data between the different cohorts (i.e. adults, students and children), the underlying cost per child is higher than per student for Baskets 1 and 2. The cost per child is lowest for Basket 3 as pharmaceutical costs, which represent a material part of the basket, are not allocated to children. The underlying cost per adult is considerably higher than for children and students across all baskets.

The model assumes that UHI will be self funding in terms of premium receipts. The above premiums represent the expected customer premiums and give no consideration as to whether they will be paid by individuals or subsidised by the State, either fully or partially. No allowance has been made for the impact of other revenue sources such as tax revenues, or co-payments. While we have highlighted the impact of adults fully subsidising student's and children's premiums a decision needs to be made as to the level of cross subsidy desired, if any.

The values in this report are based on actual 2013 healthcare costs with estimates of the cost of providing health services in an insured environment. As noted in Section 3 the UHI premiums do not allow for cost control measures as envisaged in the UHI White Paper. In practice, actual experience is likely to differ from best estimates. It must therefore be recognised that actual results will differ from those inherent in the values given. We have included a number of sensitivities and scenarios in Appendix 2, which we have summarised in the table below. While individual sensitivities show the potential impact on the premium it is assumed that other assumptions will not change at the same time, which is unlikely to be the case. The scenarios tested allow for a number of assumption changes. We note the scenarios tested are for illustrative purposes and may not be representative of actual combinations of deviations of future experience. The model can be fully flexed so other sensitivities can be readily provided.

	Hospital Efficiencies 7.2% (Base 3.6%)	Volume Adjustment 0% (Base 4.1%)	Bad Debt Adjustment 4% (Base 2%)	Bad Debt Adjustment 0% (Base 2%)	10% Expense Loading (Base 6.8%)	5% Profit Margin (Base 3.2%)	2.5% Cost of Capital (Base 1.5%)	3% Claims Uncertainty Margin (Base 1%)	5% Claims Uncertainty Margin (Base 1%)	Positive Scenario (See Appendix 2)	Negative Scenario (See Appendix 2)
% Change to Base Premium	-1.9%	-2.7%	+2.0%	-2.0%	+2.9%	+1.6%	+0.9%	+1.8%	+3.6%	-8.8%	+11.5%

2. Reliances and Limitations

There are a number of important limitations and assumptions which should be borne in mind when considering the results contained in this report. Some of the key limitations and assumptions are set out below. Other specific assumptions, caveats and limitations are contained elsewhere in the report. All make up an integral part of the report.

The work performed was part of a number of work strands as part of the overall Initial UHI Costing Project, including analysis by the ESRI on overall expenditure under UHI (Wren, Connolly and Cunningham (2015) *An examination of the potential costs of Universal Health Insurance in Ireland*, ESRI Research Series Report. Dublin: ESRI.). from Wren, Connolly and Cunningham (2015). We have relied on data provided to us by the HIA, HSE, and DOH and some advance findings, including current health expenditure in 2013, from Wren, Connolly and Cunningham (2015) provided by the DOH. We have not carried out any checks on the data used. We have performed some limited aggregate reasonableness checks on the final figures, but are not able to give any warranty on the quality of the data used. We have assumed that the factual material and information provided to us, both in written and verbal form, provides an accurate representation of the facts.

We note that the HSE pensions costs are accounted for in the HSE accounts on a cash or pay as you go basis. This differs from private sector pension costs which accrue in line with recognised accounting standards. Thus the current level of HSE pension cost does not reflect the true accrual cost.

The values in this report are based on actual 2013 healthcare costs with estimates of the cost of providing health services in an insured environment. The results are strongly influenced by the underlying assumptions. It was agreed with the DOH and the HIA that a key assumption is that the same pattern of demand and supply for healthcare would continue under UHI other than the specific assumptions and adjustments set out in Section 5. In practice, actual experience is likely to differ from best estimates due to factors such as changes in the economic environment, demographics, regulation, taxation, economic, operational and other factors, including demand and supply for healthcare in a UHI system. It must therefore be recognised that actual results will differ from those inherent in the values given. We caution therefore that the eventual outcome is likely to vary, perhaps materially, from our projected outcome. We have set out the assumptions used in arriving at our premium estimates in Sections 5 and 6. Sensitivities to the key assumptions are set out in Appendix 2.

Our Review is based on commonly accepted actuarial techniques applied in a consistent manner.

This report should be read in its entirety, as individual sections, if read in isolation, may be misleading.

This report is delivered subject to the agreed written terms of KPMG's engagement. Our report was designed to meet the agreed requirements of the HIA. Any party who chooses to rely on our report (or any part of it) will do so at its own risk. To the fullest extent permitted by law, KPMG will accept no responsibility or liability in respect of our report to any other party.

Judgements as to the conclusions drawn in this report should be made only after studying the report in its entirety. We assume that users of this report will seek explanation and/or amplification of any part of the report which is not clear.

You should note that our findings do not constitute recommendations to you as to whether or not any of the proposed UHI baskets should be proceeded with.

3. Overview of Modelling Approach

A top-down approach has been used to model the initial premium estimate of various UHI baskets. The premium estimates are based on actual 2013 cost data provided by the HSE and HIA and on findings on 2013 costs from Wren, Connolly and Cunningham (2015). The 2013 cost data has been prepared based on the high level composition of each basket (see Section 4). We have relied on this cost data and have not independently verified the underlying data for accuracy.

A spreadsheet model has been developed to calculate the:

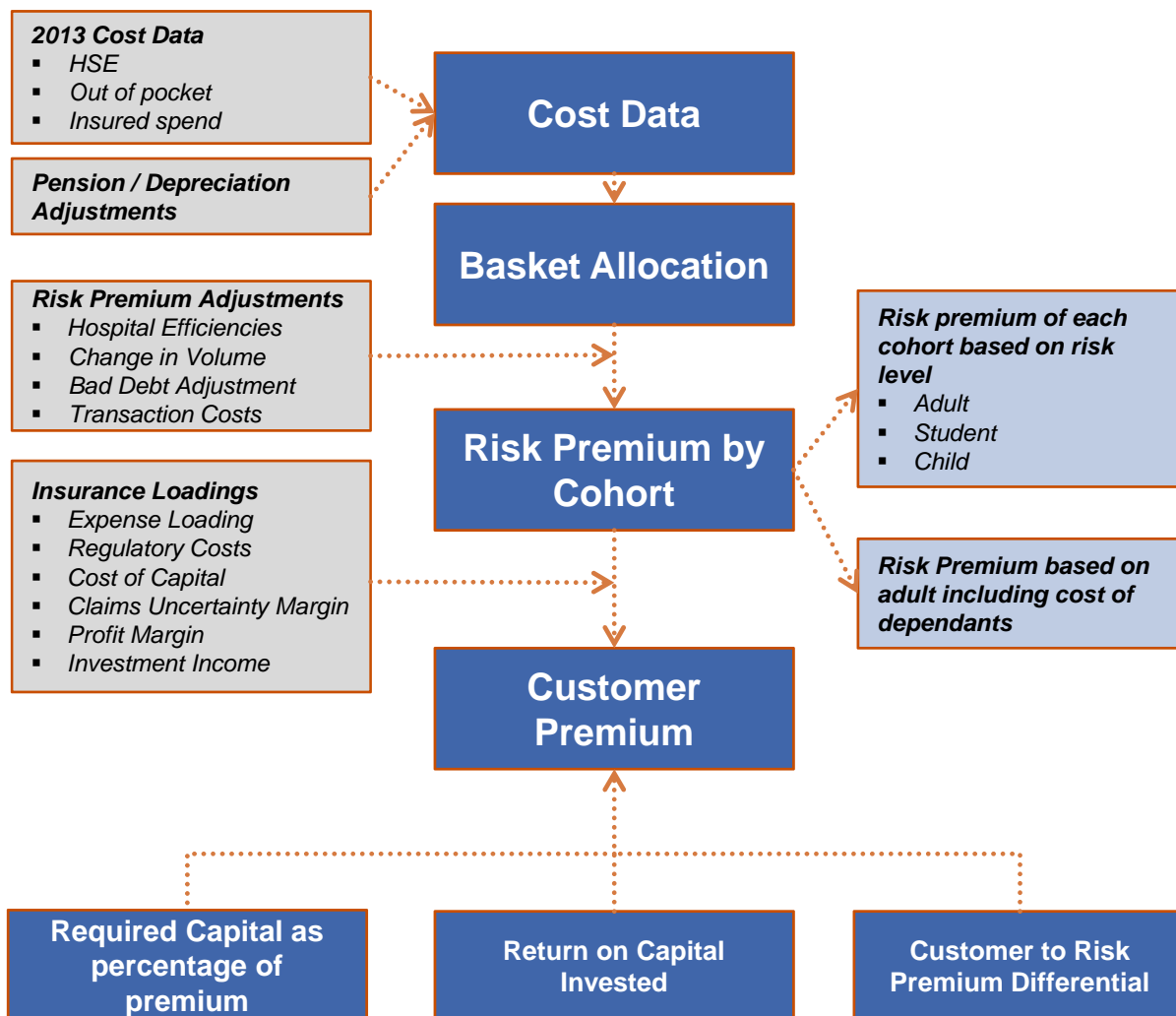
- Expected claims cost per person (or “risk premium”);
- UHI customer premium;
- Return on capital invested; and
- Customer premium to risk premium differential.

The model results are included in Section 7. Further details on the modelling approach are included in the following page.

We note that the UHI premium is dependent on a number of factors, namely:

- The underlying health services provided (Basket Allocation);
- The total cost of the underlying health services provided (Cost Data);
- Changes to the underlying cost data as a result of UHI implementation (Risk Premium Adjustments);
- The number of people who will contribute towards paying for these services and the level of cross subsidy between different cohorts of individuals, e.g. children’s and student’s premiums being subsidised (either fully or partially) by adults;
- Additional costs incurred or efficiencies gained as a result of the provision of health services in an insured environment (Insurance Loadings).

Therefore a number of working assumptions and adjustments to the 2013 cost data have been agreed with the DOH some of which were based on analysis undertaken by Wren, Connolly and Cunningham (2015). These adjustments allow for some of the expected changes to the 2013 cost data as a result of UHI implementation. We have relied on these estimates for the purposes of calculating the UHI premium.



3. Overview of Modelling Approach (cont.)

Cost Data:

The 2013 healthcare cost data has been categorised into 3 main areas – (i) HSE, (ii) 'Out of Pocket' and (iii) 'Insured' spending.

Data in respect of a number of basket line items was not available. In these instances an estimate of the total cost was used. The final cost data used for premium calculation purposes is outlined in Appendix 3. Where an adjustment to the cost data was made this was agreed in advance with the DOH and is noted in Appendix 3.

The premiums estimates do not allow for potential changes to the underlying costs between now and ultimately the implementation date of UHI, which could be influenced by changes to underlying demographics, supply/ demand and cost control factors, administrative / salary costs, medical inflation and price inflation amongst other things. These estimates assume the same pattern of demand and supply for healthcare would continue under UHI other than the specific assumptions and adjustments set out in Section 5. This has been agreed with the DOH and the HIA.

Pensions / Depreciation Adjustment:

We note that the HSE pensions costs are accounted for on a cash or pay as you go basis (PAYG) in the HSE accounts. This differs from private sector pension costs which accrue in line with recognised accounting standards. The latter would be more representative of the true cost of pension accrual and such an approach would be more typical when attempting to calculate long term costs in respect of pensions as part of a premium assessment. Cash payments in respect of pensions (lump sums and pensions) are increasing significantly over time in the HSE system because no pre-funding has occurred and reflecting the ageing of the employed population. Due to lack of data a pro-rated pension figure, based on the proportionate planned salary costs in the underlying basket compared to total HSE planned salary costs for 2015, has been used.

Simplifications have also been made in respect of depreciation due to the unavailability of detailed depreciation data for hospitals.

Further details of the HSE pensions and depreciation costs are included in Appendix 3. Separate premium figures have been calculated assuming HSE pensions and depreciation costs are not included to understand the impact on the UHI premiums for the different baskets.

Cohorts:

Separate premium figures have been calculated in respect of adults, students and children. For the purposes of the calculations the following age bands have been used: children: age 0-17; students: age 18-22; and adults: age 23+.

Risk Premium by Cohort:

The DOH have provided a high level split of acute hospital costs by cohort. Due to limitations in the data available all HSE and individual out of pocket spending is assumed to be split in the same proportions as the acute hospital costs (*Note: Pharmaceutical costs (HSE and Out of Pocket) were assumed to be allocated to students and adults only*). Acute costs represent approximately 68% of the total HSE and Out of Pocket costs in Basket 1.

Insured costs are also assumed to be split between the cohorts based on 2013 acute hospital claims costs of private insurers. Acute hospital claims represents in excess of 90% of total private insured claims.

3. Overview of Modelling Approach (cont.)

Risk Premium Adjustments:

The UHI White Paper sets out a suite of cost control measures comprising: (i) the stipulation of prescribed payment methods to be used in all UHI commissioning, (ii) the setting of maximum prices for healthcare providers, (iii) price monitoring of insurers, (iv) capping of the standard tax relief/subsidy payable on UHI premiums, (v) capping of insurer overheads and profits, (vi) capping of insurer claims, and (vii) the State will also legislate for the use of overall expenditure ceilings within the UHI system. With reference to the UHI White Paper we note that items (i) to (iv) relate to core cost control measures and items (v) to (vii) relate to reserve cost control measures which would not be implemented from the outset. In agreement with the DOH and the HIA, we have not considered the potential impact of the use of cost control measures as part of our work. We suggest further work be done to attempt to quantify these ahead of UHI implementation.

