Conclusions and recommendations of the 'Root-and-branch' review of casemix leading to the modernistation of the national casemix programme in Ireland after 12 years of Casemix in Ireland, a major review


CASEMIX
What cannot be measured,
cannot be improved...

N.C.H.D. Induction

What is H.I.P.E.?

- Hospital In-Patient Enquiry
- Computer based health information system
- Collects Clinical and Administrative data on discharges and deaths from acute hospitals.
- Collects data on Inpatients and Daycases only (Plans to include A&E and OPD in 2005/2006).
- Over 60 acute public hospitals in Ireland participate
- Approximately 950,000 records are coded annually
- ESRI are responsible for maintaining the national database of information.

What data is collected by H.I.P.E.?

- **Administrative/Demographical** – name, medical record number, admission type/source, discharge destination, public/private stay, dates, DOB, Marital status, medical card number etc. etc.

- **Medical/Clinical Data** – Principal and up to 19 Secondary Diagnosis, Principal and up to 19 secondary procedures.

Where does the H.I.P.E information come from?

1) Administrative/Demographical

This info comes from the Patient Administration system (PAS). However coders verify all the data with the chart in case of any discrepancies.

2) Medical/Clinical Data

- Most specialised part of the HIPE process.
- HIPE coder/team of HIPE coders extract from the chart:
- Primary Diagnosis and up to 19 additional secondary diagnosis
- Primary Procedure and up to 19 additional secondary procedures
- Dates of the Procedures
- Coders translate the medical terminology into alphanumerical codes using ICD-10-AM (International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification)

What is H.I.P.E. information used for?

- Patient Care Studies
- Casemix Budget
- Epidemiological studies - hospital activity statistics related to diseases/procedures;
- Input to population health profiles at the Health Board level;
- Planning and Service provision;
- Quality assurance studies;
- Market Research;
- Drugs trials etc.

Flow of HIPE Data

- Patient is discharged from hospital
- Discharge letter is written
- HIPE Dept code the chart before filing chart to Medical Records
- Export is run at end of every month and sent to the ESRI and DoHC
- 2 deadlines each year:
- End of June – all previous year must be complete
- End of September – 1st 6 months of current year must be complete

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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

How does casemix work?

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. (ICD-10-AM - International Statistical Classification of Diseases and Related Health Problems, **10th** Revision, Australian Modification)

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

Casemix was introduced in an effort to collect, categorize and interpret 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.

What the coder needs from you the clinician!

- A Discharge Summary/Discharge Letter must be completed on each in-patient and day-case episode by the doctor discharging the patient. **This summary is necessary for statistical purposes, clinical analysis and financial reimbursement**.

- The Principal/Primary Diagnosis for coding purposes is defined as ***" the diagnosis established after study to be chiefly responsible for occasioning for patients episode of care in hospital"***

It is essential that the principal diagnosis is correct, otherwise the complexity of the case may be considerably undervalued reflecting badly on the overall Casemix Index for the hospital.

- The Additional/Secondary Diagnoses are defined as ***"a condition or complaint either co-existing with the principal diagnosis or arising during the episode of care in hospital".***

For coding purposes, additional diagnoses should be interpreted as conditions that affect patient management in terms of requiring any of the following

- Therapeutic treatment
- Diagnostic procedures
- Increased nursing care and/or monitoring
- The unexpected events which occur during the admission (Hyper/Hyperkalemia, Dehydration)
- See attached list for common secondary diagnoses that have significant impact on casemix

One or more of the above factors will generally result in an extended length of hospital stay.

EXAMPLE

The Clinician has recorded on the front sheet a principal diagnosis of fractured neck of femur. Additional diagnoses recorded on the front sheet are pneumonia and duodenal ulcer. Examination of the clinical progress notes revealed that the patient had been hospitalised six months previously for pneumonia and has a healed duodenal ulcer. Only the fractured neck of femur is coded because neither the pneumonia nor ulcer are current conditions and were not treated.

Listed below are some Secondary Diagnoses common to all specialities which are frequently omitted, and should be recorded:

- Acute Renal Failure
- Acute Blood loss anemia
- Angina
- Ascites
- Atrial Fibrillation
- Acidosis – metabolic/respiratory
- Alcohol/drug abuse
- Alcohol/drug dependence
- Congestive cardiac failure
- Chronic obstructive airways Disease (COPD)
- Chronic Blood loss anemia
- Chronic Renal Failure
- Cellulitis
- Cachexia
- Decubitus Ulcer
- Dehydration
- Diabetes – uncontrolled
- Fluid Overload
- Gangrene
- Haematemesis
- Hyperkalaemia
- Hypokalaemia
- Hypernatraemia
- Hyponatraemia
- Haematuria
- Haemoptyses
- Low platlets
- Low wcc's
- Mild/Moderate malnutrition
- Malena
- Peritonitis
- Phlebitis/Thrombophlebitis of lower limb
- Pnuemothorax
- Metastases
- Urinary Retention

Conclusions and Recommendations of the
'Root-and-branch' Review of Casemix leading to

THE MODERNISATION OF THE NATIONAL CASEMIX PROGRAMME IN IRELAND

After 12 years of Casemix in Ireland, a major review is presented with a view to its modernisation and expansion as a central pillar in acute hospital funding policy

For circulation to Casemix and H.I.P.E. hospitals, their associated agencies and all Casemix stakeholders.

Casemix Unit
Department of Health and Children

DEPARTMENT
OF HEALTH AND
CHILDREN
AN ROINN
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TABLE OF CONTENTS

VOLUME I

VOLUME II

(available seperately)

Appendices:

Introduction

Preface

Acknowledgments

Casemix Groups

Preface:

Historical perspective:

In the early 1900s, Eugene Codman, a surgeon at the Massachusetts General Hospital in Boston, attempted to interest hospitals in focusing on patient care processes rather than on support services. In his address to the Philadelphia County Medical Society in 1913, Codman stated:

> *We must formulate some method of hospital report showing as clearly as possible what are the results of the treatment obtained at different institutions. This report must be made out and published by each hospital in a uniform manner, so that comparison is possible. With such a report as a starting point, those interested can begin to ask questions as to management and efficiency* [1]

What Dr Codman wanted was Casemix – the ability to categorise each hospitals output and to be able to compare and contrast it with others.

The introduction of D.R.G.'s:

Fifty years later in 1967 a group of physicians asked Dr Fetter of Yale University whether he could assist in developing a system to measure and evaluate processes and outcomes at their hospital. Following on from that work by Dr Fetter and his team the 'Diagnoses Related Group (D.R.G.) was developed and was first used for funding in 1983.

It is fully accepted that 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 (D.R.G.'s) which share common clinical attributes and similar patterns of resource use. The development of D.R.G.'s provided the first operational means of defining and measuring a hospital's case-mix complexity, and comparing it with other hospitals.

The Commission on Health Funding (1989):

In Ireland, the Commission on Health Funding was established to consider, *inter-alia*, hospital waiting lists. In their conclusions they stated:

> "Each hospital should be funded for the provision of an agreed level of service to public patients, based on the activity level implied by its role and catchment area, and the case-mix based cost of meeting this. Techniques such as D.R.G.'s should be used to determine the level of funding ..."

Reflections on Health:

However, twenty years on in *Reflections on Health – commemorating fifty years of the Department of Health 1947-1997* a contributor[2] stated:

[1] Quoted in "D.R.G.'s – their design and development" Robert Fetter.
[2] Sean Conroy, Programme Manager WHB.

It is not known how well hospitals function, given their complexity and the nebulous nature of their product. There is an emphasis on structure, little on process, and, only recently, some on outcome.

The national Casemix programme endeavours to reverse this thinking.

Casemix nationally and internationally:

Casemix was introduced in an effort to collect, categorise and interpret hospital patient data related to the types of cases treated in order that hospitals could define their products, measure their productivity and assess quality. It is now an internationally recognised means of allocating funding to hospitals which places patient-centred clinical information and health professionals at the heart of the resource allocation process.

