



# FEASIBILITY AND CHALLENGES OF REPORTING FACTORS OF PROVISION IN SHA 2011

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## 1. Introduction

1. In an effort to test the understanding and feasibility of reporting factors of provision for health care providers (FP) under Chapter 9 of *A System of Health Accounts 2011*, the OECD invited a number of OECD member countries and one non-member country to participate in a study. The call was limited to those countries that had completed parts of the resource cost table currently included in the Joint Health Accounts Questionnaire (JHAQ). In response to a questionnaire and bilateral exchanges, seven countries (the Czech Republic, Estonia, Finland, Hungary, Lithuania, Portugal and Slovenia) provided feedback on the data sources they would use to report factors of provisions, the elements of the factors of provision table they would be able to identify, and on a variety of methodological issues that need to be addressed when starting to implement the factors of provision table. They also highlighted issues that would be problematic for routine reporting of factors of provision. In addition to the country responses, the OECD Secretariat investigated various national data sources that would allow for reporting of factors of provision.
2. From countries' experiences and independent research it was expected to build up a picture of which factors of provision could feasibly be reported for health providers, and whether the definitions in the chapter are clear enough to facilitate reporting and to see which methodology countries would apply to comprehensively cover the input side of health provision. It is hoped that their findings will be useful for those countries with no prior experience in resource cost accounting that want to start implementing this additional dimension in their health accounts.
3. After a background section, the remainder of this report summarises the feasibility in reporting based on country feedback and independent research and the remaining challenges. A third section covers some fundamental methodological issues in greater detail.

## 2. Background

4. The introduction of a classification of factors of provision in the SHA 2011 manual is a step towards a more comprehensive accounting system, making it theoretically possible to relate the value of outputs rendered by health providers (e.g. out-patient treatments, pharmaceuticals) to the inputs used in the provision of such services. A classification of resource costs (RC) was developed in the Producers Guide (PG) and some elements of this classification were incorporated into the JHAQ data collection<sup>1</sup>.
5. Under the current data collection, only around 9 countries report human resource costs for one or more health care providers. However, there is important information to be gained. For example, there is considerable variation across countries in the percentage of total hospital costs allocated to human resources, ranging from 40% to 70%. It is also useful to show the relative importance of human resource costs between provider groups (e.g. the greater share in LTC homes compared to hospitals). Finally, over time, the share of human resource costs appears to be declining – possibly due to increased outsourcing of health and non-health services and rising capital and intermediate costs (e.g. technology and pharmaceuticals).
6. SHA 2011 introduced a separate chapter covering all input costs. In addition to employee costs, the classification also covers self-employed remuneration, the goods and services used in health care service provision, the consumption of fixed capital and other spending items including taxes<sup>2</sup>. The aim of the chapter is also to provide clear definitions of the cost items under the respective categories.
7. The classification is called “Factors of Provision” in SHA 2011 rather than “Resource Costs”; the reason being that not all input items of the classification (especially value added tax) can be considered as resource costs for health providers. This also makes a stronger connection between the provision of health

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<sup>1</sup> The RCxHP table of the JHAQ countries includes compensation for employees and self-employed income as part of total human resource costs (RC.1.1).

<sup>2</sup> The full classification can be found in Table 9.1 of SHA 2011

care goods and services and the inputs required in the “production process”. For the remainder of the document, however, the two expressions are used interchangeably.

### ***Why are factors of provision important?***

8. The main focus of SHA is on the demarcation and measurement of current health expenditure - that is the final consumption of health care goods and services by the domestic population. However, there is an increasing demand to better understand the various inputs into the provision of health care services.

9. Policy makers have tried a multitude of reform approaches to contain health expenditure growth without compromising quality of health care and reducing access. These efforts accelerated and intensified recently as a response to the economic crisis. The reforms are either supply-side oriented, for example, incentivising directly health care providers, or demand-side oriented affecting the utilisation behaviour of patients. Moreno-Serra<sup>3</sup> identified a range of successful cost-containment policies implemented in OECD countries in recent years, among them changes in payment systems, such as reduction in fee-for-services for outpatient physicians or the introduction of DRG-based payments in hospitals, mandated generic substitution in pharmacies or the extension of cost-sharing for patients.

10. To evaluate policies, the long-term effects of reforms on health expenditure for providers or the health system as a whole are analysed taking into account information of the quality of health care. An additional perspective, so far not available on an international level, would be how the cost structure of a health care provider changes as a result of new health policy interventions. This could shed light on differences in the functioning of health systems around countries and might explain why similar health care reforms lead to different results when applied across health systems.

