

# **FINANCIAL ANALYSIS OF THE FUTURE BASIC BENEFIT PACKAGE OF THE REPUBLIC OF MACEDONIA**

## **Progress Report**

**Draft for initial consideration and prior to OPM Peer Review**

**December 2007**



## **FINANCIAL ANALYSIS OF THE FUTURE BASIC BENEFIT PACKAGE OF THE REPUBLIC OF MACEDONIA**

### **Progress Report**

#### 1. Background

1.1. The Ministry of Health of Macedonia in the framework of the Health Sector Management Project, funded by the World Bank loan, has commissioned technical assistance for the financial analysis of the future basic benefit package of the Republic of Macedonia.

1.2. Following an international tender Oxford Policy Management (OPM) of the United Kingdom was chosen to provide technical assistance. OPM has subcontracted the Centre for Research and Policy Making (CRPM) to assist its work and in particular to undertake the survey of costs in health facilities.

1.3. The key objectives and scope of consultancy are to:

1. Perform comprehensive fiscal analysis of the proposed Basic Benefit Package content building on the recommendations of previous consultancies;
2. Analyze and calculate the real cost of delivering BBP services in primary and hospital care, including the positive list of drugs covered by health insurance. If necessary recommend adjustment (update) of health services price list methodology and costs;
3. Determine the costs of curative part of 13 MOH Special Programmes (currently managed by MOH and financed by the budget) to be incorporated in the future BBP;
4. Make recommendations for the content of the future BBP based on a costs calculation of priority services versus available financial resources;
5. Define methodology, revise service-pricing methodology, set up procedures and build MOH and HIF capacities for regular BBP updates in future.

1.4. The costs of providing primary care services undertaken through the capitation funding arrangements are not included in the costing survey but may of course be relevant in the overall fiscal analysis.

1.5. This work forms part of a set of studies commissioned by the World Bank and Government, the most significant of which are:

- Formulation of a Co-payment Policy under Social Health Insurance (Karl Karol)
- Future Organisation, Function, and Financing of Public Health (Thomas Novotny)
- Basic Benefits Package Revision (Kees Schaapveld)
- Medical Map Analyses ( Global Salud)

- 1.6. The work is being undertaken under the overall guidance of the Basic Benefits Package Working Group.
- 1.7. An Inception Report was prepared in September 2007.
- 1.8. OPM wishes to recognise the considerable support and assistance it has received from officers of the Ministry of Health and World Bank Project Coordination Unit and many health service staff throughout the country.

## 2. Overall Work Plan and Summary of Activities to date

2.1. The revised overall work plan for the assignment is below:

Dates	Activities	Reports / Meetings
7 <sup>th</sup> July – 13 <sup>th</sup> July	Initial Visit Meetings with Stakeholders Establishment of arrangements with local survey organisation	
23 July – 27 July	Finalise data collection instruments Agree sample of facilities / services Agree timetable for survey Prepare inception report	Inception Report
30 <sup>th</sup> July – 3 <sup>rd</sup> August	Identify all relevant secondary sources Agree reporting tables Test data collection instruments Issue letter from Minister to facilities Send data collection instrument to facilities Brief survey teams Agree participation of HIF staff	Brief BBP Working Group
6 <sup>th</sup> August to 31 <sup>st</sup> August	Data Collection Checking and Cleaning Preparation of tables	
3 <sup>rd</sup> September – 7 <sup>th</sup> September	Data analysis Draft Costing Report Scaling up to a National Model	
10 <sup>th</sup> September – 14 <sup>th</sup> September	Report preparation Report presentation to BBP Working Group Summary Report to Minister	Report and Workshop
18 <sup>th</sup> October – 20 <sup>th</sup> November	Supplementary Survey	
3 <sup>rd</sup> December – 10 <sup>th</sup> December	Complete Data Analysis Identify Challenges to data collection and make recommendations Agree scenarios for normative costing Prepare progress report	Report and Workshop
Early 2008	Documentation Training Final Reports	Draft Final and Final Reports Workshop

- 2.2. The assignment commenced with an initial visit by the Team Leader Mike Naylor from 7<sup>th</sup> to 13<sup>th</sup> July. This visit included discussions with the main stakeholders, liaison with other consultants, attendance at associated workshops, visits to facilities, and concluded with a discussion with the Minister. In parallel with this visit initial work was undertaken by Tim Ensor and Alex Manu on the costing model and the associated data collection instruments.
- 2.3. Rana Assad Amin, costing consultant, made a visit from 23<sup>rd</sup> July to 3<sup>rd</sup> August. The focus of his work was on the preparation for the costing survey. This included the choice of the institutions in the sample and the refinement of the survey instruments including pre testing in two institutions. The initial survey was undertaken during August and was completed at the beginning of September. A workshop related to this stage of the assignment was undertaken on 27<sup>th</sup> July 2007.
- 2.4. At the beginning of September a visit was made by the OPM international team of Mike Naylor, Alex Manu, and Rana Assad Amin with support from Marija Ristestka (CRPM). The data collected was reviewed and significant gaps identified. This was largely due to the weakness of facility systems exacerbated by the absence of senior facility management during the summer holiday period. In spite of these problems an initial overall costing of the BPP was prepared and a successful workshop held. The presentation made at the workshop, and the interim report, are attached as Annexes 3 and 4.
- 2.5. It was agreed with the Ministry of Health and the World Bank PIU that a supplementary survey was required in order to complete the actual costing of services below the level of overall aggregates. OPM also indicated that the circumstances of implementing the project had required international consulting time to be applied to data cleaning and input and that an increase in the budget to allow full completion of the terms of reference would be requested. Eventually the World Bank decision was to allow an increase only for the costs of the supplementary survey. The Ministry can be assured that in spite of this decision OPM will make every effort to achieve the full deliverables of the project.
- 2.6. The supplementary survey was suspended until the decision on funding was received and then restarted with minimum delay. The results of the survey are now presented with this report as part of the OPM international team visit from 3<sup>rd</sup> to 8<sup>th</sup> December.

