DRG INFORMATION SYSTEM, HEALTHCARE REFORMS AND INNOVATION OF MANAGEMENT IN THE WESTERN COUNTRIES DURING THE 90S: WHERE ARE THE KEY SUCCESS FACTORS ?

Jean Marie Rodrigues, Béatrice Trombert Paviot, Caroline Martin

Department of Public Health and Medical Informatics, Université of Saint Etienne, France

Communication to: Jean Marie Rodrigues, Department of Public Health and Medical Informatics Faculté de Médecine, Université Jean Monnet,

25 rue Ambroise Paré, 42100 Saint Etienne, France.

Fax +33.477127972, E-mail rodrigues@univ-st-etienne.fr.

ABSTRACT

Introduction: The history of case mix implementation in most of western countries during the 90s has been associated with several healthcare reforms, information technology development and managerial innovation in very different ways.

Material and Method: We analyse the links between 4 different points in 10 countries: Australia, Belgium, France, Germany, Hungary, Italy, Norway, Portugal, The Netherlands and USA, and address the role of state governments, healthcare professionals, insurance industry, IT industry and people information availability.

Results: We stress the limits of the comparison and propose a casemix of the 10 national situations in order to extract the key success factors of casemix implementation as well as the most negative factors.

Conclusion: We conclude on the time schedule needed to change the healthcare system in the 10 countries which can be helpful for any country planning such a change.

KEYWORDS: Case mix implementation, Healthcare reforms, Western countries.

This paper has been presented (oral presentation) at the 17th PCSE 2001 International Working Conference, 10-13 October 2001 in Bruges, Belgium

INTRODUCTION

The new millennium started with a debate on the open world interactions named "mondialisation". Within health services research and health economics fields the dilemma between global views and local actions is a good example for this issue. The casemix tools designed and developed since the late 60s initially in the United States have been implemented in the real world outside the US in most of the western world during the 90s. It is now possible to try a global analysis of the implementation (and not of the migration of innovation as in Kimberly¹) in at least 3 continents, America, Europe and Australia. We have chosen 10 countries mainly for the reasons that the DRG implementations were different and the success as it can be evaluated to day is going from 1 to 0.

MATERIAL AND METHOD

The precise approach to managing healthcare services varies between countries. It is very difficult to agree on a rational model to explain such variations. We do not try to do it here. We have observed that the history of case mix implementation in most of western countries during the 90s has been associated with several healthcare reforms, information technology (I.T.) development and managerial innovation. We describe in each of these 10 countries the relation between 4 points (this 3 factors and the technical

DRG system development) and the implementation of casemix. Several reviews have been done on the casemix state of development in the world. The most updated are the Danish and the Belgian^{2,3}. Among all this material, we address specifically the role of state governments, healthcare professionals, insurance industry, IT industry and people information availability.

RESULTS

1. Australia

As the implementations vary from one state to another, we describe the Victoria state implementation.

1.1 The healthcare reform to which the case mix implementation was applied was clearly defined. The hospital budgetary cuts were to be fair for all the hospitals and associated to an improved efficiency incentive and continuity of the quality of care. For this reason the implementation model is rather complex and updated regularly to reach the subsidiary targets. This results in the development of a comprehensive healthcare policy: added grants for training, emergency services, remote or rural location, reducing waiting times for elective surgery, increased outpatient care and non medical primary care services such as allied health and natural therapies.

1.2 A survey among hospital managers showed a high rate of concern with I.T development in hospital information system (HIS) when the DRG system was introduced. To allow a detailed patient based HIS, the Victoria department of health agreed to finance comprehensive HIS and supported the production of requirements for such systems. A Matrix Organisation Management System (M.O.M.S.) becomes

possible 1.3 The managerial innovation not easy to check can be assumed indirectly on the speed of modification in funding quantitatively and qualitatively on the treatment of agreed additional number of cases and the reduction on grant for specific services (such as burns and anaemia).

