

# Financial Management Reforms in the Health Sector: A Comparative Study Between Cash-based and Accrual-based Accounting Systems

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**Background:** Financial management and accounting reform in the public sectors was started in 2000. Moving from cash-based to accrual-based is considered as the key component of these reforms and adjustments in the public sector. Performing this reform in the health system is a part of a bigger reform under the new public management.

**Objectives:** The current study aimed to analyze the movement from cash-based to accrual-based accounting in the health sector in Iran.

**Patients and Methods:** This comparative study was conducted in 2013 to compare financial management and movement from cash-based to accrual-based accounting in health sector in the countries such as the United States, Britain, Canada, Australia, New Zealand, and Iran. Library resources and reputable databases such as Medline, Elsevier, Index Copernicus, DOAJ, EBSCO-CINAHL and SID, and Iranmedex were searched. Fish cards were used to collect the data. Data were compared and analyzed using comparative tables.

**Results:** Developed countries have implemented accrual-based accounting and utilized the valid, reliable and practical information in accrual-based reporting in different areas such as price and tariffs setting, operational budgeting, public accounting, performance evaluation and comparison and evidence based decision making. In Iran, however, only a few public organizations such as the municipalities and the universities of medical sciences use accrual-based accounting, but despite what is required by law, the other public organizations do not use accrual-based accounting.

**Conclusions:** There are advantages in applying accrual-based accounting in the public sector which certainly depends on how this system is implemented in the sector.

**Keywords:** Financial Management; Health System Reforms; Comparative Study

## 1. Background

During the last three decades and in the shadow of modern public management, public sector accounting has undergone numerous changes and the most obvious one is the accounting reform (1, 2). The majority of the developed countries have moved from cash-based accounting to accrual-based accounting (3). The incentives of implementing the accrual-based accounting are timely management evaluation, facilitating the financial management, timely access to information for resource allocation, appropriate financial reporting, supporting tax planning goals and cash management (4-7).

Implementation of accrual-based accounting in the public sector results in identification and evaluation of assets. There are advantages to use accrual-based accounting such as better resource allocation, accountability and clarity of the costs, and presenting a view on economic influences of the government (4). However, cash-basis is desirable because the accrual way discloses important data and increases the clarity (8).

Regarding the fact that financial management is one

of the basic principles in the health sector, providing and managing financial resources is critical (9). In the 1980s and 1990s, some countries have implemented health sector reforms to improve effectiveness, efficiency and performance (10-14).

Based on IPSAS (International Public Sector Accounting Standards) list, only five countries have successfully implemented accrual-based accounting, meeting the IPSAS standards; Australia, Canada, New Zealand, Britain, and the United States. Iran has recently started the implementation of accrual-based accounting in the public sector. Thus six countries were selected for this study.

## 2. Objectives

The current study aimed to analyze the international adoption of accrual-based accounting in the health sector, and clarify the strengths and weaknesses of the financial management reforms in the selected countries. The study will help Iranian policy makers to implement reforms appropriately in their systems.

### 3. Patients and Methods

The current study was a comparative study. All documents from 1990 to 2013 were studied. The inclusion criteria to select the countries were: 1) leading financial management system (membership in the Accounting Standard Setting Committee), 2) clear and published financial statements, 3) experience of reform in the health sector, 4) possessing at least one published article about the aforementioned documents. Therefore, the United States, New Zealand, Canada, Australia, and Britain were selected.

Comparative tables were designed and used as the data gathering tool. The variables for the comparison were: presentation of standard financial statement, the accounting system, accounting information system, the range of cost in cost centers and units, accrual budgeting, commitment to allocate resources based on the operation, systematic mechanism of budgeting data collection, the effect of results in the upstream documentation, and use of management accounting techniques.

These variables were validated by the National Finance Committee in Iran. Data were gathered using fish cards through library resources, reports published by World Health Organization (WHO), research centers, and reputable databases such as Medline, PubMed, Elsevier, Index Copernicus, DOAJ, EBSCO-CINAHL and the Iranian search databases including SID and Iranmedex. A combination of the key words used in the study was as follows: accrual-based accounting, health financing, cash-based accounting, financial management, health system reforms, and health accounting and Iran, the United States, Britain, Canada, Australia and New Zealand.

The findings from different countries were gathered in the comparative tables. The quality of findings was assessed by the National Committee of Financial and Budgeting. A total of 129 results were obtained out of which 84 papers were excluded by the National Committee and finally 45 papers met the inclusion criteria. The National Committee of Financial and Budgeting assessed the relevance of the papers according to the following inclusion criteria: i) papers in English or Farsi; ii) papers published since 1990 onwards; iii) the publication covers at least one selected country; iv) and measures the moving cash-based to accrual-based in the public sector.

### 4. Results

The current study aimed to identify and analyze the strengths and weaknesses of the cash-based to accrual-based accounting movement in the health sector. The findings concerning different variables are presented in this section. A standard financial statement is a report including fiscal information such as budget performance statement. The statement, in the United States, Canada, and Britain is fully accrual; in Australia and New Zealand is accrual-based, and in Iran is Government Finance Statistics (GFS) (15, 16).