### 3. Services to be Costed

3.1. An important requisite of costing of services is to identify the type of services / descriptors to be costed. From the perusal of the Byelaw issued by the HIF on 15.12.06, and visits to the primary care providers, it was revealed that the following primary health services are provided by the Health Houses and these services are not included in the capitation payment system provided by the chosen doctors (GP):

- Emergency medical services
- Home visits, including transport with sanitary vehicle when that is needed,
- Preventive health protection of pre-school children & school children aged 18,
- Patronage services,
- Delivery services,
- Advisory services for healthy children and compulsory vaccination,
- Emergency dentistry services and preventive dentistry services
- Specialist Out Patient Services (Health Houses)

3.2. The hospitals services to be costed are:

#### General Hospital Services

- Emergency Attendance
- In Patient (by surgical, medical, paediatric, obs/gynae, trauma and orthopaedics).
- Out Patient (by same).

#### Special Hospital Services:

Same as the general hospital services plus certain services / specialities not provided by the general hospitals.

#### Specialist hospitals / Clinics

Same hospital services plus high cost and most prevalent DRGs.

3.3. As far as 13 Special Programmes are concerned, the BBP working group has segregated such programmes into curative and preventive programmes. The curative part is included in the BBP, which is as below:

- 1 Systematic Checks of Students
- 2 Reproductive Organ Diseases (Breast and Cervical Cancer)
- 3 Health protection of Mother and Child.
- 4 Dialysis, Transplantation, Haemophilia, Diabetes, Growth hormones, Citostatics
- 5 Drug Addiction and Mental Disorders.

3.4. In respect of dental services a special survey has been undertaken of general dental practices so as to identify the costs of general / curative dental services for children.

#### **4. Choice of Facilities for Survey**

The resources available for this assignment limited the number of facilities to be surveyed to a maximum of thirty.

The health houses included in the survey were selected by the participants at a workshop on 27<sup>th</sup> July using a weighted criteria methodology.

The hospitals included in the sample are representative of:

- Different types of hospitals
- Larger and smaller hospitals
- Hospitals or clinics with unique services
- Inclusion of services in the curative part of the 13 special programmes

The list of facilities included in the survey is attached as Annex 1.

The list of facilities included in the supplementary survey is attached as Annex 2.

## 5. Survey Plan

### 5.1. Survey Team

The survey was conducted by a surveying team of the Centre for Research and Policy Making. The survey team was made up of eight members and led by Marija Risteska, Senior Policy Analyst in CRPM, who coordinated this endeavour and conducted quality control. The team was divided in four units. Every of the units had two members; one experienced researcher/surveyor as a leader of the team and a doctor of medicine as a policy expert. The team member names are the following:

<b>Name</b>	<b>Expertise</b>
Anastas Doreski	Doctor of medicine
Martin Ivanovski	Doctor of medicine
Ruzhica Mirchik	Doctor of medicine
Tanja Karanfilovska	Doctor of dentistry
Sanja Kostovska	Policy Analyst
Bashkim Bakiu	Policy Analyst
Darko Kostovski	Policy Analyst
Marija Risteska	Policy Analyst

### 5.2. Pre Testing and Timetable

Before the survey commenced the survey instruments (questionnaires) were tested in two institutions: one health home (Policlinic Jane Sandanski) and one clinic (Neurology Clinic). The facilities were chosen in coordination with the Ministry of Health – Project Coordination Unit. During the survey period the plan is every of the units to visit six of the sampled facilities. The visit of the health homes will not exceed one day of field work, whereas the surveying in the hospitals (special and general) and clinics is envisaged to last up to three days.

### 5.3. Surveying techniques

<b>Techniques</b>	<b>Data Source</b>	<b>Research Method</b>
<i>Financial data gathering</i>	Price list of health services provided by the HIF; financial statements, annual accounts and material accounting of health facilities; market prices for equipment and land; benchmarking for utilization of capacities, staff time and salaries	Review of documents and in-depth qualitative interviews with managers, accounting and financial staff
<i>Health statistical data gathering</i>	Medical histories; activity reports; invoices; medical staff	Review of documents and in-depth qualitative interviews with doctors and nurses

### Conduct of Supplementary Survey

The Supplementary survey was conducted in four stages (the surveying schedule is presented below):

- (a) **Preparations for the supplementary survey** - this stage commenced at mid September when the team adapted the surveying instruments (questionnaire for primary health services and questionnaire for secondary and tertiary health services) to be able to depict the data that was missing from the first phase of surveying (i.e. equipment value per department; value of intermediate services by department; and area that has been shared between two or more health institutions); the instruments were translated and sent to the afore determined sample of health institutions. Also the team made a schedule and has informed all institutions of the supplementary survey dates which allowed the health institutions to prepare for the surveying team visit well in advance.
- (b) **First stage of surveying (18-23.10.2007)** - once the Ministry of Health has approved the surveying schedule the surveying team has visited the first set of institutions from where the additional data was gathered. Also CRPM approached private dentist practices around the country to which a specially designed questionnaire to record their costs was sent.
- (c) **Second stage of surveying (14-19.11.2007)** – the survey was put on a hold after 23.10.2007 waiting for a No Objection from the World Bank for the budget increase that was requested. Once the approval was received the surveying assumed in the four additional clinics (Neurology, Neurosurgery, Infective care and Toracal - Vascular) and Bitola clinical hospital.
- (d) **Data input and processing** – After the surveying was complete the team has checked the data for quality, identified data gaps and followed up with data gathering. Next, the data was put in English and Macedonian word files which present the control sheets for every individual health facility that was surveyed. Subsequently, the team has entered the data in excel which allowed the processing and analysing in the later stages of this project.