1.4 The DRG technology at the level of the casemix branch in Canberra (after co-operation with Yale University and 3M) or in Victoria has followed the more complete development outside the US (AN DRG and AR DRG, annual cost weight Australian study with specific Victoria adjustment, the Victorian Ambulatory Classification System for outpatient and a casemix for rehabilitation problem of outliers et...

2. Belgium

2.1 The 1987 healthcare reform decided to maintain hospital cost under a ceiling but to keep as well the traditional fee for service system. The implementation was progressive and based on rewards for the hospitals with the shortest casemix adjusted length of stay. The degree of outpatient care is rewarded as well. Finally the demographic situation of the different regions is taken into account to be fair with the region dealing with the most extended aged population.

2.2 I.T development in hospital information system has mixed a strong technology development all over the health care sector with a detailed patient based HIS inherited from the past fee for service and insurance reimbursement ("Mutuelles") system.

2.3 There are several experiments on managerial innovation at the hospital and at managed care level but the evolution seems rather smooth.

2.4 The DRG technology followed a very US trend starting from the Yale DRG of Fetter to the New York state AP DRG and recently to the 3M APR DRG. On the other hand the very detailed information system by patient allow the computation of precise cost weight which are used only for benchmarking.

3. France

3.1 There were at least 4 healthcare reforms during the case mix pilot tests and implementation. As explained in [3] the case mix approach has never been clearly integrated to the 4 reforms. It results in a marginal use of case mix for hospital resource allocation with 2 objectives found after the implementation: efficiency and equity. The final case mix based hospital payment model is still waiting for a definition. Changing the system or not is a lasting issue.

3.2 I.T development in HIS when the DRG system was introduced followed the Voltaire approach: top down or the Reason enlightening the absolutism (named "Enlightened Despotism"). In short a complete

failure to allow a detailed patient based HIS. There is to day no opportunity or very few for M.O.M.S. in hospitals.

3.3 The French resistance to change behaviour or the management of public sector. One of the so called French specificity ("l'exception française") is the "French way for public services": it means that there is a strong debate between pro and cons to know if it is necessary to introduce market like incentives and management practices in the public sector.

3.4 The DRG technology was quickly localised (under the names GHM) but with an insufficient funding for the independent development of the new technical tools: several national agencies have been appointed (drugs, blood, food, infectious disease...) but not yet for case mix. They are not enough data related directly to the patient to afford data bases allowing good quality computation of DRG cost weight. This poor quality prevents fair resource allocation.

4. Germany

4.1 The main healthcare reform in the 90s introduced a competitive system among insurance providers (membership is compulsory to one of them) but not among the hospital suppliers mainly owned by public or voluntary organisations. Unfortunately the reform was not integrated to casemix implementation for it was associated only to payment issues and the DRG system considered not to be suitable for the German system: clinicians were not happy with the DRG clustering considered to be not related to their practice. Recently a realignment by health insurance, hospital corporation and the federal government decided to implement the Australian Refined AR DRG in 2003.

4.2 I.T development in HIS started lately in 1995 when it was realised that the internal accounting and budgeting system was the major restraint on the expected impact of funding on a casemix basis. Nevertheless in some private hospitals a M.O.M.S. has been tested.

4.3 The managerial innovation was not an evidence due to the complex specific German casemix system with 7 principles and 3 concurrent payments which can be chosen by negotiation between the hospital an the health insurance.

4.4 The initial Casemix technology associated 160 expensive procedures (Sonderentgelte), 75 surgical groups of cases related Fallpauschalen and per diem rates. The non comprehensive system and its misuse have convinced the federal government to adopt the Australian system AR DRG which needs an adaptation of the German medical procedure coding system ICPM-GE and further on maintenance efforts.

5. Hungary

5.1 In this country the casemix has been implemented in a healthcare system completely different from the socialist system for which the pilot tests were performed before 1989. It was a revolution building a health insurance system with compulsory membership, without competition within the health insurance system and a lot of problems related to the transition and namely the new role of physicians, the need to increase activity and efficiency, and the funding of capital cost. The integration of the casemix implementation to this big change was nevertheless performed very quickly from 1995.