11. A complete record of factors of provisions could, for example, clarify the effect of a reduction in the remuneration of services of outpatient physicians on their resource costs. Would doctors react by cutting the wages and salaries that they pay to their staff? Or would their self-employed income be reduced. Another example would be the introduction of a DRG-type payment system. Complete resource cost information would allow for an analysis of the effect of DRG payment systems to hospitals inputs. It could show the impact on hospital profits, clarify whether investment have been postponed – which would reduce future consumption of fixed capital – and explain whether more services have been outsourced.

12. The need for more data concerning the input side of health providers has also been acknowledged by the OECD Health Committee. It has commissioned the Secretariat to undertake research on wage-setting in the health sector. As part of this project a comprehensive international comparison of the rate of salaries to total input costs across countries and between health care providers based on the factors of provision classification would be very useful supplementary information. Additionally, total salaries could also be linked to health professional remuneration currently gathered as part of the OECD Health Data collection. In other streams of work at the OECD concerned with trends in health workforce planning, information of salaries and self-employed professional remuneration on an aggregate level for hospitals and outpatient providers would be helpful to track down effects of incentivising policies.

13. These are just some examples to highlight the need for additional data covering the cost side of health providers going beyond the monetary valuation of outputs of health care providers. SHA offers a framework facilitating a comparable and comprehensive data collection in this field.

14. The construction of the factors of provision classification for health providers can also be a first step for countries to a holistic economic analysis of the health care sector including the construction of health-specific supply, use and symmetric input-output tables allowing for a number of in-depth evaluations such as impact analysis, productivity analysis or the analysis of employment effects. These analyses are a shift

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<sup>3</sup> Moreno-Serra (2013) The impact of cost-containment policies on health expenditure: Evidence from recent OECD experiences. Working paper presented at the 2nd meeting of the joint network on fiscal sustainability of health systems

away from the concept of measuring the final consumption of health care goods and services by the domestic population as suggested in the core SHA framework because they incorporate the production side of these goods and service and display the integration of health providers into the economy as a whole. Hence, guidance on how to implement a health-specific input-output-framework goes beyond the content of this report<sup>4</sup>.

### **3. Reporting of factors of provision for health providers (FPxHP)**

15. In this section, the feedback from countries testing the feasibility of reporting parts of the factors of provision for different health care providers is summarised, together with potential additional data sources based on in-house research.

16. The approaches taken by countries differ widely reflecting the way national health accounts are constructed and the availability of data sources. Some countries rely on provider-specific data sources while others also use factors of provision-specific data sources that cover several or all providers.

#### ***Identifying data sources***

17. The identification of appropriate data sources is a key challenge for most countries. No country could identify data sources that would allow them to report all factors of provisions for all providers. Moreover, there are differences between countries as to what extent they can exploit data sources they are already using.

18. For Portugal, the information needed to report many of the additional items are already included in the data sources used for the compilation of the three basic “core” JHAQ tables measuring current health expenditure. Additional data sources would be needed to identify consumption of fixed capital and taxes.

19. For the majority of participating countries, especially the Czech Republic, Hungary and Slovenia, the data sources identified in the feasibility study are not currently used to estimate health expenditure. Here, health expenditure is calculated primarily relying on information from the financing side whereas information on factors of provision would stem from a combination of statistics of specific resource costs and providers. The use of non-integrated additional data sources raises concerns about their suitability and the need to be reconciled with existing health expenditure data.

20. Most countries would use multiple data sources to fill the FPxHP table but they differ in their approach in the collection of data. Some countries, for example, the Czech Republic, rely exclusively on provider specific data sources that include costing information. As the content of the data sources vary between providers, so would the level of detail of costing information entailed and hence the level of reportable factors of provision would vary between providers. Hungary and Lithuania on the other hand would combine data sources focusing on one or more factors of provision – compensation of employees and/or self-employed professionals income – across providers with provider-specific data sources. Special attention would be required by those to reconcile data sources covering factors of provision from two different perspectives.

21. Data sources identified by countries are generally available on a regular basis and reporting would theoretically be feasible for the time period  $t-2$ .