Systematic accounting refers to the financial reports of the public sector. These reports are easily understandable, limited to a time period, relevant, can potentially predict future, and provide data for the managers to make appropriate decisions. Federal Accounting Standards Advisory Board (FASAB) and Governmental Accounting Standards Board (GASB) accounting systems are used in the United States. In the other countries the accounting systems are as follows: Australia, Public Sector Accounting Standard Boards Australian Accounting Research Foundation (PSASBAARF) and GFS; New Zealand, New Zealand Society of Accountants (ZSA); Canada, Canadian Institute of Chartered Accountants (CICA) and Public Sector Accounting And Auditing Committee of Canadian Institute of Chartered Accountant (PSAACCI-CA); Britain, Generally Accepted Accounting Principles (GAAP) and in Iran, Association of Certified Project Accountants (ACPA) (16, 17).

Accounting Information System (AIS) is in charge of gathering and analyzing financial information to provide the managers with the needed information. AIS varies in different countries, in the United States it is an independent public accounting based on modified accrual; in Australia, New Zealand, Canada and Britain it is accrual-based accounting; and in Iran it is semi-accrual-based accounting (18, 19).

The range of the costing in the branches and units is using standard costing of the product in a period of time. It is mostly used to control and plan the production and manage the cash resources all over the organization. The range of costing in the countries under study is as follows: The United States, cash allocation; Australia, link of accrual-based accounting and cost accounting systems; New Zealand, resource allocation based on the cost/standard product cost; Canada, accrual allocation; Britain, accrual-based accounting. Iran currently does not have any approach in this area (9, 20).

In accrual budgeting, the budgets and financial resource allocation is based on the accrual-based accounting system. Budgeting in the United States, Australia, New Zealand, Britain, and Canada is accrual-based considering the fact that the Canadian government does not measure the rate of depreciation of assets and the capital. Budgeting system in Iran is cash-based (4, 16).

Commitment to allocate resources based on the operation means that the distribution of resources is based on activities and performances. The United States, Australia, Canada and the Britain are using operational budgeting. The Operational Budgeting system is under the construction in New Zealand. In Iran it is not based on the performance and is based on the additive method (4, 9, 16).

Systematic mechanism of budgeting data collection means that the advanced automated systems collect budgeting data and information. Such a mechanism exists in all of the countries. In the United States, Australia, New Zealand, Canada and the Britain it is based on audited reports at various levels but in Iran it is based on state

guidelines (9, 16).

Using results to prepare upstream documents means the extent to which the results of the accrual-based accounting implementation are used to prepare upstream documents. This mechanism in the United States is based on standardized reporting (Federal Financial Reporting) in a three-month period, in Australia, New Zealand, Canada, Britain and Iran the government comprehensive report is used as a document which plays a role in the parliament decision (9, 21).

Management Accounting Techniques means that the

government uses modern methods of management accounting such as costing and depreciation costs. In the United States and Australia it is used based on the preferences of the managers. In New Zealand and Canada there is no information about cost centers and the use of Management Accounting Techniques. In Britain, the use of Management Accounting Techniques is fully utilized at national and provincial levels. There is very little use of these techniques in Iran while it heavily relies on personal knowledge and the relevant data are not produced (14, 16, 21) (Table 1).

**Table 1.** Summary of the Comparative Health Sector to Implement Accrual-based Accounting in the Selected Countries

Variables Country	Presentation of Standards Financial Statement	The Accounting System	Accounting Information System	The Range of the Costing in the Branches and Units	Accrual-based Budgeting	Commitment to Allocate Resources Based on the Operation	Systematic Mechanism of Budgeting data Collection	The Effect of Results in Upstream Documentation	Use of Management Accounting Techniques
<b>United States</b>	Full Accrual with emphasis on the flow of economic resources	FASAB, GASB	Independent government accounting based on modified accrual	Cash allocation	Accrual-based budgeting and accounting	Budgeting based on performance/operational and budgeting	Available	Federal financial reporting	Preferences of the managers
<b>Australia</b>	Financial statement based on accrual	PSASBAARF, GFS	Accrual-based accounting	Link of accrual-based accounting and cost accounting systems	AOB	Budgeting based on Performance	Available	Government comprehensive report as a document plays a role in the parliament decision	Preferences of the managers
<b>New Zealand</b>	Financial statement basis on accrual	ZSA	Accrual-based accounting	Resource allocation based on the cost/standard product cost	Accrual-based budgeting and accounting	Budgeting based on Performance	Available	Government comprehensive report as a document makes role in the parliament decision	Not available
<b>Canada</b>	Financial statement based on full accrual	CICA, PSAAC-CICA	Accrual-based accounting	Accrual-based appropriations	No capitalization or depreciation for assets	Budgeting based on performance	Available	Government comprehensive report as a document makes role in the parliament decision	Not available
<b>Britain</b>	Consolidated statements with stage method	UK GAAP	Accrual-based accounting	Providing information on commodity prices through accrual-based accounting	Accrual-based budgeting and accounting	Budgeting based on performance	Available	Government comprehensive report as a document makes role in the parliament decision	Cost centers at national and provincial level government bodies are identified and defined
<b>Iran</b>	GFS	ACPA	Semi-accrual-based accounting	No approach but in projects are anticipated	Cash-based	The function of legislation and in a non-operational	Available (based on state guidelines and cannot be controlled in parallel)	Treasury performance in last year is based on the budget new year	Relies heavily on personal knowledge