5.2 Before 1989 Hungary was a leading country for I.T among central and eastern communist countries and for this reason able to perform DRG pilot tests. After 1989 the I.T development was rather fast and namely within HIS but with some difficulties to develop a patient based HIS. This was due particularly to the transition in the organisation from a central state run hospital system to independent hospitals.

5.3 The managerial innovation was real after the revolution but had to deal with so many transitional issues. The move to a M.O.M.S. has not yet been achieved.

5.4 The DRG technology was localised before 1989 (named HBCs). Several adjustments were done afterwards to be aligned with the other western DRG technology developments in the US, Europe and Australia. The investment has been important since the beginning at this level taking into account the size of the country (10 millions inhabitants).

6. Italy

6.1 The healthcare reform to which the casemix implementation was applied is the 1992 National Health Service Reorganisation Act. It clearly integrated the separation of the purchaser and provider role

of NHS to the creation of self governing public hospitals (in fact the University hospitals) to a prospective payment system based on DRG for private hospitals, cross border (between regions) patients and self governing hospitals. It plans as well explicit incentive for outpatient care, control of quality of care and of appropriateness of care.

6.2 I.T development in HIS is very variable from very advanced hospitals (University and pilot hospitals) and much less advanced ones (rather in the south). Only for the first ones a M.O.M.S. becomes possible.

6.3 The managerial innovation can be considered as well as very variable depending upon the regions and the facilities.

6.4 The DRG technology was an important issue at the beginning: it was necessary to adapt to the Italian system a coding system for procedures (ICD 9 CM volume 3) and to produce a minimum discharge set (MDS) for each acute care hospital stay. It was decided to follow the US public domain trend in co-operation with 3M. Extensions to ambulatory care and nursing home are still in a n experimental state.

7. Norway

7.1 The healthcare reform to which the casemix implementation was applied is based on the 1993 law giving responsibility for health care management to the 16 counties (as for education and road maintenance). Activity based funding using DRG was decided in 1997. 50 % of hospital cost (the part coming from the national state) is reimbursed to the hospitals by the county based on the DRG production with a control of a possible DRG creep (1 % a year). The goal is to reduce waiting list by increasing activity and controlling efficiency.

7.2 I.T development in any activity and in HIS has always been very advanced in Norway when compared with European standards. When the DRG system was introduced there were very few cost information directly related to the patient. This was corrected and most of the hospitals are now able to use a M.O.M.S.

7.3 The managerial innovation has been real and can be assumed by the speed of modification of activity and of waiting lists.

7.4 The DRG technology started by a co-operation with Yale University and later on move to the nordic initiative of NorDRG. It is a regional co-operation between Denmark, Finland, Iceland, Norway and Sweden under the leadership of NOMESCO (Nordic Medico-Statistical Committee). It is associated at the Norwegian level with the production of Norwegian cost weight each 5 years.

8. Portugal

8.1 The casemix implementation was applied mainly under the framework reforming the financing of regional health authorities although it was used since 1990 to bill third parties payers (private insurance and cross border -between regions- patients). The goals are to fund fairly the health care activities: capitation by age, sex and burden of illness for regions, DRG for hospitals within regions with benchmarking for performance, warnings about quality problems in care and evaluation of data quality.

8.2 I.T development in HIS is very variable from very advanced hospitals (University hospitals) and much less advanced ones. A M.O.M.S. is still non a common feature in Portugal.

8.3 The managerial innovation can be considered as rather slow due to the efforts to build and develop modern hospital facilities.

8.4 The DRG technology. At the beginning, the computerisation of hospitals was very low and there was no discharge abstract and neither tradition of coding diagnosis and procedures: it was necessary to adapt to the Portuguese system a coding system for procedures (ICD 9 CM vol.3) and to produce a MDS for each acute care hospital stay. A vast training program for physicians to code in ICD 9 CM was developed. It was decided to follow the US public domain trend in co-operation with 3M for the DRG grouping and for the cost weight. Extensions to ambulatory care (APG) is still in an experimental state. The efforts were fruitful since in five years (1985-1990) starting from scratch DRG data were produced and used all over the country.