The Health Strategy - 'Quality and Fairness' etc:

The Health Strategy put evidence based allocation methodologies centre stage when it stated:

There is a clear need to ensure that all funding is allocated on the basis of implementing sound strategic plans and that funding clearly relates to service outcomes. Performance measurement and transparent, evidence based allocations are essential elements of this.

Other reviews into the provision and management of Irish health-care were also initiated around this time. The result of these reviews has been, *inter alia*, essentially that evidence-based systems be used to a greater extent than presently – i.e. in an era of evidence based medicine we should also have evidence based management.

The present review process:

This was the most comprehensive review of Casemix since its introduction here in 1991. It was called a 'Root-and-branch' review because that is exactly what it was – a back to basics review of every single aspect of Casemix and its integrated programmes - H.I.P.E. and Specialty costs. What is being proposed is almost as radical as the original introduction of Casemix here. What is proposed is not merely changing systems (from American to Australian), but establishing a national Casemix system that is truly an 'Irish' system for Irish patients.

Everyone who is involved in Casemix will agree that it is an extremely challenging project and there are as many views on its implementation as there are systems. Casemix is undoubtedly a hard task-master. However, there is no other system capable of capturing the complexities of acute hospital activity and funding in a way that is meaningful to clinicians, managers, funders and the public. The Casemix Technical Group (C.T.G.) believes that what it is recommending is nothing short of a quantum leap forward that gives Ireland a truly world-class system. We are committed to continuing the modernisation process in order that we have an open, transparent, inclusive system that is, as our Casemix Mission Statement put it:

... a robust system capable of giving a true and accurate reflection of activity and costs at acute hospital level, and that is generally accepted by the Users to be such.

We sincerely hope that all our stakeholders will agree that we are delivering on this promise.

Conclusion

This report focuses primarily on the management considerations in maintaining and developing a National Casemix Programme. Other reports into clinical coding, the National H.I.P.E. Programme, and the technical report into Casemix Groupers are also available to you. These documents are too voluminous to include here but are contained in Volume II (Appendices) which is available seperately on request from the Casemix Unit of the Department.

Each section has been written so that it can, as much as possible, be read on its own. Consequently, many points are repeated and restated throughout the report.

We have endeavoured to write this report in a non-technical way in order that all stakeholders, regardless of where they operate within the system, can get a clear understanding of the issues involved. Consequently, we have simplified terminology where possible and abbreviated matters that are 'understood' by those working in Casemix hospitals here.

However to simplify the report further would not be possible without losing its purpose – to deal with all the issues of concern to our stakeholders. This we have done, we believe, with honesty and fairness.

Claude Grealy
National Casemix Coordinator
On behalf of
The Casemix Technical Group
of the Department of Health and Children

December 2004

Acknowledgments:

The Casemix Technical Group (C.T.G.) would like to express its thanks to all those who assisted in the project.

The review team was the C.T.G. within the Department of Health and Children (DoHC), with the advice and assistance of H.I.P.E. Unit of the E.S.R.I.[3] and various international experts, including Mr Chris Aisbett of Laeta Pty Ltd for the review of Australian Groupers, and Mr Stephen Gillett (Victoria) for the review of systems in the State of Victoria. The C.T.G. would also like to express its thanks to all the hospital staff, but particularly H.I.P.E./Casemix Coordinators, who devoted considerable effort to reviewing an enormous amount of data. Special thanks also to Emma-Jane Morgan (Casemix Unit) who acted as secretary to the review group. The membership of the various groups is detailed below.

Anne Clifton (R.I.P.)
Sadly on 20/12/2004 our friend and colleague Anne passed away unexpectedly. The C.T.G. would like to express its sincerest condolenses to her family, friends and colleagues.
'Ar ndoigh, is air slí na firinne atá sí.'

Casemix Groups:

Casemix Technical Group membership:
Claude Grealy (chair)
Brian Donovan
Donal Kiernan
Hugh Magee
Caitriona Wray & Emma-Jane Morgan (joint secretary)

Casemix Management Group membership:
Assistant Secretary Dermot Smyth (Chair)
Joseph Cregan (Principal Officer, Acute Hospitals)
Dr John Devlin (Deputy Chief Medical Officer)
Brian Donovan (Professional Accountant & Head, Specialty Costs Unit)
Claude Grealy (National Casemix Coordinator)
Dermot Magan (Principal Officer, Finance Unit)
Hugh Magee (Senior Statistician and Head, Information Management Unit)

C.T.G. – E.S.R.I. Group membership:
Claude Grealy
Anne Clifton (R.I.P.) (Manager, H.I.P.E. Unit)
Brian Donovan
Donal Kiernan (Casemix Analyst)
Brian McCarthy (Manager, I.T. Systems)
Deirdre Murphy (Manager, Clinical Coding)
Professor Miriam Wiley (Health Policy Research Unit and Head, H.I.P.E. and PRS Unit)
Caitriona Wray & Emma-Jane Morgan (joint secretary)

[3] The Hospital Inpatient Enquiry Unit (H.I.P.E.) and the National Perinatal Reporting Unit (N.P.R.S.) of the Economic and Social Research Institute (E.R.S.I.) are contracted to provide services for the collection of hospital abstract data on behalf of the DoHC. For the purposes of this report the E.S.R.I. means the Hospital Inpatient Enquiry Unit (H.I.P.E.) and the National Perinatal Reporting System (NPRS) of the Economic and Social Research Institute.

Executive Summary

Introduction and background

The 'Root-and-branch' review including conclusions and recommendations

The 'new' system being introduced

Strengthening the national structures

Time-table for developments

Conclusions and discussion

Introduction and background:

1. Introduction

Following the recommendations in 1989 of the Commission on Health Funding that hospitals should be funded based on the patients they actually treat (rather than historical budgets) and that D.R.G.'s should be used to determine such funding, the National Casemix Programme was instituted immediately and in 1991 the financial allocations for 15 hospitals included a small Casemix performance related element. Over the following 12 years the programme has been expanded incrementally so that now 37 hospitals treating 95% of acute inpatient and day-case hospital admissions now participate in the national Casemix programme. These hospitals have budgets in excess of €3bn per annum. Presently, 20% of the activity related funding for these hospitals is now Casemix performance dependant. Each year the number of hospitals, the areas within hospitals, and the percentage that is Casemix peer group performance related, grows.

The 'Root-and-branch' review:

2. Review purpose

In 2001 a comprehensive review of every aspect of the national Casemix programme was commenced in order to ascertain whether the programme could be broadened in any significant manner and what action would be required if Casemix were to be used as a central pillar in funding policy.

3. The review 'team':

The review team was the Casemix Technical Group (C.T.G.) within the DoHC, with the advice and assistance of the Hospital Inpatient Enquiry Unit (H.I.P.E.) of the Economic and Social Research Institute (E.S.R.I.)[4] and various international experts, including Laeta Pty Ltd. (for the review of Australian Groupers), in addition to assistance from participating hospitals. However, in a sense it was the patients themselves and the hospitals which made the decisions, in that all technical decisions are data-dependant – i.e. Casemix in Ireland is a Data-driven Decision-making Process.

4. The Casemix Review process:

The review process was divided into three parts:

- Unit A: Clearly identifying all the issues for review
- Unit B: Agreeing the best solutions to deal with those issues and
- Unit C: Evaluating the proposed solutions.

Unit A: Identifying the issues for review involved five exercises:

- Exercise 1: Examining Data already on hand
- Exercise 2: Obtaining submissions from stakeholders

[4] A C.T.G.-E.R.S.I group meets regularly to discuss cross-cuting issues of mutual concern. Members of this group conducted most of the technical work involved in the review process.

- Exercise 3: Reviewing Clinical Coding
- Exercise 4: Reviewing Casemix Grouper issues
- Exercise 5: Summarising all the issues identified as part of this process into the (13) key issues

Unit B: Finding the solutions had three parts:

- Exercise 6: Agreeing the criteria for choosing a new Grouper and Clinical Coding Scheme (12 tests)
- Exercise 7: A review of Clinical Coding
- Exercise 8: A review of Casemix Groupers.