22. The *Czech Republic* uses provider-specific data sources. They receive accounting records including revenues and a detailed cost breakdown for registered inpatient providers covering hospitals (HP.1) and most residential care facilities (HP.2). For outpatient providers (HP.3) they rely on two data sources from smaller sample sizes which also differ in the content of the cost breakdown: larger providers have to comply with certain accounting principles while smaller ones only have to comply with the minimum

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<sup>4</sup> Reference is, however, made to existing use tables as part of regular National Accounts reporting in later sections of this report as they might be useful data sources for countries completing the factors of provision table.

requirements of tax authorities. For preventive care providers (HP.6) they are able to identify total costs via the annual reports of financing schemes and the ministry of health. For providers of administration (HP.7) wages and salaries can be identified using the annual reports of financing schemes and the budget of the ministry of health.

23. *Estonia* uses a special health care provider report which all registered health care providers have to submit annually and which includes the revenue side as well as a very detailed cost breakdown. This data source covers hospitals (HP.1), ambulatory health care providers (HP.3) and ancillary providers (HP.4) comprehensively. Coverage is more limited for residential care facilities (HP.2), retailers (HP.5), providers of preventive care (HP.6), administrative providers (HP.7) and the rest of the economy (HP.8). The data source contains detailed information on compensation of employees, self-employed professional remuneration and materials and services used. Estonia is currently looking into additional data sources to complement this special health care providers report.

24. Factors of provision of health providers in *Finland* can be identified using records of finances and activities of municipalities and joint municipal boards statistics, as well as costing data recorded in the business registers and financial statements of private health care providers. These data sources cover compensation of employees and self-employed professional remuneration for most health providers.

25. In *Hungary*, three different data sources are used to identify factors of provision. The questionnaire on wage and workforce statistics in health is collected by the National Institute for Quality and Organisational Development in Health Care and Medicines (GYEMSZI) and includes compensation of employees which is identifiable for all health care providers with the exception of ancillary providers (HP.4) and retailers (HP.5). It does, however, not cover private providers and self-employed. Additionally, two provider-specific data sources could help to display other factors of provision, namely the closing accounts of governmental institutes for public providers and statistics on revenues and costs for non-governmental health providers. Hungary indicates that a more thorough feasibility test would need to be conducted to clarify for which HP-categories these additional data source would contain information.

26. *Lithuania* has several data sources to identify various resource cost items. The data base of the state social security fund contains information on wages and salaries and is available for all health providers via provider identification number including self-employed health professionals. For households as health providers (HP.8.1) data on care allowance from the central budget could be used. For the rest of economy (HP.8.2) providers included in the budgets of the ministries of the interior, national defence, and justice could be exploited. Additionally, a survey on health care personnel conducted by the Institute of Hygiene could be combined with information included in the data base of the state social security fund to shed light on wages and salaries for health personnel that work for industries where health care is a secondary activity. For the identification of self-employed professionals income records from the state tax authority could theoretically be available for a number of health providers. For other factors of provision the official statements for public institutions from the ministry of finance are also useful. They include a detailed costing breakdown.

27. Data on resource costs is included in many data sources in *Portugal* which allows them to cover nearly all health providers. Data sources used can basically be split into those for public and those private providers. For public providers the annual financial information of all providers belonging to the National Health System can be gathered from the central administration of health systems. In addition, annual financial information of providers in Azores and Madeira, other general non-market producers units' annual financial statements and general state accounts which are related to the ministries of health and defence contain costing information for public providers. For private providers, annual financial statement of private health subsystems, simplified business information statistics and annual budgets and accounts of private institutions of social solidarity could be analysed to identify a comprehensive set of resource costs. These data sources cover all factors of provision on the 1<sup>st</sup> digit level with the exception of consumption of fixed capital. Detailed information on intermediary consumption is only available for public providers.

28. *Slovenia* has annual accounting statements for businesses in all sectors of the economy including the self-employed, the statistical register of employment (SRDAP) as well as the monthly survey on earning, labour cost surveys and tax statements to identify the compensation of employees (FP.1), self-employed professional remuneration (FP.2), consumption of fixed capital (FP.4) and other spending inputs (FP.5) for the vast majority of health providers. Data in these data sources is available on NACE 4-digit level; thus a mapping to HP seems feasible. Costs for material and goods used (FP.3) would be available from the annual financial report of market and non-market producers. A detailed breakdown of intermediary consumption could be investigated using structural business surveys but might be of limited use given their focus on manufacturing industry and limitation to market enterprises.

### ***Coverage of factors of provision categories***

29. All countries seem to be in a position to report some items of the factors of provision classification beyond total remuneration of employees. A separate identification of wages and salaries (FP.1.1) and social contributions (FP.1.2) seems feasible in nearly all countries. Less information is available by countries on the item all other costs related to employees (FP.1.3) and in some instances this spending component is already included in FP.1.1 or FP.1.2.