In the absence of demand control measures future demand levels for healthcare services could increase substantially. The DOH has indicated, as a working assumption, that each insurer must offer at least one UHI policy with no co-payments for primary or hospital care, i.e. comparable to the situation experienced by current medical card holders. We understand that this would be the benchmark figure for paying subsidies to those on low and middle incomes and therefore the 'efficient market rate' would be based on this type of policy. Thus the premium estimates generally do not allow for the use of deductibles and similar measures which, if implemented, would reduce expected premium levels.

The underlying private health insurance cost data is based on a market where there is some use of deductibles when care is provided in private hospitals. In the current market, it appears that regularly deductibles appear to be absorbed by the hospitals representing a lower payment, and at other times, the patient incurs an-out-of-pocket cost, which would be captured in the ESRI estimates of out of pocket spending. We have not attempted to quantify an impact on total healthcare spend in respect of insured lives due to changing deductible levels.

System Funding:

The model assumes that UHI will be self funding in terms of premium receipts. No allowance has been made for the impact of other revenue sources such as fiscal subsidies, or co-payments. Under the proposed system premiums are expected to be paid as follows: full payment by individuals who can afford to pay; full state subvention for individuals on low incomes or who are entitled to a medical card; and partial state subvention for individuals on middle incomes. We have not performed an analysis on the likely cost or levels of subvention by the State in respect of subsidised policyholders. This exercise is performed by the ESRI as part of its work using the SWITCH model (Callan, Colgan and Walsh, 2015).

Return on Capital:

A key metric for investors (i.e. the providers of equity for insurers) is the return on capital which is linked to the level of profitability and regulatory capital required. For simplicity we have used an aggregate profit margin when determining the UHI premium estimates. We have included details of the return on capital to highlight the expected return required to be achieved by investors. For simplicity we have not made any allowance for reinsurance although note that reinsurance can be used as a mechanism to manage capital requirements, albeit at a cost.

At the moment insurers are regulated under the Solvency I regime. By the time UHI could be implemented, a new regime will be in place, Solvency II, which will drive the capital requirements under UHI. We have performed an assessment of the capital requirements under Solvency II for the purposes of the costing exercise. Details of the Solvency II regulatory capital requirements are included in Appendix 4.

Assumptions:

The assumptions used in arriving at the UHI premium estimates are set out in Sections 5 and 6. The assumptions have been divided into two distinct categories, i.e. those that impact directly on the risk premium (see Section 5) and those that impact on the cost of providing the health services in an insured environment (see Section 6) to derive the customer premium.

4. Basket Compositions

The three suggested (incremental) UHI baskets of care that the DOH requested that costings be provided for are set out below. The DOH provided the HIA with three policy options consistent with the White Paper. A high level overview of the baskets is set out in the table below. We have not repeated the detail here. We have not included specific details of the composition of each line item of the suggested baskets and have relied on the 2013 cost data provided and sourced (as described in Section 3) associated with each line item. We note that each basket line item incorporates cost data in respect of current HSE spend, individual out of pocket spend and claims in respect of individuals with private health insurance.

- Basket 1 = Basic Basket which reflects approximately the minimum service requirements associated with meeting the Programme for Government;
- Basket 2 = Basket 1 plus other Primary Care;
- Basket 3 = Basket 2 plus Pharmaceuticals.

	Basket 1	Basket 2	Basket 3
Core GP Services (excluding immunisation and screening)	✓	✓	✓
Maternity and Infant Care Scheme	✓	✓	✓
Acute Hospital Care, including maternity care (excl Ambulance Services and Emergency Dept. care)	✓	✓	✓
Acute Mental Health Care for a period not exceeding 12 months provided by community mental health teams	✓	✓	✓
Acute Mental Health Care for a period not exceeding 12 months provided in day hospitals and day centres	✓	✓	✓
Acute Mental Health Care for a period not exceeding 12 months provided in acute hospital inpatient and outpatient settings	✓	✓	✓
Rehabilitative Care for a period not exceeding 12 months provided in the National Rehabilitation Hospital (NRH)	✓	✓	✓
Rehabilitative Care for a period not exceeding 12 months provided in designated rehabilitation beds	✓	✓	✓
Primary Care (other than Core GP Services (excluding immunisation and screening))	×	✓	✓
Pharmaceuticals (prescribed medications in the community)	×	×	✓

5. Assumptions – Risk Premium Adjustments

Costing Assumption	Assumption	Source	Considerations by the Source when setting the Assumption	Sensitivity of Assumption *												
Hospital Efficiencies	(3.6%)	ESRI, Wren, Connolly and Cunningham, 2015	<p>The ESRI (Wren, Connolly and Cunningham, 2015) looked at potential efficiencies which might be achieved in relation to the delivery of hospital care. It assumed that the mean length of stay of the uninsured with surgical diagnoses in public hospitals drops to the mean length of stay of the equivalent insured patients (see Wren, Connolly and Cunningham (2015) Chapter 2, Section 2.5.9.2 for detailed methodology). This amounts to a 3.6% saving. No new cost control measures are assumed in the costing report.</p> <p>The 3.6% saving has been applied to the HSE Acute Hospital Care (including maternity care) line item as set out in the 2013 cost data.</p>	Medium												
Change in Volume	4.1%	ESRI, Wren, Connolly and Cunningham, 2015	<p>Where previously Government healthcare budget caps limited supply (and cost) of healthcare services, it could be expected (and this was also envisioned by the White Paper) that other measures will need to be implemented by insurance companies to constrain demand under UHI. In the absence of demand control measures future demand levels for healthcare services could increase substantially. The DOH have asked us to proceed on the assumption that each insurer would be legally required to offer at least one UHI policy with no co-payments for primary and hospital care services, i.e. a policy which essentially protects the present position of medical card holders. Thus the premium estimates generally do not allow for the use of such or other demand control measures, which if implemented would reduce the expected premium levels.</p> <p>Estimated unmet need for healthcare is based on analysis by Wren, Connolly and Cunningham (2015). Based on analysis of survey data, these authors estimated that addressing unmet need could require a 4.1% increase in non-PHI expenditure which transfers to the UHI basket (see Wren, Connolly and Cunningham (2015) Chapter 2 Section 2.5.10 for detailed methodology). Following discussions between the HIA and DOH it was agreed that there was uncertainty over the level of unmet demand that could arise and that could be met from within existing supply-side constraints. A sensitivity of 0.0% has been used to assess the impact of no change in unmet need.</p> <p>The 4.1% volume loading has been applied to the HSE (excluding Core GP Services) and Out of Pocket line items as set out in the 2013 cost data.</p>	Medium												
Children / student charge as a percentage of adult charge	See Narrative	HIA and the HSE	<p>For the purposes of the analysis the following age bands have been used: children: age 0-17; students: age 18-22; and adults: age 23+.</p> <p>The 2013 cost data has been allocated to the different cohorts as follows:</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th></th> <th>Adult</th> <th>Student</th> <th>Children</th> </tr> </thead> <tbody> <tr> <td>• HSE and Out of Pocket Spend – Allocation across all line items based on the split of costs attributed to acute hospital care. <i>Note: Pharmaceutical costs (HSE and Out of Pocket) were assumed to be allocated to students and adults only</i></td> <td>84.8%</td> <td>2.3%</td> <td>12.9%</td> </tr> <tr> <td>• Insured Spend – Allocation across all line items based on the split of costs attributed to acute hospital care</td> <td>93.0%</td> <td>1.6%</td> <td>5.4%</td> </tr> </tbody> </table> <p>We have assumed the risk premium is calculated on two scenarios:</p> <ol style="list-style-type: none"> Based on pure risk premium associated with each cohort. Assuming the adult premium includes the cost of dependants, i.e. UHI is fully funded by adults and students and children do not pay. 		Adult	Student	Children	• HSE and Out of Pocket Spend – Allocation across all line items based on the split of costs attributed to acute hospital care. <i>Note: Pharmaceutical costs (HSE and Out of Pocket) were assumed to be allocated to students and adults only</i>	84.8%	2.3%	12.9%	• Insured Spend – Allocation across all line items based on the split of costs attributed to acute hospital care	93.0%	1.6%	5.4%	High
	Adult	Student	Children													
• HSE and Out of Pocket Spend – Allocation across all line items based on the split of costs attributed to acute hospital care. <i>Note: Pharmaceutical costs (HSE and Out of Pocket) were assumed to be allocated to students and adults only</i>	84.8%	2.3%	12.9%													
• Insured Spend – Allocation across all line items based on the split of costs attributed to acute hospital care	93.0%	1.6%	5.4%													