Unit C: Evaluating the proposed solutions:

- Exercise 9: Summarising the Conclusions and Recommendations of the Technical Review of Casemix systems
- Exercise 10: Detailed review of the 12 Tests for choosing a new system
- Exercise 11: Detailed review of the (13 main) issues to be addressed

5. Issues to be addressed:

All stakeholders were invited to participate in the review process and encouraged to detail areas of concern to them.

Submissions were received from many different stakeholders. The majority of the submissions were received from the Casemix hospitals, but submissions were also received from Health Boards, C.E.O.'s, General Managers, Members of Medical Boards, individual Consultants, Finance Managers, Specialty Cost accountants and H.I.P.E./Casemix Co-ordinators. Submissions covered a broad range of issues.

The main issues arising, both real (arising from empirical study and communications with hospitals) and perceived (some submissions) were amalgamated into the main issues to be reviewed. Many of the issues arising were cross cutting, interdependent issues. These were termed the '13 Issues' and were as follows:

1. The daycase budget model;
2. "Catastrophic" levels of severity;
3. Obstetrics & neonates;
4. Paediatrics;
5. Irish cost weights;
6. Lack of demarcation between A&E/OPD/Daycases & Inpatients;
7. Hospital 'Groupings';
8. Urban & rural differences;
9. Inter hospital transfers of complex cases;
10. National specialty activity;
11. Time lag in reflecting modern clinical practice;
12. Audit and training;
13. Clinician involvement.

6. Finding the solutions:

The next matter was to set down the parameters by which any new Casemix 'System' for use

in Ireland might be chosen. These were that:

1 It should be a Government Sponsored System.
2 It should already be in use for a significant level of funding.
3 It should be integrated with a Clinical Coding Scheme.
4 It uses English.
5 It allows the move to ICD-10 in the medium term.
6 It is open, transparent, inclusive and regularly updated.
7 It can be adapted for use in Ireland.
8 It does not require significant resources to develop, install and maintain.
9 It produces internationally comparable data and is not unduly localised.
10 It allows us to 'buy into' the system.
11 It has local expertise available for contract to us.
12 There is a long-term commitment to the ongoing development of the system.

These were termed the '12 Tests' which any 'new' system should meet.

7. The review of Clinical Coding Schemes:

The current coding scheme that is used for coding procedures and diagnosis in Ireland is ICD-9-CM. It is the clinically modified classification from the American Hospital Association and incorporates both the *diseases* and their corresponding *procedures/treatments*.

Since the introduction of Casemix, Ireland has always sought to use such an interlinking (diagnoses and procedures classification) system and the move to ICD-10 here was inhibited by the lack of a procedure classification to accompany the WHO diagnoses classification. Other countries (e.g. the United Kingdom and Germany[5]) have addressed the lack of a companion procedure classification by adopting other procedure classifications, such as the Office of Population Census Surveys (OPCS). The review process provided the opportunity to review clinical coding nationally and internationally, as well as reviewing the impact of any new proposed Grouper on Clinical Coding.

The Economic and Social Research Institute were commissioned to conduct a review of possible Coding scheme options for Ireland. The review comprised:

Present knowledge base:
- The knowledge base already available to us regarding coding in Ireland and internationally, including 30 years of coding knowledge in this country.
- Ongoing contacts and collaborations with various International Groups.

Preliminary review:
- A review of possible options, internationally (e.g. the Nordic countries coding scheme).
- Establishing a short-list of options for review (both ICD-9-CM & ICD-10).

Detailed review:
- A Pilot Project on ICD-10-AM and a comprehensive review of the Australian experience in travelling this same road, including non-classification issues such as 'mapping' issues, Grouper, staffing and clinical issues.

[5] Germany has now adopted ICD-10-AM.

Criteria for choosing a clinical coding scheme (terms of reference):
The E.S.R.I. identified the following as central to the adoption of any coding scheme:

- The availability of an integrated coding scheme for diagnoses and procedures.
- The availability of regular updates for the coding schemes to ensure they kept pace with advances in clinical practice.
- Cross-national use which facilitated the use of the data for international comparisons.
- Software support and training programmes for the education of coders and quality checks on the data.

In commencing their review of clinical coding schemes, they focused on the following countries:

- The United States of America
- The Nordic Block
- Canada
- Australia

Conclusions on Clinical Coding Review:
The conclusions of this review were that, if the C.T.G. chose to adopt the Australian ICD-10 based Grouper, then the complementary Coding Scheme ICD-10-AM should be introduced as an excellent, fully up-to-date scheme. This would allow a significant leap forward in Clinical Coding. However, if adopting an ICD-9 based Grouper was proposed, then we would have to remain with ICD-9.

8. The review of Casemix Groupers:

Many hospitals now have close to 50,000 patients admitted annually. For local managers to have a clear understanding of who these patients are, how and why they presented at hospital, the diagnoses and procedures they received, the manner in which they were discharged and an estimate of the approximate cost of treating them would be completely impossible without some form of 'case-mix' management report. A Casemix 'Grouper' is merely a piece of software that 'Groups' a set of patients into a manageable number of Diagnoses Related Groups (D.R.G.'s) which are clinically meaningful and consume similar levels of resources, thereby allowing management review of the hospitals 'mix' of cases.

A very comprehensive review of International Casemix Groupers was undertaken. Data for 1999, 2000 and 2001 was made available. Over 800,000 records were analysed in eight different Groupers. In effect, over six million data items were analysed.

Groupers tested:
The Groupers tested were as follows:

AR-D.R.G.V4.0	Australian ICD-9	
AR-D.R.G.V4.1	Australian ICD-10	
AR-D.R.G.V4.2	Australian ICD-10	
AR-D.R.G.V5.0	Australian ICD-10	
AP-D.R.G.V18	New York ICD-9	
CMS-D.R.G.V20	US Medicare ICD-9	(Updated version of present Grouper in Ireland)
HCFA-D.R.G.V16	US Medicare ICD-9	(Grouper presently in use in Ireland with 2 severity levels)
IR-D.R.G.V12	International ICD-9	('European' version of our present Grouper with 3 severity levels)

Results:
The Grouper 'Score' results were:

1st	AR-D.R.G.	Australian (all four versions of the Grouper)
2nd	IR-D.R.G.V12	International US
3rd	CMS-D.R.G.V20	US Medicare
4th	HCFA-D.R.G.V16	US Medicare
5th	AP-D.R.G.V18	New York

All versions of the Australian Grouper, both ICD-9 based and ICD-10 based (with mapped data) outperformed all other Groupers, and significantly outperformed our present HCFA-16 Grouper.

9. Evaluating the proposed solutions:

This proved relatively simple as only the Australian system satisfied all 12 criteria (detailed at 6 above) laid down. Disappointingly, Groupers from Europe were not subjected to technical review because they did not meet the criteria either because they required significant ongoing investment in Casemix D.R.G. Development; were not being used for the level of expenditure envisaged; had different health-care systems, or were too 'localised'.

The C.T.G. then evaluated the AR Grouper and ICD-10-AM in dealing with the 13 main issues (detailed at 5 above) set down at the start of the process. The conclusions were that the new Grouper and Clinical Coding scheme would satisfy all the issues which pertained to Grouping or Coding – other issues such as education and training, involvement of senior management and clinicians, will have to be addressed as part of national Casemix policy, which is the intention. It is the intention of the C.T.G. to formulate and implement responses to all the 13 issues identified.

10. Conclusions on Groupers & Clinical Coding:

The Australian Grouper and Clinical Coding schemes were clearly the 'winners' of the review, both from a technical and from a management perspective, particularly the scheme in operation in the State of Victoria, which has similar demographics and health-care delivery issues as Ireland. Almost every issue that has arisen within Casemix in Ireland over the past ten years has also arisen in Victoria. Clinical debate on paediatrics, age-splits, national specialties, Outpatients vs. Daycases, prosthesis, teaching hospital versus non-teaching, have all arisen, been debated, been researched, been costed, and a conclusion implemented.

