Casemix Measurement in Irish Hospitals

A Brief Guide

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The Casemix Programme

Introduction.

Thank you for your interest in Casemix.

This document is intended to serve as a **basic** outline to the Casemix programme in Ireland. A more detailed 37 page document on Casemix entitled "Casemix in Ireland – A Broad Outline of the Main Features" is also available on request. Casemix is a programme that is simple in its concept, its aims, its strategy, but complex in its implementation. It is an ongoing process and, every year, an enormous amount of work, including statistical/medical/accountancy/management/economic expertise, goes into the development of Casemix, in order to ensure that it is a fair and realistic system (over 1,000 medical organisations world-wide, including specialist clinical panels (e.g. cardiac surgeons consider how cardiac cases might be categorised), are invited to contribute to its development). It would be almost impossible to document the entire subject.

Casemix is perhaps the best international system, transferable from country to country, for analysing a hospitals throughput. It is also a constantly evolving management process. It does not stand still, either in the organisations around the world dedicated to its improvement, or in the institutions "case-mixing" hospitals, or those being "case-mixed".

Hopefully, what follows gives a general introduction to the topic. **However, if there are any particular areas on which you require more information, please feel free to contact us.**

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1 What is Casemix?

Casemix is the comparison of activity & costs between hospitals: The clinical workload of hospitals varies greatly. Casemix is the attempt to categorise and quantify this "mix" of cases by classifying patients into discrete classes or groups (Diagnoses Related Group's – DRG's) which share common clinical attributes and similar patterns of resource use. The development of DRG's provided the first operational means of defining and measuring a hospital's case-mix complexity, and comparing it with other hospitals.

Casemix was introduced in an effort to collect, categorise and interpret hospital patient data related to the types of cases treated in the hope that managers would be able to define their products, measure their productivity, and assess quality.

The key benefit of Casemix measurement is the extent to which it provides a common language for service planning, management and development that is meaningful to both clinicians and managers.

Since its inception in the 1970s in the USA, Casemix has spread all over the world. It is used for many different purposes, including cost comparison and curtailment; quality control; strategy planning; epidemiological data, etc.

Casemix categorises each hospitals caseload into discrete groups. This allows the comparison of activity and costs between different hospitals – the essence of Casemix.

Basically, every patient who is admitted to a Casemix hospital has their age, gender, diagnoses, procedures and discharge status coded in an internationally acceptable coding system. This tells a hospital who their patients are, what age they are, where they come from, how long they stayed, what it cost to treat them, how often they were admitted to the hospital, etc., i.e. a comprehensive patient profile.

Casemix is unique because it is the:-

- only system based on patient discharge data
  (The most accurate data available)
- only system using episode of care as the unit of analysis
  (The most meaningful in terms of following actual practice)
- only system which controls for complexity
  (Most relevant for accurate description of medical practice)
- only system which attributes costs to cases on the basis of empirical studies of actual hospital cost behaviour
  (i.e. time and motion studies)

2 WhyCasemix?

Casemix has many uses, ranging from the clinical to the financial. The rationale for the use of Casemix systems as part of the budgetary process in countries like Ireland is the wish to base funding on measured costs and activity, rather than on less objective systems of resource allocation, and to fund hospitals based on their "mix" of cases.

WHAT CANNOT BE MEASURED CANNOT BE IMPROVED.

Casemix is the only detailed, **audited**, dataset of hospitals activity and costs.

Although the financial allocations are the public face of Casemix, in fact it is the activity and cost data that is possibly the more important aspect, and without which information such as:-

~Cost per case
~Beddays used
~Treatment rates
~Morbidity data
~Differing treatment patterns
~International comparison
~Numbers of operations
~Inter hospital transfers
~theatre running costs
~Bedday costs by specialty
~Data for national strategies
~Readmission rates

3 Casemix in Ireland

Casemix was introduced to the Irish hospital sector in 1993 and has been expanded year-by-year. The information gathered is shared by all the hospitals participating in the national Casemix programme. This allows them to compare their performance activity with other comparable hospitals. It also allows them to look at county of residence data; age profiles for treatment; readmission rates; number of visits per patient, per year; whether patients are being treated on an inpatient or daycase basis (*both in their own hospital and other hospitals).* More and more hospitals are actively using this data as part of the management function.