* Sensitivity of assumptions considered in light of availability of data, application of expert judgement and impact on premiums.

5. Assumptions – Risk Premium Adjustments (cont.)

Costing Assumption	Assumption	Source	Considerations by the Source when setting the Assumption	Sensitivity of Assumption *
Bad Debt Adjustment	2.0%	KPMG as agreed with DOH	<p>The current private health insurance system is operated on a voluntary basis. When UHI is implemented health insurance will become mandatory. Under the proposed system premiums are expected to be paid as follows: full payment by individuals who can afford to pay; full state subvention for individuals on low incomes or who are entitled to a medical card; and partial state subvention for individuals on middle incomes.</p> <p>Situations may arise from time to time where uninsured persons require necessary emergency healthcare. In such circumstances, the White Paper envisages that healthcare providers will be able to apply to a statutory fund (the 'Compensation Fund') for reimbursement of relevant healthcare costs. The Compensation Fund will be financed via a levy on all health insurers operating in the Irish market and will also have the power to pursue uninsured individuals in respect of their outstanding healthcare costs.</p> <p>The bad debt adjustment allows for the non payment of mandatory insurance premiums or lapsing of insurance cover by certain individuals plus the administrative cost of chasing individuals who haven't paid the compulsory premium payments. There may be a cohort of the public who will not pay their mandatory premiums and this will increase the premium for the paying public to cover this shortfall.</p> <p>The cohort who already have voluntary private health insurance in the current health insurance environment (c. 44% of the Irish population) are unlikely to represent a significant portion of bad debts but some of those currently opting out of private health insurance might prove to be 'bad debts' in a mandatory UHI world. As the State is expected to fund the premiums in respect of individuals on low incomes and those with medical cards the risk in respect of this cohort is mitigated against.</p> <p>We note that Irish motor insurers generally add an additional loading of approximately 2% to premiums to cover the Motor Insurer's Bureau of Ireland (MIBI) compensation fund costs in respect of uninsured drivers. Additionally, the Netherlands has a system which has a history of mandatory health insurance where non payment rates are approximately 2% of total premiums. In the Netherlands subsidies are paid on behalf of c. 40% of the population which would be less than that expected in Ireland. Given the levels of subsidies we have assumed in the long term that Irish experience would be similar in the base case.</p>	High
Transaction Costs	1.5%	KPMG/HIA	<p>Analysis was provided by the DOH in relation to the estimated costs of processing claims costs within the public system.</p> <p>The DOH has also provided a tentative estimate regarding the additional annual costs that might be associated with public hospitals negotiating with private health insurers.</p> <p>Based on these estimates an additional transaction cost of 1.5% is estimated.</p>	Low

* Sensitivity of assumptions considered in light of availability of data, application of expert judgement and impact on premiums.

6. Assumptions – Insurance Loadings

Costing Assumption	Assumption	Source	Considerations by the Source when setting the Assumption	Sensitivity of Assumption *
Expense Loading	6.8%	HIA	<p>The mandatory nature of UHI will mean that more effort is likely to be required by insurers to collect premiums compared to the current insured market. Additionally the increased premium and claim volumes are likely to mean increased IT, operations and customer service requirements, both in the short term (in terms of implementation effort) and in long term (in terms of ongoing administration effort). This additional effort is likely to result in increased expense levels for insurers.</p> <p>The implementation of UHI is also likely to lead to a short term increase in administration expenses as marketing efforts become focussed on increasing their customer base and attracting individuals which the insurers deem to be better risks. Over the long term these efforts (and the corresponding additional spend) are likely to reduce. A mandatory insurance system may also reduce the need for some types of marketing, although regulatory costs may be higher.</p> <p>Current expenditure levels (excluding reinsurance costs), as estimated by the HIA, are of the order of 6.8% of premium, across the market. While business volumes will increase substantially as a result of UHI implementation it is likely that economies of scale will also result thus having a reducing effect on the expense loading as a percentage of premium.</p> <p>Given the above considerations we have assumed that expense loadings will remain at 6.8% in the short term, although note that expenses as a percentage of premium may reduce over the longer term. We would consider this a prudent assumption.</p>	Medium
Investment Income	1.0%	KPMG	<p>The nature of health insurance business means that claims are generally settled over a 1 – 2 year period. The short term nature of the liabilities means that short term liquid assets such as bonds or cash provide a good asset match in terms of duration. These assets generally have lower investment returns compared to riskier assets, hence we have assumed a return of 1%, which results in a reduction to the premium.</p>	Low
Profit Margin	3.2%	HIA	<p>Analysis conducted by KPMG Netherlands and published in a report entitled 'KPMG Evaluation of Health Insurance Market' dated September 2014 shows that the profitability of health insurance business since 2008 has been relatively stable at around 2%. This low level of margin is related to the short term nature of the insurance business and the low perceived risk due to capacity constraints which limit the potential claims costs. In the voluntary Australian market profit margins over the past two years have been around 4%.</p> <p>In 2013 the market average profit margin in the Irish private health insurance as a percentage of earned premium was 3.2%. Given these levels it is reasonable to assume that future profit margins would not be dissimilar.</p>	Low
Claims Uncertainty Margin	1.0%	KPMG / HIA	<p>It is likely several components of the insurance basket will not be covered under current health insurance products and health insurers will accordingly lack relevant pricing knowledge. A lack of up-front pricing knowledge on such components in addition to the shift to a mandatory universal healthcare obligation would likely represent a material risk factor for capital providers and may also increase the cost of obtaining the required regulatory capital. The level of uncertainty could be mitigated somewhat through the provision of public sector healthcare data to the insurers in advance of the implementation of UHI. Additionally, healthcare spend is naturally constrained by supply side factors which if increased would be known in advance, although we note that cross border healthcare rights could result in additional supply. Taking account of the explicit assumption for increases in volume due to unmet demand an additional allowance is made for a claims uncertainty margin of 1%. We have performed sensitivities of 3% and 5% to highlight the impact of higher claims on the UHI premiums.</p>	High

* Sensitivity of assumptions considered in light of availability of data, application of expert judgement and impact on premiums.