30. Data on intermediate consumption by health providers (FP3: materials and services used) also seems feasible for most countries for at least some providers. Less information is available on a second digit-level where intermediate consumption is broken down into its components health care services (FP.3.1), health care goods (FP.3.2), non-health care services (FP.3.3) and non-health care goods (FP.3.4). Only a few countries can identify pharmaceuticals (under FP.3.2) separately for some providers.

31. Data for self-employed professional remuneration (FP.2), which encompasses income from self-employed professionals like physicians working in their own practice as well as operating surplus (or deficit) by incorporated enterprises such as hospitals, is available from some countries but seems to depend to a certain extent on the organisation of health services provision. In a country where most health professionals are employed by public health service providers this item will be less important than in a country with a large sector for self-employed health professionals.

32. Coverage of consumption of fixed capital (FP.4) and on other items of spending on inputs (FP.5) was more limited by countries.

### ***Coverage of health provider categories***

33. All countries are able to report some factors of provision for at least four health care providers. Estonia, Portugal and Slovenia are able to report some factors of provision for all health providers with exceptions on the 2<sup>nd</sup> digit HP-level.

34. Information on factors of provision seems to be most widely available for hospitals (HP.1), residential long-term care facilities (HP.2) and providers of ambulatory care (HP.3). Many countries can also report costing data for retailers and other providers of medical goods (HP.5), providers of preventive care (HP.6) and providers of health care system administration and financing (HP.7). More difficult seems to be the identification of providers of ancillary services (HP.4) and rest of the economy (HP.8).

35. In most countries the set of identifiable factors of provision seem to be nearly identical across providers. With their strong provider-oriented focus, the Czech Republic can identify more resource costs for hospitals and long-term care institutions than for other providers.

### ***Limitations in coverage***

36. Although countries seem to be able to record a relatively high number of additional FP-items in the FPxHP table, there exist a number of caveats that limit the use of this data for national policy analysis and international comparisons:

37. Some data sources do not provide a full breakdown of the factors of provision classification (e.g. data sources identified by Finland do not include information on FP.3, FP.4 and FP.5; in the Czech Republic data sources used for providers of ambulatory care would not include FP.4 and FP.5).

38. Some data sources would only cover public providers. This is true, for example, for Lithuania where data from the official statements for public institutions would only cover public health providers for FP.3, FP.4 and FP.5 and Portugal where information on the 2<sup>nd</sup> digit level of FP.3 is only available for public providers. Private providers could only report the aggregate of total material and services used (FP.3).

39. Factors of provision data might exclude some providers at the 2<sup>nd</sup> digit level of HP which will affect the linkage to health expenditure by health provider. In the Czech Republic, for example, some providers of residential care (HP.2) are not included in the data sources on costs, Portuguese data sources exclude private households (HP.8.1) and private health insurance (HP.7.3) and in Slovenia information on all other industries as secondary providers of health care (HP.8.2) is missing.

40. The consumption of fixed capital (FP.4) is limited to some part of the existing stock of fixed assets of health providers in Finland and Hungary. Portugal has information available on consumption of fixed capital for the whole economy and branches thereof (on a NACE 2-digit level) calculated through the perpetual inventory method applied in National Accounts. This level of detail is too aggregated to map it into HP categories of SHA without further information.

41. Few countries seem to be able to report taxes (FP.5.1). For those that do it is not clear if they include value added tax (VAT) payable by the financing schemes as this type of data will typically not be recorded in companies financial results. Data on VAT should be available in tax statistics but it needs to be checked whether the level of detail would be sufficient to map it to health providers. The non-reporting of VAT in FP.5.1 can, of course, also be justified by the fact that some health services are exempt from VAT in some countries.

42. Some data sources in countries are not available on an annual basis. Data sources on revenues and costs for non-government health providers in Hungary are only available bi-annually. Proper estimation techniques would have to be developed to extrapolate missing data.

#### ***Additional data sources***

43. In addition to the information collected from participating SHA experts, the OECD Secretariat analysed independently whether appropriate data sources can also be found in other countries.

#### ***Financial results of health care providers***

44. Many countries report that they would rely on financial results of providers to identify costing items of health care provision. One additional example is the United Kingdom where the NHS Trusts Summarized Accounts and the Consolidated Accounts for NHS Foundation Trust comprise the financial position and cash flow of NHS hospitals covering around 96% of all hospital beds in England. The information included in the accounts are detailed enough to report all factors of provision for HP.1.