11. Amalgamating the conclusions and recommendations into the Medium-term Strategy:

The review concluded that the Australian Grouper and Coding scheme could be adopted and adapted into Ireland. It also concluded that a significant expansion of the national Casemix programme could be considered if such a system were in place.

12. Submission to MAC & the Minister:

Having reached the conclusion that the system could be enhanced and would result in a system robust enough to be 'rolled-out' to become a 'central pillar' in acute funding policy, the C.T.G. submitted their conclusions and recommendations to the Management Advisory

Committee to the Secretary General, and Michéal Martin T.D. (former) Minister for Health and Children.

The main recommendations were as follows:

- The adoption of the Australian Casemix system as being the best for Irish patients while also being one of the most open, transparent, Government sponsored systems internationally.
- Developing links with the State of Victoria in Australia who use Casemix for all acute sector funding and who have similar demographics to us.
- Moving to ICD-10-AM which will bring us fully up-to-date in clinical coding.
- Adapting the 'system' so that it is an 'Irish' system for Irish patients.
- The incremental expansion of the national Casemix programme to all acute hospitals, and all areas of acute hospitals.
- The development of strategies for the funding of sub-acute and non-acute activity via Casemix.
- The incremental expansion of 'blend-rates' to 50% at a minimum.
- Strengthening of the national Casemix structures and management team and support. for hospitals in implementing H.I.P.E. and Casemix.

These recommendations were accepted.

Casemix Conference Kilkenny:
In his introduction to the Proceedings of the 2004 Casemix Conference held in Kilkenny, Minister Martin stated:

> "It is agreed that in an era of evidence based medicine, we must also have evidence based management. The Health Strategy *Quality and Fairness* committed us to the development of Casemix when it stated:
>
> > *Performance measurement and transparent, evidence-based allocations are essential. The most developed system for assessing comparative efficiency and for creating incentives for good performance is Casemix*
>
> When the Strategy was published, a very extensive 'Root-and-branch' review of the entire Casemix system had already commenced and included direct consultation with all the stakeholders. This review process is now finalised. Information days on the review will be held around the country.
>
> I am pleased to inform you that I have accepted the recommendations (of the review) and my Department is committed to their implementation. The modernisation process will address all the issues you have raised over the past three years. When the present modernisation process is completed, Ireland will have a truly world-class Casemix system. The patients deserve it. You deserve it. The clinicians deserve it. The tax-payer deserves it."

The 'new' system being introduced:

13. Clinical Coding:

A synopsis of the numerous benefits includes:

- more clinically up-to-date and meaningful,
- more codes available,
- greater specificity,
- alphanumeric coding scheme giving greater facility for expansion,
- facility to code anaesthetics,
- 'Allied Health' Intervention codes identifying important additional information,
- coding scheme linked to Grouper development,
- availability of support in implementation and ongoing training,
- clear future strategy and government sponsorship,
- better international comparability.

14. Casemix Grouper:

Overall, some of the benefits are as follows:

- increased levels of severity (now 4, previously 2),
- additional D.R.G.'s for specific conditions and diseases, (now 665, previously 495),
- linked to coding scheme,
- MDC, medical/surgical split, severity rating all 'at-a-glance',
- better numbering system generally,
- regularly updated,
- open, transparent, inclusive,
- Government commitment to its continued development.

15. Moving forward:

The new system will not just give Ireland a world-class system, it will bring us to the leading edge of Clinical coding and Casemix Grouping systems internationally by making us an integral part of a 'live', government sponsored system, where coding and grouping are an integrated process and part of acute funding policy.

The new Grouper finally answers criticisms of lack of D.R.G.'s for 'catastrophic' cases by allowing four levels of severity, rather than the present two. There are D.R.G.'s for specific illnesses such as Cystic Fibrosis, Cochlear implants, C.O.A.D., E.R.C.P.'s, Hip revisions, etc. There are many more D.R.G.'s for many complex cases such as neonates, etc.

Strengthening the national structures:

16. Agreed:

It is agreed, at a national level, that Casemix be broadened in its application. This requires both more sophisticated technical systems and better support systems and structures nationally. A new 'system', without the requisite educational and support structures for those expected to manage and use it, will fail. In addition to the C.T.G. reviewing the national programme, the C.T.G. requested the E.S.R.I. to commission an independent review of the national H.I.P.E. programme (Bramley and Reid) to evaluate and make recommendations on

training programmes and data quality iniatives. The Department has already indented funding for the commencement of the implementation of these recommendations in 2005 which are broad ranging. It was also agreed that senior managers require greater support in order that they can better understand their data and use it to better effect. A €3 billion dataset should play a central role in hospital management.

Development of web facilities by the DoHC and E.S.R.I. will also assist in allowing greater linkage between all the stakeholders.

17. Conclusions on national structures:

The agreed conclusions and recommendations arising from the review of structures were as follows:

- A significant expansion of the H.I.P.E. education/training and support programme for Coders, HCC's, Specialty Cost staff and Senior Managers.
- Development of training programmes for Casemix specifically.
- Development of training programmes in relation to Specialty Costs specifically.
- Development of I.T. support systems to allow greater/easier access to data and its use for local management purposes.
- Better audit facilities to allow hospitals gain a better understanding of budget outturns.
- A Casemix Clinical Committee.
- A National Casemix Forum.
- A Senior Managers Forum.
- A National Cost Weights Group.
- A Casemix 'Summer school' for senior staff to meet and learn.
- A 'Casemix constitution' (incorporating all Specialty costing and H.I.P.E. related matters).

The C.T.G. working in association with the E.S.R.I. and our new international team, have already commenced the process of building better structures nationally for all our stakeholders. All these issues will be debated at our annual Casemix conference in April.

Time-table for developments:

18. Time-table for the introduction of the new system into Ireland:

Although the policy decision to 'adopt' and 'adapt' the Australian system of ICD-10-AM for clinical coding and AR-D.R.G.'s for Casemix Grouping had been taken, the C.T.G. and the C.T.G.-E.S.R.I. Group had to consider the technical feasibility issues surrounding these decisions. In particular the time-frame for implementation had to be considered – i.e. how quickly could these new systems be safely implemented in a manner most fair to hospitals?

Clinical Coding:
The E.S.R.I. seized the opportunity to make the leap forward to ICD-10 and decided that, despite the tremendous obstacles that would have to be overcome, and the extremely tight run-in period, they would immediately commence training in ICD-10-AM. Its use is mandatory for patients discharged from 1 January 2005 (this was supported by the hospitals who had expressed disappointment at the possibility of any delay in implementation).

Casemix Grouper:
The C.T.G. considered three possibilities regarding the introduction of the AR Grouper. These options were:

1. Use our present HCFA (ICD-9) Grouper pro tem.
2. Use one of the Australian AR-D.R.G. Groupers in its ICD-9 format (their older Grouper) pro tem or
3. Use the most modern ICD-10 based Australian Grouper (AR-D.R.G. version 5) as soon as practicable.

These options are discussed below.

(1) Using our present HCFA (ICD-9) Grouper:
The December 2004 Casemix Budget Model run will use 2003 H.I.P.E. data (and costs). Obviously the easy option would be to use our present H.C.F.A. Grouper while waiting for ICD-10-AM H.I.P.E. data to come on stream (as coding in ICD-10 commences on 1/1/2005, this data will only become available for the December 2006 budget run). Unfortunately this would continue to restrict hospitals to two levels of clinical severity only, and continues to ignore national specialty activity issues requiring dedicated D.R.G.'s.

(2) Using an ICD-9 Australian Grouper:
One of the Australian Groupers tested in the technical evaluation was an ICD-9 based Grouper that was later superseded by ICD-10 Groupers. As was shown in the technical review, even these outperformed our present Grouper. However, as this Grouper is no longer being developed (updated), this would mitigate against its introduction here. This was rejected by the C.T.G. as an 'interim' solution that could not be termed 'administratively feasible' as the work involved in its introduction here, both by the C.T.G. and by hospitals, would outweigh the benefits.