6. Assumptions – Insurance Loadings (cont.)

Costing Assumption	Assumption	Source	Considerations by the Source when setting the Assumption	Sensitivity of Assumption *
Levy / Cost of Regulation	0.5%	HIA	Based on possible regulatory costs provided by the HIA.	Low
Cost of Capital	1.5%	KPMG	Assume 6% cost of level of regulatory capital on capital held, estimated to be 25% of premium (see Appendix 4 for further details)	Low

* Sensitivity of assumptions considered in light of availability of data, application of expert judgement and impact on premiums.

7. Results

Including Pensions and Depreciation												
	Basket 1				Basket 2				Basket 3			
	Adult including cost of dependants	Adult	Student	Child	Adult including cost of dependants	Adult	Student	Child	Adult including cost of dependants	Adult	Student	Child
2013 Cost Data	€6,911m	€6,004m	€149m	€758m	€7,914m	€6,867m	€172m	€876m	€9,724m	€8,628m	€220m	€876m
Risk Premium Adjustments	€305m	€263m	€7m	€35m	€376m	€324m	€8m	€43m	€517m	€461m	€12m	€43m
2013 Costing Data Cost after Adjustments	€7,215m	€6,267m	€156m	€792m	€8,290m	€7,191m	€180m	€919m	€10,241m	€9,090m	€232m	€919m
Population	3,150,134	3,150,134	289,431	1,148,687	3,150,134	3,150,134	289,431	1,148,687	3,150,134	3,150,134	289,431	1,148,687
Risk Premium	€2,290	€1,989	€539	€690	€2,632	€2,283	€622	€800	€3,251	€2,885	€803	€800
Total Insurance Loading	€275	€239	€65	€83	€316	€274	€75	€96	€390	€346	€96	€96
Customer Premium	€2,565	€2,228	€603	€773	€2,948	€2,557	€696	€896	€3,641	€3,232	€899	€896
Required Capital as percentage of premium	25.0%				25.0%				25.0%			
Percentage Return on Capital	11.4%				11.4%				11.4%			
Office to Risk Premium Differential	12.0%				12.0%				12.0%			

Excluding Pensions and Depreciation												
	Basket 1				Basket 2				Basket 3			
	Adult including cost of dependants	Adult	Student	Child	Adult including cost of dependants	Adult	Student	Child	Adult including cost of dependants	Adult	Student	Child
2013 Cost Data	€6,409m	€5,578m	€137m	€693m	€7,356m	€6,394m	€159m	€804m	€9,166m	€8,156m	€207m	€804m
Risk Premium Adjustments	€282m	€245m	€6m	€32m	€349m	€302m	€8m	€40m	€490m	€439m	€11m	€40m
2013 Costing Data Cost after Adjustments	€6,691m	€5,823m	€144m	€725m	€7,706m	€6,696m	€166m	€844m	€9,657m	€8,594m	€219m	€844m
Population	3,150,134	3,150,134	289,431	1,148,687	3,150,134	3,150,134	289,431	1,148,687	3,150,134	3,150,134	289,431	1,148,687
Risk Premium	€2,124	€1,848	€496	€631	€2,446	€2,126	€574	€734	€3,065	€2,728	€755	€734
Total Insurance Loading	€255	€222	€60	€76	€294	€255	€69	€88	€368	€327	€91	€88
Customer Premium	€2,379	€2,070	€556	€707	€2,740	€2,381	€643	€823	€3,433	€3,056	€846	€823
Required Capital as percentage of premium	25.0%				25.0%				25.0%			
Percentage Return on Capital	11.4%				11.4%				11.4%			
Office to Risk Premium Differential	12.0%				12.0%				12.0%			

* April 2011 Census data. For the purposes of the calculations the following age bands have been used: children: age 0-17; students: age 18-22; and adults: age 23+.

As agreed with the HIA and the DOH, the above figures have been calculated with and without HSE pension and depreciation costs to show the impact.

Costing analysis of average premiums across all lives is included in Appendix 1.

Appendix 1 – Average premium across all lives

Including Pensions and Depreciation												
	Basket 1				Basket 2				Basket 3			
	All Lives	Adult	Student	Child	All Lives	Adult	Student	Child	All Lives	Adult	Student	Child
2013 Cost Data	€6,911m	€6,004m	€149m	€758m	€7,914m	€6,867m	€172m	€876m	€9,724m	€8,628m	€220m	€876m
Risk Premium Adjustments	€305m	€263m	€7m	€35m	€376m	€324m	€8m	€43m	€517m	€461m	€12m	€43m
2013 Costing Data Cost after Adjustments	€7,215m	€6,267m	€156m	€792m	€8,290m	€7,191m	€180m	€919m	€10,241m	€9,090m	€232m	€919m
Population	4,588,252	3,150,134	289,431	1,148,687	4,588,252	3,150,134	289,431	1,148,687	4,588,252	3,150,134	289,431	1,148,687
Risk Premium	€1,573	€1,989	€539	€690	€1,807	€2,283	€622	€800	€2,232	€2,885	€803	€800
Total Insurance Loading	€189	€239	€65	€83	€217	€274	€75	€96	€268	€346	€96	€96
Customer Premium	€1,761	€2,228	€603	€773	€2,024	€2,557	€696	€896	€2,500	€3,232	€899	€896
Required Capital as percentage of premium	25.0%				25.0%				25.0%			
Percentage Return on Capital	11.4%				11.4%				11.4%			
Office to Risk Premium Differential	12.0%				12.0%				12.0%			

Excluding Pensions and Depreciation												
	Basket 1				Basket 2				Basket 3			
	All Lives	Adult	Student	Child	All Lives	Adult	Student	Child	All Lives	Adult	Student	Child
2013 Cost Data	€6,409m	€5,578m	€137m	€693m	€7,356m	€6,394m	€159m	€804m	€9,166m	€8,156m	€207m	€804m
Risk Premium Adjustments	€282m	€245m	€6m	€32m	€349m	€302m	€8m	€40m	€490m	€439m	€11m	€40m
2013 Costing Data Cost after Adjustments	€6,691m	€5,823m	€144m	€725m	€7,706m	€6,696m	€166m	€844m	€9,657m	€8,594m	€219m	€844m
Population	4,588,252	3,150,134	289,431	1,148,687	4,588,252	3,150,134	289,431	1,148,687	4,588,252	3,150,134	289,431	1,148,687
Risk Premium	€1,458	€1,848	€496	€631	€1,679	€2,126	€574	€734	€2,105	€2,728	€755	€734
Total Insurance Loading	€175	€222	€60	€76	€202	€255	€69	€88	€253	€327	€91	€88
Customer Premium	€1,633	€2,070	€556	€707	€1,881	€2,381	€643	€823	€2,357	€3,056	€846	€823
Required Capital as percentage of premium	25.0%				25.0%				25.0%			
Percentage Return on Capital	11.4%				11.4%				11.4%			
Office to Risk Premium Differential	12.0%				12.0%				12.0%			

* April 2011 Census data. For the purposes of the calculations the following age bands have been used: children: age 0-17; students: age 18-22; and adults: age 23+.