Casemix works by:

- **coding hospital activity** (the HIPE programme) and
- **assessing hospital costs** (the Specialty costs programme)

- **The HIPE (activity) Programme:**

The HIPE programme presently operates in the 62 biggest hospitals in the country, and now includes 2 private hospitals (*the ESRI manage the collection process on behalf of the Department of Health*). When a patient is discharged, their **Age, Gender**, **Diagnosis**, **Procedures performed** and **Discharge Status** is coded using the World health Organisation's International Classification of Diseases (I.C.D.), which allows for 12,000 diagnosis and 8,000 individual procedures, each of which is allocated a separate code. Over 800,000 cases a year are coded. The data is then grouped into over 600 Diagnosis Related

Groups (in an effort to make the data more meaningful). The basis of the entire coding system is to break down illnesses into 25 Major Diagnostic Categories (M.D.C.'s) based around body parts *(e.g. diseases of the eye, etc.)*.

Example:

A patient with bronchitis & asthma would be categorised as one of the following:-

~ being over 49 years with complications
~ being over 49 years without complications or
~ being under 50 years without complications

This allows patients to be categorised into discrete groups for analysis so that even patients in different types of hospitals can be compared.

- **The Specialty Costs Programme:**

Cost data, based on information derived from the audited accounts of 37 of the 62 HIPE hospitals, is broken down across 16 cost centers (theatre, nursing, laboratory, etc., and apportioned to each specialty in the hospital. These costs are then allocated to the 600 or so Diagnoses Related Groups (DRGs), giving an average cost per case.

Casemix is the combining of the activity and cost data to give an average cost per case, length of stay and resource use, relative to other activity in the hospital and elsewhere.

In Ireland, Casemix is used for **acute hospital activity** only, *(Inpatients and Day-patients only)*, but **abroad** it is being used to classify different types of patients, such as Outpatients, and to compare individual hospital episodes and complete "episodes" of care *(from GP visits through to hospital and rehabilitation)* and it is used in **acute hospitals**, **nursing homes**, for **mental handicap** groups, etc. Every country in Europe uses Casemix for some purpose.

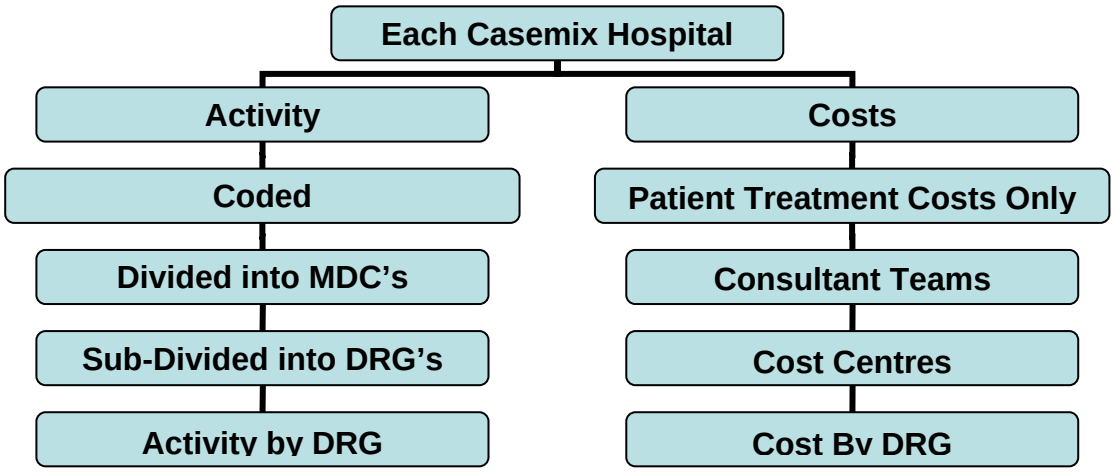
Presently 37 of the 62 "HIPE" hospitals are involved in the Casemix programme and have a percentage of their budget adjusted based on their Casemix performance. Only a percentage of their budget is adjusted in this way. The entire exercise is budget-neutral *(i.e. the Department does not gain from the exercise - money deducted from hospitals below the mean is given to hospitals above the mean*), in an effort to reward good management. It should be borne in mind that great effort is made to compare like-with-like *(the essence of Casemix*) and take account of different hospitals mix-of-cases *(for example, teaching hospitals are grouped separately*).