#	Date	Health facility
1	18.10	HH Negotino
2	18.10	GH Tetovo
3	19.10	HH Skopje
4	19.10	HH Kumanovo
5	19.10	GHS Erazmo
6	22.10	GHS Skopje Psychiatry
7	22.10	GHS Lungs & TB
9	23.10	GHS Skopje Surgical City Hospital
10	14.11	C Neurology
11	15.11	C Infectious diseases
12	16.11	C Neurosurgery
13	19.11	C Toracal vascular surgery
14	12 - 26.11	Telephone follow up
15	12-26.11	Private dentists survey
16	26-30.11	Data input

## 6. Costing Methodology

The basis of the costing approach is the use of sample of facilities by type and the development of average costs that can be extrapolated to a national level. The model is consistent with generally accepted accounting and economic principles contextualised for the Macedonian situation.

The model has four distinct parts:

- Micro level – costing at facility level
- Averaging of costs by type facility
- Completion of Macro-model and extrapolation to National level
- Scenario planning and sensitivity analysis using Macro model

For the micro level costing the following types of information are collected:

- Activity information – visits, bed days, average length of stay, etc
- Facility information – departmental sizes, equipment, and other fixed assets & Costs
- Financial information of expenditure for facility by department – facility overheads, clinical support departments & final output departments (direct cost) – on accruals basis
- Utilisation of intermediate department services by final output departments

The costing for facility uses a three step approach:

- Facility overheads e.g. administration costs are apportioned to other departments
- Support costs e.g. kitchen, medical gases etc are apportioned to clinical support and final output departments.
- Apportionment of clinical support costs to final output departments

Based on this analysis average costs of each service line are derived for each type of facility:

- Health Houses
- General Hospitals
- General Hospitals (Special)

Costs for clinics and Institutes are not averaged but are added individually since they provide unique services. National level costs are then estimated by scaling-up from the catchment populations of the sample facilities to the whole population.

It will be noted that survey costs do not include:

- PHC Capitation
- Individually Prescribed Pharmaceuticals
- Overseas Treatment
- Non clinical benefits

However, the expenditure on these items were added back to provide the estimate of the current actual cost of the whole basic benefits package.

The BPP cost estimates are provided in four ways. First, on the basis of cash accounting (which is misleading because it does not take account of debts). Second, on the basis of accrual accounting (with an adjustment for debts). Third, full economic cost including depreciation of equipment. Fourth, full economic cost including equipment and facility depreciation.

## 7. Survey Results

The table below is a summary of the survey results based on the information obtained from the main and supplementary surveys compared with the 2006 budget:

	<i>Amounts received from HIF in 2006 <sup>1</sup></i>	<i>Cost Estimate without debt (Cash accounting)</i>	<i>Cost estimate with debt (adjustment to accruals basis)</i>	<i>Additional Cost with annualised equipment cost</i>	<i>Additional Cost with annualised equipment and facility cost</i>
	<i>All figures are in millions Denars</i>				
Clinics and Institutes	4,172	4,198	5,159	254	282
General Hospitals (Special)	810	849	891	103	111
General Hospitals	2,886	3,318	3,654	181	257
Health Houses	2,017	1,972	2,021	65	145
<b>OVERALL TOTAL</b>	<b>9,884</b>	<b>10,336</b>	<b>11,726</b>	<b>602.40</b>	<b>793.68</b>

The survey results show that many of the facilities are in debt as their annual costs based on accruals basis exceed the funding received. This situation needs to be addressed to enable the facilities to meet their outstanding obligations.

The survey also indicates that the budget received by the facilities from the HIF is not adequate to fund the true economic costs for delivery of healthcare services. This is because it does not include the annual cost of equipment depreciation/replacement and facility. We would suggest that the reimbursements to facilities take into consideration the depreciation/annual replacement cost for equipment if the facilities are to be responsible for the funding of their own equipment replacement. This will also make the managers of the facilities more accountable for the quality of equipment and instruments used to deliver the services.

The overall cost of the BBP is estimated at 16,564 million Denars (see breakdown in annex 5). This includes additional costs that were outside the facility costing exercise; including reimbursements to pharmacies by the HIF, cost of sending people for treatment abroad as well as amounts spent on capitation.

The overall cost per person of the BBP based on the results of the survey is estimated at 8,041. The breakdown of the various elements of the cost of the BBP is as follows:

	<b>Denars</b>
Clinics and Institutes	2,505
General Hospitals (Special)	433
General Hospitals	1,774
Health Houses	981
HIF Reimbursements to Pharmacies	609
HIF Individual Reimbursements	107
Capitation Amount	1,544
Treatment Abroad	80
Other health services	9
<b>OVERALL TOTAL</b>	<b>8,041</b>

The survey results show variations between facilities on the cost of treating similar conditions. This provides an opportunity for creating a benchmarking system to compare the performance of facilities within a similar classification. Due to the unique nature of the clinical institutes and to some extent the General Hospitals (special), this benchmarking may not be appropriate. However, it is still possible to compare the cost of non tertiary services being delivered at different facilities in order to determine whether these institutes are providing the best value for money.

Annex 5 shows comparisons of the cost per visit for Health Houses as well as Average Length of Stay and cost per episode for treatments carried out in General Hospitals that were surveyed.

The following limitations should be borne in mind when using the survey results as a basis of making major decisions:

- This is the first attempt to undertake a comprehensive costing exercise for the Health sector in Macedonia. Therefore there are some limitations on the quality of data. This will improve once the exercise has been undertaken for a few number of years.
- As with any survey, the quality of the output depends on the quality of data. As noted in section [>>>] most of the facilities do not have detailed departmental information of costs as well as utilisation of intermediate services and therefore the final costs for each speciality/product line would be different if this level of detail were available.
- The classification of activities may not necessarily be the same across facilities. For example, only a few of the Health Houses did record any activity

for family planning. Other Health Houses may include this activity as part of general health promotion/prevention activities. We would recommend the creation of a uniform system of classification for the different levels of facilities if this does not already exist and for training of personnel within these facilities on the recording of the activities.