As agreed with the HIA and the DOH, the above figures have been calculated with and without HSE pension and depreciation costs to show the impact.

Appendix 2 – Sensitivity and Scenario Testing

Adult Premium Including Cost of Dependants

The table below sets out a number of sensitivities and scenarios around a number of key assumptions. The scenarios have been chosen to highlight the impact on the UHI premium should these assumptions change. Note that the customer premiums in the table below assume students and children costs are included in the adult premium.

	Basket 1		Basket 2		Basket 3	
	Customer Premium	Impact on Premium	Customer Premium	Impact on Premium	Customer Premium	Impact on Premium
Base Case	€2,565		€2,948		€3,641	
7.2% Hospital Efficiencies (Base 3.6%)	€2,517	(€49)	€2,899	(€49)	€3,593	(€49)
0% Volume Adjustment (Base 4.1%)	€2,495	(€70)	€2,865	(€83)	€3,531	(€110)
2% Transaction Costs (Base 1.5%)	€2,578	€13	€2,962	€15	€3,659	€18
4% Bad Debt Adjustment (Base 2%)	€2,616	€0	€3,005	€8	€3,713	€71
0% Bad Debt Adjustment (Base 2%)	€2,515	(€0)	€2,890	(€8)	€3,570	(€71)
10% Expense Loading (Base 6.8%)	€2,639	€73	€3,032	€84	€3,745	€104
5% Profit Margin (Base 3.2%)	€2,606	€41	€2,995	€47	€3,700	€59
2.5% Cost of Capital (Base 1.5%)	€2,588	€23	€2,974	€26	€3,674	€33
3% Claims Uncertainty Margin (Base 1%)	€2,611	€46	€3,000	€53	€3,706	€65
5% Claims Uncertainty Margin (Base 1%)	€2,657	€92	€3,053	€105	€3,771	€130
Positive Scenario						
- 4% Expense loading (Base 6.8%)						
- 0% Volume Adjustment (Base 4.1%)						
- 7.2% Hospital Efficiencies (Base 3.6%)	€2,339	(€227)	€2,692	(€256)	€3,329	(€312)
- 0% Bad Debt Adjustment (Base 2%)						
Negative Scenario						
- 10% Expense loading (Base 6.8%)						
- 2.5% Cost of Capital (Base 1.5%)						
- 5% Claims Uncertainty Margin (Base 1%)						
- 0% Hospital Efficiencies (Base 3.6%)						
- 4% Bad Debt Adjustment (Base 2%)	€2,860	€295	€3,279	€331	€4,037	€396

Appendix 2 – Sensitivity and Scenario Testing (cont.)

Cohort Level

Adult Premium		Basket 1		Basket 2		Basket 3		
	Customer Premium	Impact on Premium	Customer Premium	Impact on Premium	Customer Premium	Impact on Premium	Customer Premium	Impact on Premium
Base Case	€2,228		€2,557		€3,232			
7.2% Hospital Efficiencies (Base 3.6%)	€2,187	(€41)	€2,516	(€41)	€3,191	(€41)		
0% Volume Adjustment (Base 4.1%)	€2,169	(€59)	€2,487	(€70)	€3,135	(€77)		
2% Transaction Costs (Base 1.5%)	€2,239	€1	€2,569	€13	€3,248	€16		
4% Bad Debt Adjustment (Base 2%)	€2,272	€4	€2,607	€50	€3,295	€63		
0% Bad Debt Adjustment (Base 2%)	€2,184	(€44)	€2,507	(€50)	€3,168	(€63)		
10% Expense Loading (Base 6.8%)	€2,292	€4	€2,630	€73	€3,324	€92		
5% Profit Margin (Base 3.2%)	€2,264	€6	€2,598	€41	€3,284	€52		
2.5% Cost of Capital (Base 1.5%)	€2,248	€20	€2,580	€23	€3,261	€29		
3% Claims Uncertainty Margin (Base 1%)	€2,268	€40	€2,602	€46	€3,289	€58		
5% Claims Uncertainty Margin (Base 1%)	€2,308	€80	€2,648	€91	€3,347	€115		
Positive Scenario	€2,034	(€194)	€2,338	(€219)	€2,957	(€274)		
Negative Scenario	€2,483	€255	€2,843	€286	€3,581	€350		

Student Premium		Basket 1		Basket 2		Basket 3		
	Customer Premium	Impact on Premium	Customer Premium	Impact on Premium	Customer Premium	Impact on Premium	Customer Premium	Impact on Premium
Base Case	€903		€996		€899			
7.2% Hospital Efficiencies (Base 3.6%)	€891	(€12)	€884	(€12)	€887	(€12)		
0% Volume Adjustment (Base 4.1%)	€885	(€18)	€875	(€21)	€870	(€29)		
2% Transaction Costs (Base 1.5%)	€906	€3	€900	€3	€903	€4		
4% Bad Debt Adjustment (Base 2%)	€915	€12	€910	€14	€917	€18		
0% Bad Debt Adjustment (Base 2%)	€891	(€12)	€883	(€14)	€881	(€18)		
10% Expense Loading (Base 6.8%)	€920	€17	€916	€20	€925	€26		
5% Profit Margin (Base 3.2%)	€913	€10	€907	€11	€914	€14		
2.5% Cost of Capital (Base 1.5%)	€909	€5	€902	€6	€907	€8		
3% Claims Uncertainty Margin (Base 1%)	€914	€11	€909	€12	€915	€16		
5% Claims Uncertainty Margin (Base 1%)	€925	€22	€921	€25	€931	€32		
Positive Scenario	€848	(€56)	€834	(€63)	€820	(€79)		
Negative Scenario	€974	€70	€975	€79	€997	€98		