The number of hospitals involved increases each year and the percentage of the budget allocated through Casemix adjustments is also, generally, increasing.

Although the system is geared towards the **most accurate cost per case figures possible**, the main thrust of the programme is the **comparison** of hospitals vis-à-vis their peers, the identification of resource usage in individual hospitals, assisting managers to manage, it is **not** used to fund hospitals *(only €1.89bn of the entire health budget is*

"Casemixed", the total budget of the Casemix hospitals is €3.07bn which results in negative adjustments of €7.5m, which are then reallocated as positive adjustments of €7.5m). This amounts to less than 3% of the overall budgets for the hospitals in the programme), and is **not** designed *(in Ireland, at present)* to set a gold-standard price per case treated. Also, data which is statistically small, or skews the overall data, is removed in order that the remaining data reflects like with like.

The diagram below shows how the costs and activity for each Casemix hospital are derived:



4 Types of hospitals in Casemix:

The range of hospitals varies from large inner-city to small rural; from general acute to specialist *(e.g. orthopaedic);* from health board to voluntary. The greater the number and range of hospitals involved, the better the comparative data is.

5 Quality of Care

While the programme does not deal explicitly with quality of care as an issue *(e.g. the department does not set the standards for length-of-stay - it is the peer group performance that does)* at present, it allows individual hospitals to examine matters such as readmission rates, which would be affected by treatment protocols. **The Casemix programme has never advocated efficiency replacing equity or quality of care,** in fact, Casemix assists in the effort to improve both**.**

6 Conclusion

Casemix is the only detailed, **audited**, dataset of hospitals activity and costs. The system is designed to be administratively feasible and cost effective *(i.e. the cost of collecting the data must not be more than its value - at present that cost is approx. €9 per case, while the cost of treating an average case is €3,644 and collecting the data must not be an unreasonable administrative burden).* The Casemix programme is the result of a

collaborative effort by everyone involved, from the doctors, administrative staff, management, the ESRI and the department.

7 Your questions answered:

See Over.

❑

Your Questions Answered:

1. What is Casemix?

Casemix is the **comparison of activity and costs between hospitals**

- **Activity** is the HIPE Programme and
- **Costs** are the Specialty Costs Programme

2. Where does Casemix operate?

- **In Ireland:** In 37 public hospitals (with HIPE operating in a further 25) (Including 2 private).
- In every European country and on all continents

3. What is Casemix used for?

- Budgeting
- Planning (national strategies, local developments, new units, trends, etc.)
- Epidemiological data (coded to WHO standards) (cancer/cardiac etc.)

4. Why Casemix?

What cannot be measured cannot be improved.

5. How long has the programme been running?

The HIPE programme started in the 80's and the Casemix programme stated in 1991 with the first financial adjustments being applied for the 1993 financial allocation.

6. Is Casemix an Irish system for Irish patients?

Yes. Although the system in use is an international system, it is adapted for Irish hospital systems, cost and patients

7. Who sets the standards?

The Peer Group - DoHC do not set any guidelines - everyone is compared to the mean.

8. Who makes the decisions?

A Casemix group within the Department oversee the national strategy. The group has representatives with a diversity of skills including: medical, statistical, acute hospitals and accountancy, with a national co-ordinator acting as liaison between the group and all the stakeholders in the process. The ESRI have a special unit dedicated to the collection and validation of HIPE data, and assist the Department in many wide-ranging projects to study the data.

9. Are the hospitals represented in the decision making process?

Yes. Every effort is made to increase stakeholder participation in the process. Open-Day's; Lectures/talks; Annual Conference; are held in hospitals, Health Boards, the Department itself; neutral venues, are all geared towards making the process as open / transparent / fair and representative as possible.