- There are differences in the way accounting information is maintained at different facilities. There should be a standard chart of accounts for the recording of accounting information for facilities to enable cost information to be more comparable

### Special Conditions and Dentistry

In order to cost special conditions for inpatient services, some facilities were selected and surveyed in order to determine the inputs that go into the treatment of those conditions. The costing for the psychiatric conditions were made from the average cost per episode from the costing of all the activities of the psychiatric hospital. The results of the costing of the special conditions are shown in the tables below:

#### Inpatient Services

Condition	Facility	Cost per bed day
TB	Bitola Gen Hosp	3,809
Femur Fracture	City Surgical	4,050
Invasive cancer on bladder	City Surgical	3,879
Politrauma	City Surgical	1,787
Delivery services	Negotino HH	3,514
Inpatient Methadone therapy	Psychiatric Hospital	1,747
Inpatient Acute Mentally III	Psychiatric Hospital	507
Inpatient – TB (SP)	Veles	2,322
Inpatient Chronic Mentally III	Psychiatric Hospital	312
Inpatient Long Term Mentally III	Psychiatric Hospital	165

#### Outpatient special conditions:

Condition	Facility	Cost per visit
TB	Veles	1,202
Systematic checks for students	Average Health Houses	2,625

Mother and child < 1 year	Average Health Houses	1,483
Emergency dentistry	Shtip Health House	1,649
Preventive Dentistry	Shtip Health House	1,017

### Dentistry

Five private dentists were surveyed in order to determine the costing of curative dental services by age group. Three age groups were used for the survey:

0-5 years

5-14 years

Over 14 years

The results of the survey is being analysed, and the results will be provided in the final report.

The curative dental services costs for the public facilities have been based on the dental clinic costing of the activities for the whole facility. The results of the costing of dental services is shown below:

	Cost per visit
Outpatient - Specialist clinics	9,610
Orthodocny	11,577
Mobile braces	12,289
Dental pathology	11,206
Oral surgery	11,394
Mouth Diseases	14,162
Trijaza Techick	9,695

## 8 Challenges to Health Services Costing in Macedonia

This assignment was the first attempt to provide a comprehensive description of health service costs in Macedonia. It was inevitable that a whole range of challenges would be uncovered in the course of the work. This has proved to be the case and both OPM and the Ministry has adopted a flexible approach so as to be able to achieve a set of useful outcomes to this work.

The Ministry is currently exploring a new approach to the pricing of hospital services using a DRG methodology. Such an approach requires a robust range of reference costs if problems of either inflation or dashed expectations are to be avoided. Therefore the lessons learned from this exercise will be most relevant. The challenges and lessons are summarised in Annex 6

## 9. Normative Costs

The aim of government policy in financing health services is to achieve best value for money and to protect the poor from the potentially catastrophic financial implications of child birth, accidents, and ill health. The focus of work so far in trying to achieve these aims has been on defining and limiting the scope of the basic benefits package and agreeing policy for co-payments. In practice so far neither of these strategies is likely to have a significant impact on the overall cost of health services as part of government expenditure or on value for money.

The reason for this is that there is a policy assumption that a comprehensive primary, secondary, and tertiary health service will continue to be funded by government / social health insurance; and therefore the debate about the content of the BBP has been around peripheral issues such as dentistry and non-clinical benefits. It is assumed that funding out-of-pocket or through voluntary health insurance will remain relatively modest and largely making a contribution to non urgent care for the relatively well-off.

This is a rational approach and consistent with Western European models. However, it also implies that achieving best use of available resources is likely to be driven by other strategies. These strategies fall into the following categories:

- Rationalisation of health infrastructure
- Alternative approaches to the delivery of services
- Efficient use and combination of inputs including staffing levels
- Contracting for services based on benchmark costs and indicative volumes.

### RATIONALISATION OF HEALTH INFRASTRUCTURE

For a population of 2 million (with the serviced population of Skopje facilities of 600,000) a minimum rational health infrastructure could be developed along the following lines:

Facility	Skopje 600,000	Non Skopje 1,400,000	Total
Health Post / General Practice / Ambulatory (1: 2000 / 1:4000)	300 / 150	700 / 350	700 / 350
Health Centre	10	35	45
Referral Hospital with Sub Specialties	2	4	6
National Specialist Services Centre	1	0	1

This suggests that the current number and distribution of Ambulatories and General Practices and Health Centres is reasonable. However the size of many Health Houses is probably excessive and certainly should be reviewed in relation to current functions. The pattern of hospital provision is clearly inappropriate. Outside Skopje there are too many hospitals. Some are too small to be clinically effective and single specialty institutions are inappropriate and tend to be inefficient. Within Skopje so-called specialist clinics deal with many patients that require referral hospital services rather than tertiary care. The national specialist services are split into a multiplicity of autonomous units with inevitable duplications and inefficiencies. Whilst a less radical rationalisation might be considered, the costing model could be used to give an

indication of potential recurrent savings to set alongside net investment requirements.

#### ALTERNATIVE APPROACHES TO THE DELIVERY OF SERVICES

In this respect there are a number of possible approaches that can be considered. These will include the following, but no doubt many others can be suggested by clinical experts:

- Replacement of large mental illness hospitals with smaller units for acute and long stay purposes
- Increasing the proportion of surgery undertaken on a day case basis
- Reduction of lengths of stay through use of minimally invasive techniques
- Enhancing diagnostic capacities in health centres and referral hospitals
- More intensive in-hospital rehabilitation techniques
- Use of clinical pathways and anticipated recovery paths
- Extending the clinical roles of general practitioners

The costing model can be used to provide a “first-cut” of potential savings as a basis for determining which initiatives should be carried forward to more detailed business planning.