(3) Using AR-D.R.G. (ICD-10-AM) version 5:
The benefits of using this Grouper are enormous and obvious. The disadvantage of introducing the AR Grouper immediately is that Irish H.I.P.E. data has to be 'mapped' from ICD-9 to ICD-10 (a considerable 'technical' task). However, the disadvantage of waiting to introduce it until Irish ICD-10-AM H.I.P.E. data is available for the December 2006 budget run is that, apart from losing the benefits of the new system in the interim period, a new version of the AR Grouper will be available by then and a considerable part of the review would have to be undertaken again at that point. This might be termed paralysis by analysis.

Furthermore, the C.T.G. was aware that 'blend-rate'[6] increases could not be deferred for the entirety of this interim period. If we waited, the new Grouper would be introduced at blend-rates double the present and any 'local' issues requiring resolution would have twice the cost implications for hospitals.

The only disadvantage of using the AR-D.R.G. Grouper this year is that it has required us to become involved in the mapping exercise discussed above. This is a challenge not just for the C.T.G.-E.S.R.I., but also for individual hospitals, in ensuring that any hospital

[6] 'Blend-rates are the % of the activity related funding that is Casemix performance dependent.

specific issues are uncovered and addressed.

Recommendation:
The C.T.G. was of the opinion that the advantages of introducing the AR Grouper immediately, far outweighed the disadvantages, and have recommended accordingly. The 'new' AR Grouper will be used in the November/December Casemix Budget Model run, using 'mapped' H.I.P.E. data. The same scenario will apply next year in the November/December 2005 Casemix Model run. However, hospitals will be able to 'see' their activity Grouped in both the 'old' and the 'new' systems. In 2006 ICD-10-AM H.I.P.E. data will be available for the first time, and the transition will be complete.

19. Time-table for the expansion of Casemix in Ireland:

The proposed development plan for the next five years is outlined below. However, the timetable for developments may be foreshortened and the scope of the programme broadened, provided it is technically possible and administratively feasible to do so, and if agreed as part of a revised national strategy.

2004:
- Adopt and adapt the Australian Grouper in Ireland for Inpatients only – no increase in blend-rates this year.
- Commence training in ICD-10-AM for usage with discharges w.e.f. 1/1/2005.
- Commence a review of Cost-weights.
- Increase Daycase blend-rate from 10% to 20% and link permanently with Inpatient blend-rate thereafter.
- Include A&E in Casemix at a low blend rate initially, to be increased incrementally subject to technical review and feasibility.
- Bring new hospitals into Casemix each year until targets below are met.
- Publish the Final Review Report.

2005:
- Hold 'Open'/Information/education days to introduce the new system as required.
- ICD-10-AM (4th edition) will be used for all patients discharged w.e.f. 1/1/2005 (with the assistance of the NCCH Australia).
- Increase Inpatient blend rate to 30% (2006 allocation).
- Commence work on inclusion of OPD in Casemix a.s.a.p.
- Test whether new Grouper can be used for Daycases also and implement accordingly if possible.
- Write a Casemix 'constitution' for all areas of Casemix (H.I.P.E./Specialty costs) by which all Stakeholders would abide.
- Commence the significant enhancement of the national Casemix management team and the national structures and services to the stakeholders in order that the technical, clinical and management skills to maintain, manage and develop the national programme, and gain much greater stakeholder participation, are in place.

2006:
- Increase Inpatient blend rate to 40% (2007 allocation).

2007:
- Increase Inpatient blend rate to 50% (2008 allocation) at which time the further extension of the programme may be considered.

2008:

- Partially fund all acute hospitals with 4,000 admissions p.a. via Casemix by 2009.

2009:

- Develop strategies to fund all acute hospitals, regardless of size, via Casemix by 2010.
- Develop strategies for funding sub-acute and non-acute via Casemix by 2010 at the latest.
- Bring all blend-rates (OPD/A&E) into line with the 50% target as soon as possible thereafter, if not already done.

Conclusions and discussion:

20. Summary Conclusions and discussion:

Ireland was the second country in Europe to adopt Casemix, although the expansion of the programme has been incremental since then.

There are many unique aspects to the Irish Casemix programme:

- Ireland allows full management and clinical autonomy to allocate funding as required at a local level, essentially subjecting it to 'VFM' audit in arrears by comparing each hospitals cost-per-case with the national mean.
- Ireland was the first country to introduce a 'budget-neutral' system whereby savings generated were reinvested in hospitals who have demonstrated that additional funding allocated to them will result in real benefits.
- Hospitals are grouped into differing 'groups' in order that they are only benchmarked against their own peers.
- Ireland has always sought to genuinely involve the stakeholders in the process and to gain their acceptance that every effort is made to make the system fair, transparent and rules-based. While nobody could ever claim 100% success in such a scheme, particularly where hospitals lose funding, there is a relatively unique working relationship between the Department of Health and Children and the hospitals. Ireland has never sought to impose solutions from the centre, but rather to gain as great a level of unanimity as possible.

Casemix in Ireland is not a health policy – it does not (presently at least) seek to influence clinical practice or treatment regimes (other health initiatives may deal with such issues). Neither does it seek to reduce funding or alter funding flows. Rather it seeks to ensure that hospitals are reimbursed fairly for those patients whom they have treated, regardless of setting, length-of-stay, or cost – but to do so by reference to peer practice – Irish peer practice.

PART 1

The Review Process

Section 1 - Background

Section 2 - Terms of Reference

Section 3 - Review methodology

Section 1: Background

Following the recommendations of the 1989 Commission on Health Funding that D.R.G.'s should be used as part of funding policy, the National Casemix Project was established in 1991. By 2001 that 'project' had been established as a national 'programme'.

Although developments and improvements had been introduced each year in order to refine and expand the programme, after ten years it was time for an in-depth review of every aspect of the programme. Also, it was time to review whether the programme could be broadened to play a more central role in acute funding policy, and what were the requirememnts in order to do so.

It was agreed that the review would evaluate every aspect of the national programme.

Section 2: Terms of Reference

Accordingly, the 'Root-and-branch' review commenced in 2001 with the aim of determining:

- whether the programme could be broadened significantly and, if so
- what action would be required if Casemix were to be used as a "central pillar" in acute hospital funding policy.

The Casemix Technical Group (C.T.G.) of the Department of Health and Children encapsulated the terms of reference of the review into a Mission Statement as follows:

Casemix Mission Statement:
"It is the aim of the DoHC Casemix Group, resources permitting, to undertake a root-and-branch analysis of the present Casemix budget model, leading to the development of a robust system capable of giving a true and accurate reflection of activity and costs at acute hospital level, and that is generally accepted by the Users to be such. These aims to be achieved in a twin approach of:-

- Revision of present system;
- Consideration of introduction of new systems

Section 3: Review Methodology

The review methodology was to divide the review into two main streams:

- A technical review and
- A management review.

Technical review:
The technical review focused on the following areas:

- Data already on hand.
- Submissions sought & received from hospitals.
- New studies commissioned.

Data already on hand
This included correspondence from hospitals over several years, detailing issues of concern to them. Issues included: how to reimburse for catastrophic levels of severity; high-cost cases such as severe burns; the lack of separate D.R.G.'s for Cystic Fibrosis, Cochlear implants, neonates, etc.

Submissions sought & received from hospitals
Each Health Board (the CEO & Programme Manager for Acute Services) and all H.I.P.E. and Casemix hospitals (Manager/Director of Nursing/Chair Medical Board/Financial Controller/HCC/Medical Records Officer) were invited to make a submission detailing any issues of concern to them. These submissions were collated into individual issues to be addressed as part of the review. From this part of the process nine principal issues were identified as requiring to be addressed.

New studies commissioned
A review of options for updating Clinical Coding was commissioned from the E.S.R.I. This commenced with an international review of classifications leading to a pilot study of Australian ICD-10-AM (3rd edition).

Technical review of Groupers[7]:
The technical review consisted of reviewing Irish hospital data and evaluating how different options would impact on outturns and whether they would solve problems identified. This consisted of both undertaking a full technical review of various Casemix Groupers internationally and reviewing not only the national dataset used in the study (800,000 records), but also individual items on a case by case basis – e.g. were severe Road Traffic Accidents referred to national centres of excellence adequately reimbursed?