Child Premium		Basket 1		Basket 2		Basket 3		
	Customer Premium	Impact on Premium	Customer Premium	Impact on Premium	Customer Premium	Impact on Premium	Customer Premium	Impact on Premium
Base Case	€773		€896		€896			
7.2% Hospital Efficiencies (Base 3.6%)	€755	(€17)	€879	(€17)	€879	(€17)		
0% Volume Adjustment (Base 4.1%)	€748	(€25)	€867	(€29)	€867	(€29)		
2% Transaction Costs (Base 1.5%)	€776	€4	€901	€4	€901	€4		
4% Bad Debt Adjustment (Base 2%)	€788	€15	€914	€18	€914	€18		
0% Bad Debt Adjustment (Base 2%)	€757	(€15)	€879	(€18)	€879	(€18)		
10% Expense Loading (Base 6.8%)	€795	€22	€922	€26	€922	€26		
5% Profit Margin (Base 3.2%)	€785	€12	€911	€14	€911	€14		
2.5% Cost of Capital (Base 1.5%)	€779	€7	€904	€8	€904	€8		
3% Claims Uncertainty Margin (Base 1%)	€786	€14	€912	€16	€912	€16		
5% Claims Uncertainty Margin (Base 1%)	€800	€28	€928	€32	€928	€32		
Positive Scenario	€698	(€74)	€812	(€84)	€812	(€84)		
Negative Scenario	€864	€92	€1,000	€103	€1,000	€103		

Appendix 2 – Sensitivity and Scenario Testing (cont.)

Average premium across all lives

The table below sets out a number of sensitivities and scenarios around a number of key assumptions. The scenarios have been chosen to highlight the impact on the UHI premium should these assumptions change. Note that the customer premiums in the table below reflects the average premium across all lives.

	Basket 1		Basket 2		Basket 3	
	Customer Premium	Impact on Premium	Customer Premium	Impact on Premium	Customer Premium	Impact on Premium
Base Case	€1,761		€2,024		€2,500	
7.2% Hospital Efficiencies (Base 3.6%)	€1,728	(€33)	€1,990	(€33)	€2,467	(€33)
0% Volume Adjustment (Base 4.1%)	€1,713	(€48)	€1,967	(€57)	€2,424	(€76)
2% Transaction Costs (Base 1.5%)	€1,770	€9	€2,034	€10	€2,512	€12
4% Bad Debt Adjustment (Base 2%)	€1,796	€25	€2,063	€40	€2,549	€49
0% Bad Debt Adjustment (Base 2%)	€1,727	(€35)	€1,984	(€40)	€2,451	(€49)
10% Expense Loading (Base 6.8%)	€1,812	€50	€2,082	€58	€2,571	€71
5% Profit Margin (Base 3.2%)	€1,790	€28	€2,056	€33	€2,540	€40
2.5% Cost of Capital (Base 1.5%)	€1,777	€16	€2,042	€18	€2,522	€22
3% Claims Uncertainty Margin (Base 1%)	€1,793	€31	€2,060	€36	€2,545	€45
5% Claims Uncertainty Margin (Base 1%)	€1,824	€63	€2,096	€72	€2,589	€89
Positive Scenario						
- 4% Expense loading (Base 6.8%)						
- 0% Volume Adjustment (Base 4.1%)						
- 7.2% Hospital Efficiencies (Base 3.6%)	€1,606	(€156)	€1,848	(€176)	€2,285	(€214)
- 0% Bad Debt Adjustment (Base 2%)						
Negative Scenario						
- 10% Expense loading (Base 6.8%)						
- 2.5% Cost of Capital (Base 1.5%)						
- 5% Claims Uncertainty Margin (Base 1%)	€1,964	€202	€2,251	€227	€2,772	€272
- 0% Hospital Efficiencies (Base 3.6%)						
- 4% Bad Debt Adjustment (Base 2%)						

Service Items	HSE Spending		Out of Pocket Spending (OOPs)		Insured	
	€m	Source	€m	Source	€m	Source
1. Core GP service (excluding immunisations and screening)	463	Estimate of €463m derived as follows – PCRS payments to GPs of €452m less €8m relating to childhood immunisations and plus €19m in relation to the Maternity and Infant Care Scheme. (source: Wren, Connolly and Cunningham, 2015)	267	Estimate of €267m as per Wren, Connolly and Cunningham (2015)	0	No estimate as assumed to be covered by out of pocket spending and subsequently reimbursed.
2. Maternity and Infant Care Scheme (GP element)	19	HSE figure per DOH e-mail of 3rd March, as captured in the figure above.	0	N/A	0	N/A
3. Core community nursing services (excluding immunisation and screening)	30	Estimate based on €30m included for 'other regional services' included within the HSE Management Data Report December 2013 (p.117)	0	No data available.	0	No data available
4. Chronic disease and case management	0	No stable data provided	0	No data available	0	No data available
5. Acute Hospital Care, including maternity care	3,210	Findings on current health expenditure in 2013 from Wren, Connolly and Cunningham (2015), which identifies a figure of €4,130m for net public hospital spending (this is net of insurance and out of pocket payments and also excludes capital and clinical indemnity costs) and indicates that 79% of this figure relates to inpatient, day-case and outpatient costs. These figures are subject to rounding and the resultant total spend is €3,270m. HSE advises that €24m is the annual cost of acute mental health in acute hospitals and so this has been deducted from the total at item 5 and is captured at item 8 below. Additionally €36m in respect of rehabilitative care has been removed, per HSE, and included in items 9 and 10 below.	93	Figures of €50m in respect of out of pocket payments of consultants' fees (source: Wren, Connolly and Cunningham, 2015) and €43m in respect of out of pocket payments of hospital charges sourced from HSE Annual Accounts 2013. ED charges have not been included within the model.	1,803	Figures of €510m for insurance expenditure on public hospital care, €901m for expenditure on private hospital care and €392m for expenditure on payments to hospital consultants (source: Wren, Connolly and Cunningham, 2015). The total figure includes inpatient psychiatric treatment.
plus pensions	282	Total pension payments in HSE statutory providers and the 36 voluntary providers on the 2nd schedule to the ERHA Act were €608m in 2013. Lump sums were €89m implying a total pension cost of €697m (source: HSE). This was allocated to the major public expenditure items (acute, primary services, and mental health) in each of the baskets based on the pay expenditure across each of these basket items expressed as a proportion of total HSE pay expenditure, e.g. pensions allocation for acute hospital care = Total pension cost as per item 5 * $\frac{\text{acute pay}}{\text{total pay}} * \frac{\text{acute costs allocated to basket}}{\text{total acute costs}}$	0	N/A	0	N/A
Plus depreciation	173	Source: HSE Financial statements notes 9 and 10 reflecting depreciation on buildings and equipment charged in FY13. Total HSE figure excludes voluntary hospitals.	0	N/A	0	N/A
6. Acute Mental Health Care for a period not exceeding 12 months provided by community mental health teams	514	Acute hospital spending on mental healthcare is captured above. Estimate of €514m as per Wren, Connolly and Cunningham (2015) for community spending.	0	No data available	0	No data available
plus pensions	47	See item 5.	0	N/A	0	N/A
7. Acute Mental Health Care for a period not exceeding 12 months provided in day hospitals and day centres	0	Included in item 6.	0	No data available	0	No data available

Appendix 3 – Data Sources (cont.)