#### EFFICIENT USE AND COMBINATION OF INPUTS

The work to date suggests that there are a number of areas worthy of investigation. Again, this list should not be viewed as exhaustive:

- Numbers of administrative staff
- Numbers of ancillary staff
- Respective roles of doctors and nurses
- Low bed occupancy levels
- Trade offs between rewards and staffing levels

#### CONTRACTING FOR SERVICES BASED ON BENCHMARK COSTS AND INDICATIVE VOLUMES

9.7. The work has revealed apparent significant variations in costs in the same type of institution. If the HIF is to take-on a more active purchasing role it should establish benchmark costs (lowest cost for assured level of quality). The costing model can be used to indicate the order of cost savings that might be achieved. Moreover as government priority setting and active purchasing becomes more sophisticated it may be appropriate to specify service volumes particularly for non urgent work where waiting lists can be used as a means of rationing limited resources.

## 10. Next Steps

As at December 2007 the model of actual costs has been developed. This should be regarded as the first iteration of the use of a costing methodology that should be repeated year-by-year as improvements are made to the quality of data capture and recording. Thereafter the frequency of repetition might be reduced to say every 2 years.

However, the model can be used with confidence for the purpose of macro modelling and the development of overall normative costs. This exercise will be undertaken on the basis of agreed scenarios and reported at the final stage of the project.

The availability of broad specialty and product line costs provides a starting point for the establishment of a new pricing structure. However, it is our strong recommendation that these prices be applied in shadow form during 2008 and are further informed by a further round of costing.

This would suggest a sequence of events in 2008 as follows:

- January – availability of costing manual
- January to March – Improvement of facility data capture systems
- April – Training in costing methodologies
- May – Costing Survey
- June – Revised costs available
- July – Comparison with first 6 months of shadow pricing
- September – agreement of 2009 tariff

Whilst we are aware that this is the subject of another consultancy we would recommend that the use of DRG based prices be introduced on the basis of at least one similar cycle in 2009 / 2010.

**Annex 1 – Facility Sample****Health Houses - HH**

- 1 Kumanova
- 2 Ohrid
- 3 Strumica
- 4 Prilep
- 5 Tetovo
- 6 Shtip
- 7 Valandovo
- 8 Skopje.
- 9 Negotina
- 10 Resen
- 11 Mother and Child Health Home Skopje
- 12 Skopje Central Clinic.

**Hospitals****General Hospitals (Secondary) - GH**

- 1 Bitola
- 2 Tetovo
- 3 Ohrid

**General Hospital (Special) - GHS**

- 1 Skopje Special Surgical Hospital
- 2 Psychiatry Hospital Skopje.
- 3 Special Orthopaedic Hospital Erazmo.
- 4 Special Hospital for Lungs and TB diseases, Velas

**Specialist Hospitals / Clinics (Tertiary) - C**

- 1 Gynaecology
- 2 Nephrology
- 3 Cardiology
- 4 Children Diseases.
- 5 Orthopaedic
- 6 Haematology
- 7 Dentistry
- 8 Oncology.
- 9 Endocrinology - the Center for Diabetes.
- 10 Radiology
- 11 Urology

## Annex 2 - Supplementary Survey

**Health Houses - HH**

1. Kumanovo
2. Negotino
3. Skopje

**Hospitals**General Hospitals (Secondary) - **GH**

1. Bitola
2. Tetovo

General Hospital (Special) - **GHS**

4. Skopje City Special Surgical Hospital
5. Psychiatry Hospital Skopje.
6. Special Orthopaedic Hospital Erazmo.
7. Special Hospital for Lungs and TB diseases, Veles

Specialist Hospitals / Clinics (Tertiary) - **C**

8. Neurosurgery
9. Neurology
10. Toracal-vascular
11. Infective care

Annex 3 - Workshop Presentation

Power Point File

## Annex 4 – Interim Report

**COSTING OF BASIC BENEFIT PACKAGE, MACEDONIA****Brief paper on provisional results**

Oxford Policy Management (OPM) is commissioned by the World Bank PCU on behalf of the Government of Macedonia to conduct a financial analysis of the Basic Benefits Package (BBP). In July and August 2007 a survey of facilities was designed and implemented. In October a supplementary survey will be conducted so as to provide more detailed analysis of health service costs. To assist discussions around the 2008 Budget this paper presents some preliminary and provisional results of particular relevance to budget discussions.

On the basis of survey of sampled health facilities, the provisional costs are calculated under four scenarios:

1. Cost on the basis of cash accounting.
2. Accrual cost by adding unpaid expenses.
3. Cost by adding annualised equipment replacement value.
4. Cost by adding annualised values of both equipment replacement and facilities depreciation.

The details of above referred costs for health houses, general hospitals, special general hospitals and clinics are given in Table 1

**Table 1 Total Costs**

	<i>Amounts received from HIF in 2006</i>	<i>Cost (Cash accounting)</i>	<i>Cost estimates accruals basis)</i>	<i>Additional Cost with annualised equipment</i>	<i>Additional Cost with annualised equipment and facility</i>
		<i>All figures are in millions Denars</i>			
<b>Clinics and Institutes</b>	<b>4,171.52</b>	4,197.71	5,159.37	253.74	281.63
<b>General Hospitals (Special)</b>	<b>809.55</b>	775.61	818.05	39.98	42.92
<b>General Hospitals</b>	<b>2,885.77</b>	3,046.31	3,382.48	368.16	397.49
<b>Health Houses</b>	<b>2,017.04</b>	1,945.01	1,994.69	59.51	64.18
<b>OVERALL TOTAL</b>	<b>9,883.87</b>	<b>9,964.63</b>	<b>11,354.59</b>	<b>721.40</b>	<b>786.21</b>

### Cost Per Person

In order to arrive at cost per person, the catchments population is taken for the health houses, general hospitals and special general hospitals and the results of the sampled facilities extrapolated on the basis of population above referred; but since the central clinics are unique in nature in terms of provision of services therefore whole population that is 2.06 million is taken to extrapolate the results of sampled clinics.