Management review:
The management review was undertaken by the C.T.G. with a view to ensuring that whatever new system was chosen would attain the 12 main criteria identified by the C.T.G. as necessary in any 'new' Casemix system and would deal with the principal issues which the review process identified as requiring to be addressed.

These came to be known as the 13 Issues & 12 Tests necessary in order to ensure that the system was administratively feasible and cost effective to implement, as well as being a good 'technical' solution.

[7] A 'Grouper' is a system which automatically 'Groups' hospitals' patients into Diagnoses Related Groups (D.R.G.'s) for management purposes.

PART 2

Identifying the Issues to be addressed

Section 4 - Background to the review process

Section 5 - Identifying all the Issues for Review

- Exercise 1 – Issues Arising from Data Already on Hand
- Exercise 2 – Obtaining Submissions from Stakeholders
- Exercise 3 – Clinical Coding Issues
- Exercise 4 – Casemix Grouper Issues to be Addressed
- Exercise 5 – Summary of the (13 main) Issues to be Addressed

Section 4: The Review Process

Background to the review process:
A structured methodology was put in place in order to ensure that any 'new' system chosen would be the best solution for the national programme.

Accordingly, it was agreed that the review process be divided into three parts:

- Unit A: Clearly identifying all the issues for review.
- Unit B: Agreeing the best solutions to deal with those issues.
- Unit C: Evaluating the proposed solutions.

Unit A: Identifying the issues for review involved five exercises: (Section 5)

- Exercise 1: Issues Arising from Data already on hand.
- Exercise 2: Obtaining submissions from stakeholders.
- Exercise 3: Clinical Coding Issues.
- Exercise 4: Reviewing Casemix Grouper issues.
- Exercise 5: Summarising the (13 main) issues to be addressed.

Unit B: Finding the solutions had three parts: (Section 6)

- Exercise 6: Agreeing the criteria for choosing a new Grouper and Clinical Coding Scheme
- Exercise 7: A review of Clinical Coding Schemes
- Exercise 8: A review of Casemix Groupers

Unit C: Evaluating the proposed solutions: (Section 7)

- Exercise 9: Summarising the Conclusions and Recommendations of the Technical Review of Casemix Systems
- Exercise 10: Detailed review of the 12 Tests for choosing a new system
- Exercise 11: Detailed review of the (13 main) issues to be addressed

All these matters are expanded further below. This section deals with Unit A issues above only. 'Finding the solutions' and *Evaluating the proposed solutions* are dealt with in Part 3.

Section 5: Identifying all the Issues for Review

Exercise 1: Issues arising from Data already on hand:

A wealth of experience in identifying the issues of concern to both the C.T.G. and individual hospitals was already on hand from a review of the issues raised in the previous five years. The constant developments in relation to Casemix generally made the review of data any older than five years virtually irrelevant.

The C.T.G. reviewed minutes of meetings with hospitals, correspondence, informal discussions and, most importantly, national specialty activity submissions.

Numerous issues identified from the data on hand were replicated in the submissions received and in the review of clinical coding. However, other additional issues were identified and included:

- The need for Irish cost weights.
- Lack of demarcation between treatment areas.
- Hospital 'Groupings'.
- Urban & rural 'differences'.

Issue 1 - Irish cost weights:
Since the inception of the Casemix programme here, the criticism has been raised that the usage of 'Maryland' cost weights is a serious failing of the 'system'.

Firstly, it should be explained that the Maryland weights are the sum of the patient level costing data for millions of patients in the State of Maryland, U.S.A. broken down into cost centres (e.g. Laboratory costs, drugs, theatre, etc.). Professor Robert Fetter[8] identified Maryland as the best data-set originally as it contained the most homogenous patient data available for study – i.e. it had the greatest number of young and old patients; teaching and non-teaching hospitals; Medicare and private insurance patients and a wide range of demographic groupings. Time and motion studies were then undertaken in individual hospitals in order to establish what portion of hospital expenditure was spent on differing types of patients, in different parts of the hospital.

From this data 'relativities' were established – for example, the cost of running operating theatres should be attributed to the patients who use them (and not to the medical patients who do not); the cost of running ICU should be attributed to those patients who use it; all patients use catering services; a portion of the cost of hospital management should be attributed to all patients, etc. The cost 'weights' reflect these relativities and costs and even if individual hospital expenditure varies tremendously, the *relativities* will remain much the same – this is a well established fact.

The Maryland weights are used all over the world to this day. Some countries, such as Ireland, use substantial portions of the weights, while others use them to a lesser extent, to supplement the weights they have developed themselves for the primary cost drivers. ***It should be clearly understood that the Maryland weights are only relativities and it is Irish costs that are inputted into the system, not American.*** Furthermore some 'local' adjustments were made to better reflect Irish practice. In other words, Maryland Weights express the average use of a service by a patient in one D.R.G., relative to the average use of that service by patients in all others D.R.G.'s and not the actual cost per case.

Currently within the present system here, costs are allocated to D.R.G.'s based on these service (Maryland) weights and/or length of stay. Four and a half of the present 16 cost centres presently in use are based entirely on Irish cost data (not Maryland weights). These cost centres relate to local physician (consultants and their team)/administration and management costs and use instead the average length of stay (ALOS) of patients here.

In each case ALOS means that the total costs for that cost centre are divided into the number of days that the patients of that physician occupied a bed in the hospital.

Nevertheless, the C.T.G. accepts that as this is an extremely complex area, not generally well understood and, as it impinges heavily on outturns, hospitals are entitled to know that the data is studied, considered and amended according to Irish practice. Obviously one of the

[8] The 'father' of the D.R.G..

greatest obstacles to progress in this area is the lack of patient level cost data here – without this the only option available to us is what is referred to as 'cost modelling' – taking the data we have and subjecting it to statistical, cost and management analysis in order to better ensure it is the best possible reflection of Irish costs on the ground. Irish Casemix hospitals will, of necessity, need to become deeply involved in this process.

Issue 2 – Lack of Demarcation between treatment areas including A&E/OPD/ Daycases & Inpatients:
Everyone nationally and internationally agrees that this is a difficult area for review. The clinical and management experience varies from hospital to hospital.

There are two key issues here:

- the Clinical experience and
- the Casemix experience

The maxim within Casemix is that *'What is costed should be counted and what is counted should be costed'*. Consequently, Casemix seeks to clearly define groups of patients and their related costs. Sometimes this conflicts with Clinicians who, naturally, wish to 'see' their patients on the national dataset and know that they are being compensated for treating those patients. As Casemix sometimes seeks to re-categorise or re-classify data and redraw the boundaries within hospitals many clinicians view this as a downgrading of their work (which it is not intended to be). Constantly changing clinical practice (such as the introduction of Medical Assessment Units) makes it difficult at a national (rather than a hospital) level to fully understand the local issues and ensure they are fully compensated for within Casemix.

Issue 3 - Hospital 'Groupings':
This is another 'policy' issue where the C.T.G. has to agree whether hospitals should be grouped at all and, if so, the best methodology of doing so. It remains one of the most controversial areas within Casemix – how to fairly reflect the level of teaching status (and its associated cost) within hospitals. Unfortunately, the true meaning of 'teaching' is ill-defined and there is a lack of agreement at national level as to what are the implications and resources required. This is a serious limiting factor in the resolution of this matter.

Obviously the issue within Casemix is to ensure that the cost differences are taken into account. Internationally other countries using Casemix have 'allowed' for teaching status by deducting teaching costs or paying for teaching hospital cases separately. In Ireland where exact teaching costs are not available the original solution implemented was to 'Group' hospitals in order that high-cost teaching hospitals were not disadvantaged by competing with lower cost non-teaching hospitals.

However, as more and more hospitals undertake some level of 'teaching' they seek to move 'Groups' particularly where they view themselves as being more complex than the small rural hospitals, even if not as complex as the national centres of excellence.

Issue 4 - Urban & rural differences:
Internationally this issue relates to countries that have significant distances between hospitals e.g. Western Australia.