45. The Health Services Executive (HSE) is a financing agent and provider of health services in Ireland. Their Annual Report and Financial Statement includes costing information for HSE-owned hospitals and primary care providers at a great level of detail but would need to be complemented by resource cost information for private providers to give a complete picture of resource costs for HP.1 and HP.3.

46. The Financial Records of Statutory Health, Accident and Pension Insurance Schemes would allow for a complete coverage of resource costs for Social Security Funds in Germany. For private administration agencies, detailed records of the Federal Financial Supervisory Authority (BAFIN) summarizing the costs of private health insurance companies would ensure complete reporting of all factors of provision. A

comprehensive coverage of the costing side of health provider administration (HP.7) would thus seem feasible.

### ***Special studies of health care providers***

47. For an in-depth analysis of the integration of public hospitals in the economy, France has constructed a complete sequence of accounts in the SNA terminology<sup>5</sup> as a one-off exercise. All factors of provision can be identified in the sequence of accounts at the 1<sup>st</sup> digit level. Integration of hospital records into the sequence of accounts would possibly allow for reporting at an even more detailed level.

### ***Resource cost data statistics for other purposes***

48. Data on the costs of resources in hospitals are needed in countries where provider payment systems try to reflect the resources that are used up in the treatment process. The most common examples are payment systems based on diagnosis-related groups (DRG). DRG payment systems are increasingly popular for in-patient services in general hospitals in many OECD countries. In DRG systems cases are classified into groups (typically several hundred or more) that have a similar diagnosis and thus require similar treatment using up similar inputs. These DRGs are attached with different cost weights reflecting the difference in resource intensity of the treatment process. To calculate the cost weights that are the basis for the remuneration of services very detailed information of the entire set of costs in hospitals are required. In Australia, for example, hospital cost reports are published by the Department of Health and Ageing for public and private hospitals and updated every year. Reports of this kind could serve as a starting point to report factors of provision for general hospitals.

### ***Provider specific structural statistics***

49. Countries reported that they could also use structural statistics to report factors of provision. Typically, structural statistics are published by statistical institutes and shed light on revenues and costs at a more or less detailed level. They are available for many branches of the economy. They are conducted regularly (although not necessarily annually) and especially include (a sample of) small and medium-sized enterprises that are frequently exempted from reporting obligations. In Germany, for example, cost structure statistics are published every four years for practices of physicians, dentists and other health practitioners and give a basic costing breakdown that allows the identification of factors of provision at the 1<sup>st</sup> digit level. Data on cost structure of providers can also be collected from provider organisations, for example from pharmacy associations<sup>6</sup> or other institutions like banks<sup>7</sup>.

### ***Input-Output-Framework***

50. Supply-, Use-, and Input-Output-Tables are national accounting tools to analyse the integration of different branches within the total economy and its linkage to other branches. These tables display the total domestic output of products by branches and imports (Supply Table), the total intermediate and final use of supplied products (Use Table) and a combination of those information in a symmetric table (Input-Output-Table).

51. Information on resource costs is included in the Use table. A shortened version is displayed in Table 1. The Use table includes information on total intermediate consumption (FP.3), compensation of employees (FP.1), mixed income/operating surplus (FP.2) and consumption of fixed capital (FP.4) for every branch. For countries of the European Union, Use tables are regularly reported at a highly aggregated level (71 products in the CPA classification for 60 branches in ISIC). However, at a national level, data might be

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5 “Les hôpitaux du secteur public hospitalier de 2006 à 2009: quelques aspects comptables” dans comptes nationaux de la santé, DREES (2011)

6 E.g. Pharmasuisse in Switzerland and Österreichische Apothekerkammer in Austria

7 E.g. Industry Analysis of German Pharmacies by Commerzbank

collected at a more disaggregated level. It has to be borne in mind that health providers are spread across several branches and more detailed information than at a typical publication level would be required to utilise this table for SHA purposes.