## 5. Discussion

In every country, accountability plays a key role for the government (22). Accountability of the governments is legally binding and logically an inevitable necessity for effective management of the tasks (23, 24). The current accounting system meets the traditional accountability, but is not enough in terms of objectives for management planning and decision making, and does not satisfy the needs of the managers for accountability of their performance and their organizations. A decade ago accrual-based accounting was introduced as a tremendous reform for financial reporting in the public sector and a base for the new public management.

The results show that the studied developed countries (Australia, Canada, Britain, New Zealand, and the United States) have implemented accrual-based accounting and accrual-based reporting, and benefit from the information in the accrual-based reporting in different fields namely costing, operational budgeting, performance evaluation, macroeconomic decision making, and upstream documentation.

The primary objectives of the financial management reforms in New Zealand are improving the effectiveness of the technique and strengthening the accountability. New Zealand Government has gained enormous advantages of implementation of the accrual-based budgeting and financial reporting. Financial reforms in New Zealand were associated with better financial control and asset management. The economic success, to some extent, can be attributed to the change to accrual-based accounting which highlights this ratio more than ever.

Canada is among the developed countries which has implemented accrual-based accounting comprehensively. It is worth mentioning that this country alongside France and New Zealand are members of the auditing committee of International Federation Accountants (IFAC). In contrast with the other countries, the financial reports provided by the Canadian government are used to explore the financial condition.

Britain has a widespread experience in implementing accrual-based accounting in the public sector. The introduction of accrual-based accounting in Britain as a tool to improve clarification and accountability of the government, performance evaluation, and other similar matters is supported by the international organizations especially IFAC which set the International Public Sector Accounting Standards (IPSAS). Britain has initiated practical and purposeful steps to implement accrual-based accounting system. This country is considered as a proper example, and the other countries can use their experiences.

Findings of the current study showed that in Iran some public sector organizations such as municipalities and universities of medical sciences have made valuable efforts to implement accrual-based accounting and present useful upstream information for better decision making. Nevertheless, despite legal requirements the other public

sector organizations do not use accrual-based accounting to report their process.

Financial management reforms in Australia enhanced government performance and made great advances in funding. Employing two parallel systems may be the problem in this country, one based on the accounting systems in Australia and the other based on the GFS system.

In the United States, accrual-based accounting is widely used in largest entities of the private sector. In fact, state organizations which are in charge of public services and the other entities need regulations to prepare their financial statements using accrual-based accounting such as GAAP. Although theoretically the systems are different, there is a little difference between cash-based accounting and budgeting accounting of the United States; since the accounting system of the United States evaluates the transactions according to money or its equivalent.

In Iran, the new healthcare financial system benefits from advantages and opportunities such as useful human and information resources, structural appropriation, effectiveness, and efficiency. This helps policy makers and decision making parties to design a long-term perspective and set the desired perspective for implementation of the future phases while paving the way for a more precise planning of the changes and holding on to the accomplishments.

The findings of the previous studies (4, 9, 25) show that the traditional systems of budgeting are not suitable for the current conditions and requirements and these methods do not meet the needs of managers and decision making parties at different levels of the operation and planning management.

Different researches (21, 26) showed that the information provided by accrual-based reporting is characterized with the qualitative characteristics of relevance, providing relevant information to decision makers, honesty in presentation, understandability, timeliness, verifiability, and comparability for a better management of incomes and payments. Therefore, it can be concluded that the financial statements reported using accrual-based accounting, are capable of presenting useful information to improve the estimates and the predictions.

The current study was performed for the first time in the health sector but there were some limitations including lack of comprehensive information regarding the studied countries. The researchers tried to acquire information in different ways such as library searching and sending emails to the people who were working in the system. Using accrual-based accounting and budgeting in different countries has significant advantages and these have enforced the developed and developing countries to consider the implementation of accrual-based accounting in their health sectors.

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## Authors' Contributions

Masoud Abolhallaje designed the original idea, carried out the study, and collected data. Mehdi Jafari supervised the study, participated in designing, conducting the study, and also prepared the manuscript. Hesam Seyedein was an adviser of the study, where participated in the design of the study, the statistical analysis, and also helped in preparing the manuscript. Masoud Salehi performed the statistical analysis, and prepared the manuscript.

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