To provide costs on an accrual basis it is necessary to add debt incurred in 2006. This figure was available for the Central Clinics but not for the Health Houses and Hospitals. For these 2006 debt was estimated at one third of accumulated debt (this figure will be validated in the supplementary data collection).

Table 2 shows the provisional total cost and cost per person of BBP services.

<b>Cost (accrual basis)</b>		<b>11,355</b>
<b>HIF Reimbursements to Pharmacies</b>		<b>1,254</b>
<b>HIF Individual Reimbursements</b>		<b>220</b>
<b>Capitation Amount</b>		<b>2,572</b>
<b>Treatment Abroad</b>		<b>164</b>
<b>Other health services</b>		<b>19</b>
<b>Total</b>		<b>15,583</b>
<b>Per Person cost</b>	Denars	<b>7,565</b>

The figures relating to HIF expenses to pharmacies and individuals, capitation, treatment abroad and other health services are taken from the annual report of HIF since these were not included in the survey being outside the scope of the consultancy.

The cost per person on the basis of above scenarios is given below:

Cost per person (accrual basis): **7,565** Denars

Cost per person if annualised equipment cost added: **7,915** Denars

Cost per person if annualised equipment and facilities cost added:  
**7,946** Denars

### Uninsured persons

Out of 130,000 currently estimated as uninsured, we are informed that 95,000 have the means but have not exercised the right for insurance and the remaining uninsured therefore total 35,000. The cost of meeting the personal health service costs of 35,000 uninsured persons at full economic cost and based on the current range and quality of services is

35,000 X 7,565 = 265M Denars

## Dentistry

In order to cost preventive and emergency dentistry, Shtip health house was surveyed and costed. The specialist consultative services and outpatient services are calculated on the basis of survey of Dental Clinic Skopje.

Per visit cost of preventive and emergency dental services at health house may be seen at Table 3.

Some special procedures / treatments were also costed.

**Table 3**

<b>Shtip Health House</b>	Denars	
<u>Preventive Dentistry Services</u>	1,017.42	Per visit
<u>Emergency Dentistry Services</u>	1,648.78	Per visit
<b>Dentistry Clinic</b>		
<u>Orthodony</u>	34,731.68	Per episode of 3 visits
<u>Mobile Braces</u>	36,868.39	Per episode of 3 visits
<u>Dental Pathology</u>	33,619.17	Per episode of 3 visits
<u>Oral Surgery</u>	34,181.60	Per episode of 3 visits
<u>Mouth Diseases</u>	42,486.01	Per episode of 3 visits
<u>Trijaza Technick</u>	29,085.40	Per episode of 3 visits
<u>Outpatient Specialist Clinic</u>	9,610.21	Per visit

Note: The above costs will be refined once a supplementary survey is carried out

## 13 Special Programmes

In addition to above, two of the 13 special programmes i.e. drug addiction and mental illnesses are also costed. The provisional results are at Table 4.

**Table 4**

CONDITIONS	COST PER BED DAY
	<b>Denars</b>
<u>Inpatient Alcoholism</u>	2,547.48
<u>Inpatient Methadone Therapy</u>	1,650.91
<u>Inpatient Acute Mentally III</u>	469.64
<u>Inpatient Chronic Mentally III</u>	284.43
<u>Inpatient Long Term Mentally III</u>	149.85

Note: The above costs will be refined once a supplementary survey is carried out

For the preparation of budget for 2008, it may be noted that since the survey was done for the year 2006 therefore appropriate inflation rate may be incorporated.

## Annex 5 – Survey Results at December 2007

## Summary costing of BBP

	<i>Amounts received in 2006 <sup>1</sup></i>	<i>Cost Estimate without debt (Cash accounting)</i>	<i>Cost estimate with debt (adjustment to accruals basis)</i>	<i>Additional Cost with annualised equipment cost</i>	<i>Additional Cost with annualised equipment and facility cost</i>
		<i>All figures are in millions Denars</i>			
<b>Clinics and Institutes</b>	<b>4,171.52</b>	<b>4,197.71</b>	5,159.37	253.74	281.63
<b>General Hospitals (Special)</b>	<b>809.55</b>	848.64	891.09	102.56	110.73
<b>General Hospitals</b>	<b>2,885.77</b>	3,317.96	3,654.13	181.45	256.77
<b>Health Houses</b>	<b>2,017.04</b>	1,971.71	2,021.39	64.65	144.21
<b>OVERALL TOTAL</b>	<b>9,883.87</b>	<b>10,336.02</b>	<b>11,725.98</b>	<b>602.40</b>	<b>793.34</b>

<b>Cost (accrual basis)</b>	<b>11,726</b>	Note 1
<b>HIF Reimbursements to Pharmacies</b>	<b>1,254</b>	
<b>HIF Individual Reimbursements</b>	<b>220</b>	
<b>Capitation Amount</b>	<b>3,181</b>	Note 2
<b>Treatment Abroad</b>	<b>164</b>	
<b>Other health services</b>	<b>19</b>	
<b>Total</b>	<b>16,564</b>	
<b>Per Person cost</b>	<b>8,041</b>	

Note 1: Cost of health care facilities at national level; Health Houses, General Hospitals, Special General Hospitals and clinics surveyed including debts for 2006..