9. The Netherlands

9.1 The main healthcare reform of the 90s introduced a competitive system among insurance providers. There were several pilot tests with US DRG since the early 80s and with localised Casemix and a lot of discussions between the different healthcare partners on the way to use DRGs for hospitals and patient based information systems for managed care networks: for payment and other goals. The last agreement point in 1998 was to develop a new casemix system for acute care inpatients in hospital named DBC following a Dutch acronym

9.2 I.T development in HIS in The Netherlands has always been very advanced even when compared to the most advanced parts of the world. There are available data for very detailed M.O.M.S.within hospitals and for linking data within and outside hospital.

9.3 The managerial innovation is variable but very real for managed care but has never used casemix for the formal reason that clinicians are not happy with the clustering not related to their practice as in Germany in the 80s.

9.4 The present Casemix technology development is a huge effort involving accounting consultants, statisticians and expert clinicians appointed by the different medical colleges: the methodology is unrelated to the statistical and clinical meaning DRG approach. It is based on a priori definition of group of patients related to clinical practice and considered to need an homogeneous set of resource. The granularity of the groups definition is left to the clinical experts within each group. The finalisation of the work is expected this year and the implementation to pay the hospitals to start next year.

10. USA

10.1 The healthcare reform to which the casemix implementation was applied is the 1983 Prospective Payment System reforming the way the hospitals were paid since the 1965 Medicare and Medicaid acts. It was a 2 parts reform. One the payment was planned and two it measures the product of hospital by DRG with a fixed price by DRG. It was an incentive to efficiency for if the hospital treats the patient for a cost less than the fixed price it keeps the money. It he treats for more than the fixed price he lost money. This reform has been recently extended to ambulatory care using an APC amended version of APG.

10.2 I.T development in HIS when the DRG system was introduced was variable but rather patient oriented due to the detailed bill to send to health insurance. The reform was a strong incentive to develop a M.O.M.S.

10.3 The managerial innovation can be assumed on the speed of modification of the healthcare services delivery in the US since 1983 with the increase in outpatient treatment and the decrease in acute care hospital stays and length of stay and the development of managed care.

10.4 The DRG technology started in Yale Newhaven hospital in 1967 has grown in an industry with a public branch HCFA and a private one 3M, then has been exported in the different part of the world. HCFA DRG, New York State AP DRG, 3M APR DRG and APG DRG and other applications to rehabil

CONCLUSION

It is necessary to stress the limits of the comparison of such country summaries. We have excluded several factors as the GDP by habitant, the rate of health care spending, the organisation of the healthcare system, the poverty rate, the payment of physicians et...The most positive key success factors seem to be the clear integration of the casemix implementation to an healthcare reform and a sufficient funding in a good DRG technology. On the opposite a high level of IT development in HIS is not always a positive factors as shown in The Netherlands, Germany first casemix and its absence not always a negative factor as shown in Portugal, Hungary, Italy or France. Real Managerial innovation needs an advanced patient based hospital information system and a cultural and organisational incentive. An advanced patient based hospital information system is not sufficient to induce a managerial innovation. The different time schedules for the casemix implementation in 10 countries show how to shorten this time as in Portugal but as well the longer time and the important efforts needed to finalise the change within the healthcare system as in most of the cases.

BIBLIOGRAPHY

- 1. Kimberly J R , Pouvourville G.The Migration of Managerial Innovation , Jossey-Bass publishers , San Francisco ,1993.
- 2. The Danish Ministry of Health. Hospital Funding and Casemix, Nyt Nordisk Forlag Arnold Busck, Kobenhavn 1999.
- 3. The Belgian Ministry of Health. Case Mix : global views, local actions, IOS Press, Amsterdam, 2001.