Service Items	HSE Spending		Out of Pocket Spending (OOPs)		Insured	
	€m	Source	€m	Source	€m	Source
8. Acute Mental Health Care for a period not exceeding 12 months provided in acute hospital inpatient and outpatient settings	24	HSE figure taken from 2013 Speciality costing returns and includes both direct and indirect costs. Please note that figures for acute hospital care (as per Wren, Connolly and Cunningham, 2015) include expenditure on mental health services provided in acute hospital settings and so this amount has been deducted from the total at item 5.	0	No data available	0	Included in item 5.
9. Rehabilitative Care for a period not exceeding 12 months provided in the National Rehabilitation Hospital	29	HSE provided this figure and note that it includes direct and indirect costs but excludes pension costs of €2m. Please note that figures for acute hospital care (as per Wren, Connolly and Cunningham, 2015) include expenditure on rehabilitative care services provided in acute hospital settings and so this amount has been deducted from the total at item 5.	0	No data available	0	No data available
10. Rehabilitative Care for a period not exceeding 12 months provided in designated rehabilitation beds	7	HSE figure taken from Speciality Costing Returns. Please note that figures for acute hospital care (as per Wren, Connolly and Cunningham, 2015) include expenditure on rehabilitative care services provided in acute hospital settings and so this amount has been deducted from the total at item 5.	0	No data available	0	No data available
11. Pharmaceuticals (prescribed medications in the community)	1,647	Estimate of €1,647m as per Wren, Connolly and Cunningham (2015)	163	Estimate of €163m as per Wren, Connolly and Cunningham (2015)	0	No estimate available
12. Primary Care (Other than Core GP Services)	708	Estimate of €708m as per Wren, Connolly and Cunningham (2015)	83	Estimate of €83m as per Wren, Connolly and Cunningham (2015)	157	Estimate of €157m relating to primary and outpatient care services as per Wren, Connolly and Cunningham (2015) (Note: Due to challenges in relation to disaggregating available data, this category of insurance covers non-hospital services and non-prescribed hospital benefits)
plus pensions	56	See item 5.	0	N/A	0	N/A

Other Material Provided / Referenced:

Material provided by the DOH:

- Documents from the DOH reflecting working assumptions to be used in the model in a number of areas: (i) volume adjustment based on unmet need, (ii) public hospital efficiencies, (iii) treatment of children and dependents, (iv) deductibles. Note: assumptions under (i) and (ii) based on analysis in Wren, Connolly and Cunningham (2015)
- Other documents from the DOH: Claims costs by age group (by reference to public acute claims), estimates of transaction costs, provider costs (i.e. estimates of differences in costs under single payer versus multi payer models internationally)

Material referenced:

- Callan T., B. Colgan and J.R. Walsh (2015), *Income-Related Subsidies for Universal Health Insurance Premia: Exploring Alternatives Using the SWITCH Model*. ESRI Working Paper, ESRI: Dublin.
- Reports to the Minister for Health from the HIA on an evaluation and analysis of returns (from 1 July 2013 to 30 June 2014, from 1 July 2012 to 30 June 2013 and from 1 July 2011 to 30 June 2012)
- KPMG Netherlands September 2014 report 'Evaluation of the Health Insurance Market'
- Civitas publication 'Healthcare Systems: Ireland & 'Universal Health Insurance' – an emerging model for the UK?' dated 17/12/13
- Activity in Acute Public Hospitals in Ireland, 2013 Annual Report
- HSE Management Data Report December 2013
- HSE Annual report and financial statements 2013
- Experience of administering Health Insurance Mandates (2009). At https://www.nasi.org/usr_doc/Administering_Health_Insurance_Mandates.pdf [accessed 10 March 2015]
- Wren M., S. Connolly and N. Cunningham (2015), *An examination of the potential costs of Universal Health Insurance in Ireland*, ESRI Research Series Report. ESRI: Dublin.
- Managed Competition in the Dutch Healthcare System – preconditions and experiences so far (2012). At https://www.mof.go.jp/english/pri/publication/pp_review/ppr016/ppr016c.pdf [accessed 8 March 2015]
- Booklet entitled 'Health insurance in the Netherlands' (The Hague, March 2011).

UHI will mean that an increased level of premium income will flow through insurance companies. Under the current Solvency I regime where premium income is used as one determinant of the required solvency margin, this is likely to result in increased regulatory capital requirements. Solvency II Solvency Capital Requirements ('SCR') requires insurers to consider future business they know they will write which would result in a significant increase in capital requirements in the lead up to the introduction to UHI. In practice insurers will also need to hold an additional margin in excess of the SCR. The SCR is largely driven by premium and reserve risk. Overall the level of total capital required could be of the order of 25% of premium. This view is supported by the Society of Actuaries in Ireland in their response to the White Paper, of which a number of KPMG employees contributed to in their role as members of the Society.

This scale of regulatory capital will most likely come from a combination of reinsurers, international capital markets and international parent companies of insurers operating in the Irish market. The confidence of these groups in the success and stability of the proposed UHI system will be pivotal in deciding whether such capital will be available and, if so, the return sought to compensate for the perceived commercial risks being taken. For the purposes of our analysis we have assumed a 6% cost of capital. We note different investors will have different requirements.

Insurers will, in practice, pass the cost of this additional capital onto customers through the premiums they charge. Options such as reinsurance may be used to reduce these capital requirements although these will result in additional costs.

The incoming Solvency II capital system proposes a potential reduction in the standard capital basis for health insurers in the case of UHI combined with a risk equalisation scheme (RES). Importantly, a number of pre-conditions with respect to the RES must be met before this capital discount can be contemplated. These include:

- The mechanism for the sharing of claims is transparent and fully specified in advance of the annual period that it applies to;
- The mechanism for the sharing of claims, the number of insurance undertakings that participate in the RES and the risk characteristics of the business subject to the RES ensure that for each undertaking participating in the RES the volatility of annual losses of the business subject to the RES is significantly reduced by means of the RES;
- The health insurance subject to the HRES is compulsory and serves as a partial or complete alternative to health cover provided by the statutory social security system; and
- In case of default of insurance undertakings participating in the RES, one or several governments guarantee to fully meet the policyholder claims of the insurance business that is subject to the RES.

The Central Bank of Ireland (CBI) will ultimately decide whether any deductions are appropriate to the standard Solvency II basis for health insurers writing Irish UHI business. We have assumed for the purposes of the analysis performed, as agreed with the HIA and the DOH, not to allow for any deductions in the required level of capital. We note that any such reductions could lead to lower premiums as insurers would require a lower profit margin for the same level of return on capital.

Given the above considerations we have assumed an additional cost of capital of 1.5% of premium. This assumes a 6% cost of capital on the capital held, i.e. $1.5\% = 6\% * 25\%$ of premium.



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