In Ireland the issues that have been raised by hospitals include: in Dublin - the lack of step-down facilities, pressure on A&E, patients being transferred from outside the region; in

rural areas issues include - the affect on discharge policy of patients living up to 50 miles (80 kilometres) from the hospital, the lack of funding for lower clinical profile rural sites, 'holding' patients waiting referral to Dublin specialist centres, etc.

Conclusion:

The four issues discussed above were incorporated into the 'Issues for review'.

Exercise 2: Obtaining Submissions from stakeholders

The second part of the process was to allow all our stakeholders participate in the process. This took the form of a circular from Casemix Unit to all stakeholders in the Casemix process inviting them to make submissions[9]. The circular invited stakeholders to detail areas of concern to them and to give their views on issues they would like to see addressed as part of the Root and Branch Review.

Numerous submissions were received from many different stakeholders. The majority of the submissions were received from the Casemix hospitals but submissions were also received from Health Boards, C.E.O.'s, General Managers, Members of the Medical Boards, individual Consultants, Finance Managers, Specialty Cost accountants and H.I.P.E./Casemix Co-ordinators. Submissions covered a broad range of issues - these issues are summarised under 9 broad headings below. These issues are dealt with in various sections of the report.

1 Daycase Issues

There was an overall consensus that the Daycase Model needed to be reviewed. It was perceived by those working in the system that Daycases in the specialities of oncology, cardiology, rheumatology and orthopaedics were not being adequately rewarded in the Casemix Model.

There was also general agreement that the 'Inclusion' and 'Exclusion' lists in the Daycase model should be reviewed. There was concern that these lists were not up-to-date with clinical practice. Hospitals were concerned that, while they were trying to be efficient by doing more Daycase work, the 'system' was not recognising/rewarding this.

Other issues raised included the revision of the definition of a Daycase and also the need for the blend rates for Daycases to be increased so as not to act as a disincentive to hospitals for carrying out Daycase work.

2 Obstetric/Gynaecology Issues

Submissions expressed concerns that obstetric cases were not being adequately reimbursed in the Casemix Model. It was generally considered that the Relative Values for obstetric cases were not accurate and did not reflect the cost of care and treatment of these patients.

One submission also called for the separation of the obs/gynae speciality. Other submissions highlighted the issues of demographics and non-national births which are impacting on resource usage for obstetric cases but the Relative Values were not taking these factors into account.

[9] This letter was issued on 25th August 2002 and a copy is at Appendix 1.

3 Paediatrics

Numerous issues were raised regarding Paediatrics. The common concern was that the Relative Values for Paediatrics are not reflective of the high resource intensity involved in treating these cases. The lack of specific D.R.G's for neonates with multiple major problems arising from severe immaturity and low birth weight was also an issue.

There was also a request that should a new Grouping system be introduced, it must be more age sensitive than the current Grouper, and should be capable of dealing with a wider range of age groups.

Other issues raised included Casemix not taking into account the cost factor of parents staying overnight with children in hospital and also a call for a more "omni-disciplinary" approach to coding Paediatric Cases.

4 Orthopaedic Issues

There was a general view amongst stakeholders that the orthopaedic specialty is not sufficiently reimbursed in the Casemix Budget Model. Concerns were expressed specifically on the low Relative Values for Hip Revisions.

Also the issue of different procedures for orthopaedics falling into the same D.R.G. even where there are substantial cost differences between the procedures was raised.

5 Coder Training

An issue that was highlighted as vital to the development of the Casemix National Programme is coder training. Most submissions expressed the need for a better training and education programme for those working in the H.I.P.E./Casemix area.

The submissions emphasised that the profile of H.I.P.E./Casemix has been significantly enhanced in recent years but that this has not been reflected in training or education of coders. It was suggested that in an era of accreditation in the healthcare system the need for coder training and education is critical.

Since the Casemix model is dependent on accurately reflecting hospital activity it is agreed that the highest quality coding staff are essential. The submissions called for a National Casemix Co-ordinator training programme, a new grading structure, staff training to monitor data quality and a certified coding education programme. If these structures were in place, stakeholders were of the opinion that this would not only tackle staff retention and employment, but would also acknowledge the members of staff that have given long and loyal service to H.I.P.E./Casemix.

6 Grouping Issues

The Grouping of hospitals in the Casemix Budget model was an issue that many submissions had commented on. Many hospitals sought a review of the current criteria used to Group hospitals in the Casemix System.

Alternative groupings were suggested and these included:

- A separate grouping for the Dublin Area Teaching Hospitals.
- A separate grouping for the Regional Hospitals from the County Hospitals.
- The expansion of Group 1 to include the regional hospitals.

7 Specialty Costing Issues

Various issues were raised with regard to the Specialty Costing exercise. The costing information used in the Casemix Budget Model is supplied to the Department as part of the Specialty Costing exercise by each hospital and is derived directly from the Hospital/Health Board Annual Financial Statements.

Issues raised included:

- A review of transfer pricing.
- The inclusion of depreciation and high-tech developments in the model.
- sub-division of the general administration section of the model for greater transparency.
- The specialty costing deadline of the 31st of May being very restrictive.
- Central services apportionment be reviewed.

There was also a call for a dedicated training programme for this difficult area of work.

8 Independent Audit of H.I.P.E. Data

Several issues were raised regarding the validation of H.I.P.E. data. There was a call for an 'independent' audit of submitted H.I.P.E. data and there was also a suggestion that the data requirements of the hospitals may differ from that of the E.S.R.I. (i.e. the difference between the 'minimum dataset' required by the E.S.R.I. and the broader hospital requirements of Risk Assessment, data management, etc.).

9 Clinician Involvement

Many submissions emphasised the lack of clinician involvement in the Casemix Programme. Hospitals stated that they find it difficult to get clinicians on board due to the shortage of consultants and the fact that some Clinicians tend to view Casemix primarily as a financial tool. Some Clinicians expressed the view that in many cases Casemix may not adequately reimburse for the level of resources used to treat individual patients.

Conclusion:

The nine issues identified above were incorporated into the 'Issues for review'.

Exercise 3: Clinical Coding Issues

The third part of the process was to review clinical coding.

The inability to progress forward to ICD-10 was identified at an early stage as an obstacle to progress. All the stakeholders (both at hospital level and at national level) outlined the lack of progress to coding in ICD-10 as one of the most crucial issues requiring to be addressed as part of the overall review process. A further issue arising was education and training generally for H.I.P.E. coders.

Issue 1 - Lack of ability to quickly reflect changing clinical practice due to inability to code in ICD-10:

This has been a criticism of our present system and impinges on D.R.G. assignment as well as clinical completeness. Although ICD-9 is updated annually, ICD-10 is the accepted standard for clinical coding and the inability to code in this regime hampers clinical completeness. For example, the inability to code Anaesthetics in ICD-9 is a serious limitation within Casemix.

The E.S.R.I. were unable to introduce ICD-10 for clinical coding while the Department continued to use an ICD-9 based Grouper as to do so would have been totally counterproductive (this matter is elaborated further later in the report). It was agreed that any 'new' system should seek to address this issue.

Issue 2 – Lack of Education Programmes for Coding

On many occasions this issue was raised with the Department. Clinical Coders informed the Department of their belief in the need for a better education and training system which would result, they believed, in better coding quality, better expertise and staff retention in this area.

The quality of coding was also raised as an issue. The E.S.R.I. reported concerns that coders need to be able and willing to use coding guidelines and adhere to them.

Consequently, the C.T.G.-E.S.R.I. Group availed of the opportunity afforded by the assessment of several ICD-10 based Groupers to progress this issue forward and the Department of Health and Children therefore commissioned the E.S.R.I. to undertake a comprehensive review of training programmes and data quality initiatives in Ireland. The audit was undertaken by The School of Health Management, University of Sydney (see exercise 7). The full report on the matter is in the Appendices. The conclusions and recommendations are considered in Section 14 – 'Strengthening the national structures'.

Conclusions:

The necessity to move forward to ICD-10 must be urgently reviewed and educational requirements for coders must also be assessed. The issues identified above were incorporated into the 'Issues for review'.