10. Are the Department using Casemix to save money?

No. The process is what is called "budget neutral" - that is, funding taken from any hospital below the mean, is redistributed to hospitals above the mean. Usually, there is the same number of hospitals above and below the mean. It is aimed at rewarding good performance.

11. What amount of a hospital budget is funded through Casemix?

The maximum at present is 20% for inpatients and 20% for daycases, but many hospitals on the mean neither gain nor lose. The Casemix budgetary process determines the mean cost per case for both inpatients and Daycases. If a hospital is at the mean, then they will receive the 20%. If they are below the mean, then they will lose some of that 20%. If they are above the mean, then they will gain extra. This is increasing slowly over time, allowing hospitals time to adapt to the new regime. If, for example, they are €100 dearer/cheaper/per case, then the will lose/gain €20 for each inpatient or €20 for each daycase treated. This is known as the "blend rate" (20% for inpatients and 20% for daycase).

12. What is the average loss/gain?

Adjustments vary between, on average, + / - 3% of Casemix budget (the portion of their budget "Casemixed", which is usually about 60% of the hospitals overall budget.

13. Does the DoHC penalise hospitals for keeping patients too long?

No. There are many reasons why hospitals lose in Casemix; long length of stay is only one. The Casemix Budget Model *actually gives hospitals credit for long stay patients* - it is only where they greatly exceed the norm for the entire country that they suffer. The average length of stay which emerges from the Casemix process is arrived at on the basis of clinical practice in hospitals throughout the country. Casemix does not dictate or lay down arbitrary parameters regarding length of stay for patients in public hospitals. The clinicians remain responsible for admitting and discharging patients. **However, long length of stay does not necessarily equate to good care.**

14. What is the justification for taking money off hospitals?

Accountability is one of the cornerstones of public policy. For every hospital that is penalised, one is rewarded. The system highlights variances in performance, both between hospitals and even within hospitals themselves. This assist management to establish which issues need to be addressed. In fact, it is the Casemix data itself that facilitates hospitals to address funding issues for particular services.

15. Surely every hospital is different?

Yes, but like compared with like only - the workload divided into Diagnosis Related Groups and each hospital's activity in each DRG (if any) compared with the mean.

Account is taken of each hospitals complexity.

16. Do we assist hospitals in the Casemix programme?

Yes, ongoing assistance is available to all hospitals wishing to develop their Casemix skills.

17. Do we take account of "special" circumstances?

Yes, any area of activity that cannot be accurately compared with other sites is omitted or amended.

18. What's the future of Casemix?

The system is being constantly refined and expanded. Over the next few years all hospitals, with enough admissions to justify the cost of collecting the data, will be included. Areas such as Outpatients and A & E may also be included (at present broad data on these areas is collected, for national data-sets purposes, but is excluded from the Casemix budget model).

19. What about .....?

Every aspect of the Casemix system is kept under review. At present, projects are underway to do a root-and-branch review of the entire system. Hospitals are kept abreast of developments, and are included in the process.

Most Health Boards have a HIPE / Casemix Co-ordinator to oversee the programme in their board's area. Each hospital represented in the programme has a HIPE / Casemix Co-ordinator, all of whom have direct access to the Casemix Unit in the department.

20. What does the programme cost?

Approximately €9 per case "Casemixed" – based on 2002 Cost Data the average cost of treating an inpatient case was €3,644. A cornerstone of the programme is that it be administratively feasible and cost effective. The cost is not just for applying Casemix Budgets; it is for collecting all the epidemiological data relating to each case, auditing it, training the coders and keeping the system up to international (WHO) standards.

21. What is a Specialty Costs Programme?

The Costs Programme collects costs for participating hospitals. The costs are derived from the Annual Accounts of the hospital (not estimates) and are allocated, by the hospitals, under heading such as salaries, radiology, labs, drugs, etc. Costs are basically Consultant driven – i.e. the cost of supporting each consultant and his/her team is identified, and apportioned to the patients that team has treated, in order to obtain a cost per case treated.

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