## Note 2

Total amount spent on primary care	<b>4,588,600</b>
Less amount spent on HH	<b>1,406,742</b>
Capitation (approx)	<b>3,181,858</b>

## Costs at Specialty / Product Line Level

**General Hospital cost per specialty****A – Inpatients**

Specialty	Average Cost per bed day	Low	High
	<b>Denars</b>		
Inpatient Dermatology	3,302	2,414	4,528
Inpatient Surgery	4,959	1,601	6,446
Inpatient - Obstetrics & Gynaecology	3,370	1,612	6,157
Inpatient-Medical ward	4,080	1,295	5,359
Inpatient infective care	3,546	2,296	5,302
Inpatient - Child Health	2,530	1,383	6,392
Inpatient - trauma & orthopaedics	2,883	1,188	6,471
Inpatient-Psychiatry & neurology	3,307	1,674	5,009
Inpatient – ENT	3,901	2,399	8,587
Inpatient-ophthalmology	5,051	2,380	9,572

**B- Outpatients**

	Average Cost per Visit	Low	High
	<b>Denars</b>		
Outpatient- infective	501	376	707
Outpatient - General Medical	882	509	1,294
Outpatient - ENT	404	324	678

Outpatient - Eye Clinic	645	396	1,080
Outpatient - Child Health	742	580	1,574
Outpatient - Psychiatry	575	390	818
Outpatient - Nephrology	772	701	1,006
Outpatient -Oncology	1,013	829	1,108
Outpatient- Emergency	698	592	1,088

## Average Cost per episode by specialty in General Hospitals

Specialty/Product Line	Average Cost per admission	Low	High
	<i>Denars</i>		
Inpatient Dermatology	34,518	27,042	45,744
Inpatient Surgery	23,225	6,883	30,295
Inpatient - Obstetrics & Gynaecology	15,629	6,611	24,629
Inpatient-Medical ward	34,358	12,545	58,966
Inpatient infective care	49,930	22,197	40,183
Inpatient - Child Health	12,049	6,087	62,579
Inpatient - trauma & orthopaedics	26,552	12,715	49,370
Inpatient-Psychiatry & neurology	34,508	22,258	45,081
Inpatient – ENT	25,097	16,569	46,883
Inpatient-ophthalmology	25,075	14,045	35,033

## Average Length of Stay comparisons in General Hospitals

Specialty	Average Length of Stay per admission	Low	High
	<b>Days</b>		
Inpatient Dermatology	10.45	10.30	11.20
Inpatient Surgery	4.68	4.30	4.88
Inpatient - Obstetrics & Gynaecology	4.64	4.00	5.38
Inpatient-Medical ward	8.42	6.30	9.70
Inpatient infective care	14.08	8.50	17.50
Inpatient - Child Health	4.76	4.30	9.79
Inpatient - trauma & orthopaedics	9.21	7.70	11.00
Inpatient-Psychiatry & neurology	10.44	7.60	13.30
Inpatient – ENT	6.43	5.46	7.10
Inpatient-ophthalmology	4.96	3.66	7.40

## Cost of clinics – Inpatient Activity

Inpatient	Cost per admission	ALOS	Cost per bed day
	Denars	Days	Denars
Clinic for children diseases	38,500	8.00	4,813
Endicronology Clinic	31,534	6.00	5,256
Haematology clinic	139,493	14.00	9,964
Cardiology Clinic	83,708	5.50	15,220
Gynaecology	14,862	6.80	2,186
Obstetrics	10,319	4.30	2,400
NIBU	9,398	4.30	2,186

Nephrology Clinic	77,532	14.00	5,538
Oncology	282,165	17.00	16,598
Orthopaedic Clinic	37,441	12.20	3,069
Urology Clinic	17,278	5.30	3,260
Neurology clinic	28,611	7.60	3,765
Neurosurgery clinic	36,446	7.50	4,859
Toracal	15,881	6.10	2,603

#### Cost of Clinics Outpatient Activity

<b>Outpatient</b>	<b>Cost per visit</b>
	Denars
Clinic for children diseases	616
Endocrinology Clinic	838
Haematology clinic	3,162
Cardiology Clinic	2,513
Obstetrics and Gynaecology	739
Nephrology Clinic	1,084
Oncology	3,461
Orthopaedic Clinic	1,121
Urology Clinic	1,089
Neurology clinic	412
Neurosurgery clinic	6,497
Toracal	845

#### Cost of Dental clinic procedures

##### **Dental Clinic procedures**

<b>Procedure</b>	<b>Cost per visit</b>
	Denars
Specialist Outpatient	9,610
Orthodontist	11,577
Mobile protectics	12,289
Dental Pathology	11,206
Oral surgery	11,394
Mouth Diseases	14,162
Trijaza Techick	9,695

Cost of Radiology Institute procedures

	<b>Cost per visit</b>
	Denars
Outpatient MRI	5,145
Outpatient CT	3,149
Outpatient Mammography	1,379
Outpatient EHO	2,832
General X-rays	994

**Summary of cost per visit for Health Houses**

	Average Cost per visit	Low	High
	<b>Denars</b>		
Advisory services for healthy children. Childhood immunisation (vaccine- preventable diseases)	978	410	2,625
Preventive health protection of pre-school children & school children aged 18,	642	659	2,625
Systematic Check of Students (SP)	794	410	2,625
Family planning	1,491	663	12,405
Basic antenatal care	841	943	2,625
Home visits of acute cases	735	410	2,625
Patronage (Polyvalent)	700	410	1,483
Preventive dentistry services	906	398	1,592
Delivery services	3,147	2,649	62,269
Pneumonia	582	1,220	1,483
Eye conditions	700	451	2,625
ENT Services	663	451	2,625
Mother and Child under 1 year (Special programme)	466	410	1,483
Emergency medical services	706	410	3,305
Emergency dentistry services	1,534	701	1,675
Specialist Consultative services	1,150	663	1,483