**Table 1. Simplified Use Table**

		Intermediate Consumption			Final Uses				Total Use
		Input of branches (ISIC)		Total IC	Final Consumption	Gross Capital Formation	Exports	Total FU	
		1	HP.X	n	$\sum n$				
Goods and services used (CPA)	1								
	...								
	m								
	$\sum m$		FP.3						
Compensation of employees			FP.1						
Other taxes less subsidies on production			FP.5.1*						
Consumption of fixed capital			FP.4						
Net operating surplus/net mixed income			FP.2						
Value added**									
Output***									

Identification of HP within and across branches required

\* not including VAT on products payable by patients/financing schemes

\*\* Value added at basic prices is the sum of compensation of employees (FP.1), other taxes less subsidies on production (FP.5.1\*), consumption of fixed capital (FP.4) and net operating surplus (FP.2)

\*\*\* Output at basic prices is the sum of value added at basic prices and the total sum of inputs (FP.3)

52. Nevertheless, tables from the Input-Output-Framework have been at the starting point in the construction of the German Health Market Satellite Accounts which has a larger scope than SHA but incorporated a mapping table to National Health Accounts.

#### 4. Challenges

53. The questionnaires sent to participating countries also included a section on methodological issues. Questions were asked whether the information given in Chapter 9 would be sufficient to allocate all cost components into the respective categories. Additionally, it was planned to build up a picture on how countries would deal with the valuation of resource cost reflecting the existence of different accounting rules in data sources and how they would adjust data on factors of provision to match current health expenditure<sup>8</sup>.

<sup>8</sup> Chapter 9 of SHA 2011 suggests that the sum of all factors of provision ( $\sum FP1-FP5$ ) needs to be identical to current health expenditure ( $\sum HC1-HC9$ ) for each health care provider HP1-HP8 and hence for the sum of all providers.

### *Clarification of cost components*

54. In addition to a number of questions on very specific transactions there are some methodological issues which should be addressed in greater detail concerning inputs going beyond the information given in Chapter 9 and their valuation.

#### *Taxes*

55. Category FP.5.1 “taxes” only refers to *taxes on production* and *taxes on products*. Personal income tax or corporate taxes payable for revenues generated through the provision of health care goods and services are integral component of category FP.2 self-employed professional income.

56. *Taxes on production* have to be paid due to the engagement in the production process and can include taxes on land or premises used in the production or on the labour force employed. It is easy to see that these are cost components affecting the health care providers.

57. It is not so obvious why *taxes on products* are included in the classification of factors of provision as they do not present a costing factor to the health providers. Taxes on products are payable per unit of the product and the tax may be a flat amount that depends on the physical quantity of the product or it may be a percentage of the value at which the product is sold. The best known tax on products is the value added tax (VAT). Their inclusion in the factors of provision classification is justified because this “cost component” is required to be able to equate the sum of factors of provision with current health expenditure. Current health expenditure is valued at purchaser’s prices and this price concept includes VAT of health care goods and services payable by the financing schemes.

58. But not all VAT should be reported under FP5.1. We need to take into account that VAT can be deductible or non-deductible:

- ***Deductible VAT*** is the VAT payable on purchases of goods or services intended for intermediate consumption, gross fixed capital formation or for resale that a producer is permitted to deduct from his own VAT liability to the government in respect of VAT invoiced to his customers;
- ***Non-deductible VAT*** is VAT payable by a purchaser that is not deductible from his own VAT liability, if any.

59. There are different tax regimes for the provision of health services and goods in OECD countries. In many countries goods and services from retailers (including pharmacies) are not VAT exempt<sup>9</sup>. That means financing schemes have to pay VAT for the obtained goods and services to the health providers which pass it on to the tax authorities. However, the health provider is allowed to deduct the VAT he had to pay for the services and goods which have been used in the production process (e.g. non-durable office equipment).

60. Alternatively, the provision of health goods and services can be VAT exempt. This is true for hospital services and out-patient services in many countries. This means that financing schemes do not have to pay VAT for their final consumption of health services. For the health care provider the VAT exemption of their output can mean that they are not allowed to deduct the VAT they have to pay for their inputs.

61. For the recording of *taxes on products* under FP.5.1 this has the following consequences<sup>10</sup>:

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9 This can also be true for non-health services like cosmetic surgery in hospitals.

10 As mentioned earlier, taxes on production also have to be reported under FP.5.1.

- Only non-deductible VAT payable by financing schemes for their final consumption should be recorded under FP.5.1.
- Non-deductible VAT paid for inputs by providers cannot be identified separately and will be a component of material and services used (FP.3) because it is part of the purchasing price of these products.

62. It might be problematic to identify VAT payable by financing schemes. This is typically not recorded in the financial accounts of the health providers as it does not present a costing item for them. The information will be included in tax records and tax statistics but there might be an issue whether this information is available at the level of detail required to attach it to the health provider that sold the taxable goods or services.

#### *Retailers*

63. Within the SHA framework, the medical goods consumed for final consumption and provided by retailers (HC.5) are valued at the purchaser's price and include the value of the goods purchased for resale *and* the trade margin by retailers. For the measurement of inputs these two components would need to be separated: the goods purchased for resale need to be recorded as FP.3.2 "health care goods" and the trade margins will be used by the retailer to cover the remaining resource costs. For pharmacies, the goods purchased for resale will be the biggest cost item in most countries<sup>11</sup>.

64. Following from this, it should be noted that the value of category FP.3.2.1 "Expenditure on pharmaceuticals" will be different from the health function HC.5.1 "Pharmaceuticals and other non-durables" for pharmacies. The latter include retail trade margins and non-deductible VAT whereas the former does not. The same is true for other retailers.

#### *Self-employed professional income and providers deficits*

65. Self-employed professional remuneration includes the remuneration for work performed by health care professionals and their profit as the owner or entrepreneur. This cost component is frequently estimated as a balancing item subtracting all other resource costs from total revenues. It is a gross value in the sense that it is recorded before personal income or corporate tax; it is net in the sense that consumption of fixed capital is not included. In many cases the value will be positive but it can also turn negative, for example, in the case of a hospital when revenues from the provision of health service are not sufficient to cover the compensation of employees, intermediate consumption and capital and other costs.

#### *Adjusting factors of provision for current health expenditure*

66. Chapter 9 of SHA 2011 proposes the identity of current health expenditure with the sum of all factors of provision for all health providers. This identity has the advantage that SHA being a multi-dimensional accounting system would display the identical aggregated values for most of the dimensions of health expenditure which can be communicated more easily. Moreover, by making sure that factors of provision equate with current health expenditure for each provider it would be warranted that only the "relevant" inputs for the production of health outputs are analysed –the production for domestic final consumption.

67. As we have seen in section 3, many countries use provider specific data sets which have not been created for SHA purposes to identify the different factors of provision. This means that the resource costs typically refer to the total set of goods and services provided by the provider –including non-health services, health-related services and exports.

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<sup>11</sup> In Switzerland and Austria the shares would be 64% and 70% of all resource costs.

**Table 2. Adjustment of Data**

Raw analysis		Advanced analysis		Linkage to health expenditure	
<i>Input of health provider</i>		<i>Input of health provider</i>		<i>Output of health provider</i>	
FP.1	Compensation of employees	FP.1_H		HC.1	Curative care
		FP.2_H		HC.2	Rehabilitative care
		FP.3_H		:	
		FP.4_H		:	
		FP.5_H		HC.9	Other health care services n.e.c
		$\sum$ FP1-5.H	<b><i>FP Current Health Expenditure</i></b>	$\sum$ HC1-HC9	<b><i>Current Health Expenditure</i></b>
FP.2	Self-employed professional remuneration	FP.1_H R		$\sum$ HC.R	<b>Health care related expenditure</b>
		...			
		FP.5_H R			
		$\sum$ FP1-5.HR	<b><i>FP health-related</i></b>		
		FP.1_E			
FP.4	Consumption of fixed capital	...		$\sum$ EX	<b>Health Care Exports</b>
		FP.5_E			
FP.5	Other items of spending on inputs	$\sum$ FP1-5.E	<b><i>FP exports</i></b>	$\sum$ NH	<b>Non- health output</b>
		FP.1_N			
		...			
		FP.5_N			
		$\sum$ FP1-5.N	<b><i>FP non-health</i></b>		
$\sum$ FP1-5	<b><i>All factor costs of provision</i></b>	$\sum$ FP1-5.H + $\sum$ FP1-5.HR + $\sum$ FP1-5.E + $\sum$ FP1-5.N		<b><i>Total output of provider</i></b>	

68. In theory, as depicted in Table 2, the total input costs per provider would have to be split into four categories: (i) input costs for the provision of health services, (ii) input costs for the provision of health-related services, (iii) input costs for the provision of exports and (iv) input costs for the provision of non-health services. Ideally, only the factors of provision related to health outputs would be reported in the FPxHP table; the identity between all factor of provision and current health expenditure would be maintained.

69. Feedback from countries on how to make these adjustments is limited since none of them has yet had practical experience. However, the comments received indicated that this was a major problem and, although desirable, hardly feasible in practice.

70. In the absence of any additional information, the only feasible way to make the required adjustments and identify inputs used for the provision of health services would be to assume the same input structure for the provision of all services<sup>12</sup>. Although easy to implement this is a strong assumption and many examples can be found where it is inaccurate. Resources used in the provision of in-patient services in hospitals might be different for domestic patients than for foreign patients<sup>13</sup>. The composition of inputs used for the provision of non-health services such as the operation of a cafeteria in a hospital will most likely be very different to the one for the provision of health services.