## Costs for General Hospitals (Special)

## Erazmo special Orthopaedic Hospital

	Cost per admission	ALOS	Cost /bday
Inpatient-female trauma	39,168	29.20	1,341
Inpatient-child care	20,578	15.32	1,343
Inpatient-male trauma	19,742	15.22	1,297
Inpatient-femaleparaplegia	79,244	48.91	1,620
Inpatient maleparaplegia	58,317	33.12	1,761
Inpatient cerebral paralis	129,827	19.65	6,607
Inpatient mixed pathalogy	56,821	15.76	3,605
transfusiology	1,391	1.90	732

## City Surgical Skopje - Outpatient cost per visit

	Cost per visit
Filter clinic	695
Outpatient - Child Health	1,071
abdomen	581
General Outpatients	630
urology	1,055
plastic	581
trauma & orthopedic	1,106
vascular	581
Surgery	1,965

## Inpatient City Surgical Skopje

	Cost per admission	ALOS	Cost /bday
Inpatient - Female Surgery	30,873	6.11	5,053
Inpatient - Burns Unit	54,512	22.76	2,395
Inpatient - Male Surgery	33,773	7.02	4,811
Inpatient - Child Health	16,267	3.7	4,397
Inpatient - trauma & orthopaedics	16,837	4.95	3,402

inpatient urology	37,890	7.89	4,802
Inpatient – Other	23,927	7.16	3,342
inpatient vascular	56,393	10.49	5,376
inpatient plastic surgery	25,756	6.6	3,902

City Psychiatry Hospital (Special Conditions)

	Cost per episode	ALOS	Cost/bedday
Inpatient Methadone therapy	508,297	291	1,747
Inpatient Acute Mentally III	27,903	55	507
Inpatient – TB (SP)	3,055,417	307	9,952
Inpatient Chronic Mentally III	115,972	372	312
Inpatient Long Term Mentally III	363,941	2206	165

## Annex 6 – data collection challenges

The costing team during this exercise has faced many challenges in data collection that were embedded in the structure of the system for medical data recording and the organizational structure as well as current management practices in the health facilities that were surveyed. The surveying team of CRPM has isolated the following three groups of challenges as most pertinent to successful completion of the costing on the level of every individual facility.

(i) No department level<sup>1</sup> medical records available

In all health facilities visited, with exception of the general hospitals in Bitola and Tetovo and the Skopje city surgical hospital, the surveying team had difficulties in obtaining department level data on staff, equipment, activity and intermediate activities. In the Clinical centre in Skopje, in addition, it was impossible to get area of individual departments and clinical support facilities such as x-ray, laboratory, CSSD, pharmacy and etc. To overcome this challenge, the team has collected total values and disaggregated them according to activity performed at the health facility.

(ii) No unified accounting across the health facilities

All facilities visited during the survey used the accounts regulated in the Law on Accounting and related bylaws that are fully in line with the international accounting standards. However as there are many accounts that you can record expenses under, different facilities have used them differently, so the same expenses like food and beverages were accounted in one facility under one account different from what the others do.

(iii) No equal technical capacity to keep records and account costs

The surveyed institutions differed significantly one from another in terms of their technical equipment to record, account and analyse expenses. There were such institutions that have developed special software for medical records that were linked with the accounting and financial system of the institution (i.e. Skopje city surgical hospital); others that had electronic records by department put in a software solution that did not allow analysis of the same (i.e. HH Skopje); and finally a number of facilities, most often the clinics at the University clinical centre, where significant shortage of computers was noticed and absence of any software for accounting (i.e. Institute for radiology, Clinic for Neurology and the sharing mode applied at all surgical clinics where 8 accountants from four clinics use one computer).

Based on the above-mentioned challenges the consultants consider that the costing exercise will be very difficult to be completed by the staff of the individual health

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<sup>1</sup> Under department we consider the second tier of the organization of the health facility (i.e. at general hospitals: ophthalmology, gynecology, surgery, neurology and etc.; in specialized clinics like neurosurgery for example: operating theater, ward, coma centre and outpatient facility)

facilities independently while the with the data collection challenges are still existing. Therefore we recommend the following:

### **Recommendations**

- (i) With the current changes on the Law on medical records lies a chance to regulate compulsory record keeping by department of the:
  - Area of every individual department
  - Number of staff working in every department and the time they share in an outpatient facility, operating theatre, teaching or in ER, if that is the case; as well as gross salaries that are paid for staff working in that department
  - Equipment that is allocated in every department and its value at purchasing
  - Activities performed in every department (number of beds, ALOS, admissions, discharges, number of visits in an outpatient facility)
  - Intermediate activities (activity performed in x-ray; pharmacy; laboratory; ICU and CSSD that has been ordered through individual departments at inpatient and outpatient facilities)

This way of record keeping will allow depicting department based activities, expenses and thus value of the product/s of that department.
- (ii) The Ministry of Health should issue a recommendation on the use of the accounting units in order to ensure unified use of same accounts for the same expenses across the health system.
- (iii) The Ministry of Health or Health Insurance Fund should consider investing in a unified health management IT system that can generate department level analytical reports for all accounts. As this is rather costly and timely endeavour, at the beginning it is advisable to replicate the successful models used at some facilities (i.e. Skopje city surgical hospital).
- (iv) Computerization of all health service providers is a necessity. For the costing exercise to be completed independently and shortly by the staff of the individual health facilities at least 10 computers are needed (i.e. one for all wards, one for outpatient department, one for operating theatre, one for laboratory, one for CSSD, one for x-ray, one for ICU, one for accounting and one for billing department) to put in the department level data on daily basis by all staff working at different stations in the health facility (i.e. the ENT inpatient department nurse at the end of the day enters the number of patients, admissions and discharges; the pharmacist enters the drugs order and utilized by the ENT inpatient department, the laboratory technician the investigations completed for the ENT, the accountant should then account the expenses that occurred as a result of the activities undertaken by the ENT department and the billing officer should then issue a bill to the HIF for the services provided at the ENT department). For this system to be operational adequate training for all staff to use the software system to input data is required.