71. Given these problems of data availability, the question needs to be addressed as to what extent matching total factors of provision with current health expenditure should be required in future SHA 2011-based data collections. To be clear, a proportional split of input factors concerning health services, non-health services, health-related services and exports are of no additional value for analytical purposes and would only be done for the sake of reporting identical figures.

72. The choice of whether to focus only on the production of health goods and services for domestic consumption or total production (including exports, non-health and health-related services) is also important for those countries that endeavour to estimate labour productivity (using the aggregate value added). In case the production of goods and services for domestic health care consumption is the focus of the labour productivity analysis the labour force engaged in this activity needs to be identified –and separated from labour force engaged in export activities and non-health and health-related activities. As with costs of inputs, the split of labour force of health providers might be difficult to establish in practice.

73. In summary, it would be recommended that:

- **Countries should try to equate** the sum of factors of provision with current health expenditure for health providers only where information allow them to directly relate inputs to current health expenditure, in the case of health providers where exports, non-health and health-related services only play a minor role and in cases where the “industry technology” assumption is reasonable.
- **Countries should not try to equate** the sum of factors of provision with current health expenditure for health providers in those cases where a direct link between inputs and current health expenditure cannot be established. In particular, this would be the case if not all factors of provisions are sufficiently covered<sup>14</sup>, the health provider universe analysed for resource costs is not identical to the one delivering health care goods and services and when no separate information on the input structure of exports, non-health or health-related services are available (and the “industry technology” assumption cannot be maintained).

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12 This is called the “industry technology” approach used in converting supply and use tables into symmetric Input-Output tables relying on the assumption that all products produced by an industry are produced with the same input structure; an alternative method would be the “product technology” approach with the underlying assumption that a product has the same input structure in whichever industry it is produced (for more see the Eurostat Manual of Supply, Use and Input-Output Tables, 2008).

13 Prices charged for treatments can be up to 3 times higher for foreign patients in Korea, see [http://koreatimes.co.kr/www/news/nation/2013/08/116\\_60838.html](http://koreatimes.co.kr/www/news/nation/2013/08/116_60838.html), which hints at a different input structure with a bigger share of self-employed professional income (including operating surplus)

14 If data on one input (e.g. consumption of fixed capital) is entirely missing

## 5. Conclusion

74. Expanded reporting under the new Factors of Provision classification (FP), as outlined in Chapter 9 of *A System of Health Accounts 2011*, seems feasible. This is based on feedback from a limited number of OECD and non-OECD countries participating in this study, in addition to results from in-house research conducted by the OECD. The aim of this additional dimension of health accounting is to shed light on the costs of inputs used in the process of health care provision. Information on this dimension is deemed valuable for the evaluation of effects of policy changes on health providers and in the international comparison of health service provision.

75. Countries are able to expand their reporting beyond what is currently reported under the resource cost (RC) classification. All countries are able to report compensation of employees (and most of them are able to break this down further into wages and salaries and social contributions). In addition, many countries can record estimates of 'material and services used' and 'self-employed professional income' for some health care providers.

76. In terms of coverage, all countries can report factors of provision for the main health care providers, with a good number also covering providers of ancillary services, retailers and administration agencies.

77. Integration of multiple data sources and their reconciliation to get a concise picture of resource costs will be a challenge to health accountants. Moreover, data sources may have a number of limitations that need addressing, e.g. incomplete coverage of the entire health provider universe within provider categories, and the exclusion of resource cost information for private providers.

78. The feasibility study also assessed whether the chapter in SHA 2011 on factors of provision is sufficiently clear. Limited feedback suggests some difficulties in allocating specific spending items into the respective categories. Additional information on self-employed professional income and the treatment of taxes was highlighted.

79. A major challenge for countries is the alignment of factors of provision to current health expenditure. Chapter 9 of SHA 2011 proposes that the sum of all factors of provision equates to current health expenditure for every health care provider. Thus, only inputs that are used in the provision of health services, as defined in SHA 2011, are analysed. From a practical perspective, the required adjustments would pose problems since most data sources identify resource costs for *all* outputs of health providers, irrespective whether the output is health services, health-related, exports or non-health. It is recommended to put less emphasis on the need to equate the sum of factors of provision and current health expenditure for future SHA 2011-based data collections.