Exercise 4: Casemix Grouper Issues to be addressed

The fourth part of the process was to review issues that related directly to the Casemix Grouper itself in the past. These included:

Issue 1- Daycases:
In 1996 the C.T.G. brought Daycases into Casemix by introducing a Daycase Grouper based on the Canadian Day-Procedures Grouper. This resulted in having a separate Grouper for Daycases and Inpatients.

However, it is clear that a rethink of the way in which Daycases are handled in Casemix is now required. It may be possible to use the same Grouper for both types of cases and this matter has been under review by the C.T.G. over the past few years. Obviously the Daycase payment rate would be adjusted for each case based on their length of stay.

Issue 2 – Catastrophic levels of severity (or complication):
This has been one of the most important issues raised by hospitals over the past 5 years. The HCFA Grouper has only 2 levels of severity (with complication and without complication). Stakeholders have raised the issue of cases of severe and catastrophic complication ranging from skull fractures/craniotomy's; chronic obstructive airways disease; stroke with catastrophic complications, etc., and the inability of the HCFA Grouper to respond to these issues.

Issue 3 – Obstetrics & Neonates:
The subject of neonates with multiple major problems arising from severe immaturity and low-birth weight has also been an issue of concern for some time. It is fully accepted that the cost of treating such cases is enormous. The present HCFA Grouper provides only 6 D.R.G's for MDC-15 (Newborns and other neonates).

New protocols on the management of obstetrics, including Midwife led teams; inter-disciplinary teams; Home birth programmes; walk-in clinics, etc., all require review from a Casemix and H.I.P.E. perspective.

Issue 4 - National Specialty Activity:
The National Specialty Deductions Process is intended to allow for the additional costs, above and beyond the standard 'pay-out' given by the Casemix Budget Model to hospitals providing such services, particularly where 'stand-alone' D.R.G's are not available for such cases.

Each year hospitals are invited to make submissions on national specialities and the C.T.G. reviews them in consultation with the hospitals themselves and will make 'National Specialty Cost Deductions' as a result. This process is in place in order to ensure that hospitals are not unfairly penalised within Casemix for the undoubted significant additional costs associated with national specialty services.

For issues to be considered as national specialty activity they must meet one or more of the following criteria:

- The activity performed is being performed as part of **national specialty activity** and, as such, is only **performed in a limited number of hospitals**.
- The activity performed is either a significant number of cases, or significant in cost terms.
- The cost of the activity is **significant** and failure to address the issue would have a **significant detrimental effect** on the hospital's budget outturn, vis-à-vis other like hospitals.
- The activity is too small for fair statistical comparison between hospitals.
- There are inadequate codes to reflect the activity, vis-à-vis, other hospitals.
- Be independently verifiable to all other hospitals participating in the national Casemix programme.

Some of the issues that have been included in the national specialty deduction process over the years include:

- Haematology Blood Costs
- Bone Marrow Transplants
- Severe burns
- Cystic Fibrosis
- Prostheses (stents etc.)
- Spinal Injuries
- Cochlear Implants
- Organ Retention
- Transplantation
- Maxillo Facial

Hospitals undertaking national specialty work raised the concern of the lack of separate D.R.G's for such cases as Autologous Bone Marrow Transplants; Cerebral Palsy & Muscular Dystrophy; Complex Cataract procedures; Cochlear Implant; Cystic Fibrosis; ERCPs; Limb Lengthening; Pituitary procedures; Obesity procedures etc. The 'amalgamation' of such cases with other less severe, less specific cases was an undoubted problem.

Issue 5 - Time lag in reflecting modern clinical practice:
An issue raised regularly was the long time lapse between new clinical practices (for example the introduction of cardiac stents) and such practice being adequately reflected in new or revised D.R.G's. This was a valid criticism as the current clinical coding scheme and Grouper were often slow to respond quickly and comprehensively to change.

Issue No 6 - Inter hospital transfers of complex cases:
Such cases include Road Traffic Accidents which become inter-hospital transfers from rural hospitals to national centres of excellence; Spinal injuries; severe burns, etc.

Hospitals have contended that often these cases 'fall into' the same D.R.G. for the transferring hospital and the tertiary referral hospital – with the same payment/relative values.

Issue No 7 – Paediatrics:
Paediatric hospitals traditionally and internationally, assert that the treatment protocols (and consequent cost) for children are considerably different to the older population, and that Casemix Groupers have not reflected this fact. However, how, and to what extent, it is acceptable to separate out any or all paediatric activity and costs from the national data base is a matter for review, both here and internationally as it goes against the core D.R.G. concepts and design. This is a key issue from a Casemix 'Grouper' perspective and will, undoubtedly, remain high on the Casemix 'agenda' in coming years.

Conclusion

The issues identified above were incorporated into the following 13 main issues to be addressed.

Exercise 5: Summarising the (13) main issues to be addressed

The fifth part of the process was to summarise all the issues that were raised in submissions, as part of national specialty deductions, ongoing communication with hospitals over the years, studies commissioned, international best practice etc into the main issues requiring to be addressed.

Summary of issues raised:
Many of the issues highlighted above are cross cutting, interdependent issues. It is possible to amalgamate these into 13 main issues requiring to be reviewed as follows:

1. **The Daycase budget model;**
2. **"Catastrophic" levels of severity;**
3. **Obstetrics & neonates;**
4. **Paediatrics;**
5. **Irish cost weights;**
6. **Lack of Demarcation between A&E/OPD/Daycases & Inpatients;**

7 **Hospital 'Groupings';**
8 **Urban & rural differences;**
9 **Inter hospital transfers of complex cases;**
10 **National specialty activity;**
11 **Time lag in reflecting modern clinical practice;**
12 **Audit and Training;**
13 **Clinician Involvement.**

PART 3

Finding and Evaluating Solutions

Section 6 - Finding the Solutions

- Exercise 6 - The criteria for choosing a new Coding scheme & Casemix Grouper
- Exercise 7 - The Review of Clinical Coding Schemes
- Exercise 8 - The Review of Casemix Groupers
- Exercise 9 - The Conclusions and Recommendations of the Technical Review of Casemix Groupers

Section 7 - Evaluating the Proposed Solutions

- Exercise 10 - Detailed review by the C.T.G. of the 12 Tests for choosing a new system
- Exercise 11 - Detailed review by the C.T.G. of the (13 main) Issues to be addressed

Section 8 - Conclusions and Recommendations of the Management Review

Section 6: Finding the Solutions

Exercise 6: Agreeing the criteria for choosing a new Coding scheme & Casemix Grouper

Having on the one-hand identified the issues that required to be addressed, the sixth part of the process was to set down in advance the criteria which any new Casemix system for use in Ireland should meet or which the current system must meet. The C.T.G. set down 12 criteria which should be attained, if possible.

These criteria were that:

1 It should be a Government Sponsored System;
2 It should already be in use for a significant level of funding;
3 It should be integrated with a Clinical Coding Scheme;
4 It uses English;
5 It allows the move to ICD-10 in the medium term;
6 It is open, transparent, inclusive and regularly updated;
7 It can be adapted for use in Ireland;
8 It does not require significant resources to develop, install and maintain;
9 It produces internationally comparable data and is not unduly localised;
10 It allows us to 'buy into' the system;
11 It has local expertise available for contract to us;
12 There is a long-term commitment to the ongoing development of the system.

1. A Government sponsored system:
This is an issue of enormous importance and relevance and has had a direct impact on developments here in Ireland. While it is acceptable for a single hospital to purchase a Grouper or a Clinical coding system from a private company, having a national programme dependant on private suppliers has great risks. If the supplier no longer wishes to supply the Irish market and withdraws at short notice then the national programme will be compromised.

2. Already in use for a significant level of funding
There are many systems around the world that have technical excellence or academic acceptance. However, when it comes to actually making a hospital's budget Casemix dependant then academic theory becomes redundant and is replaced by the need to know that full and fair compensation for patients treated is received.

It has been proven that the quality of any system is dictated by the financial penalties that result when poor quality data is returned. Consequently any system that is not being used for a significant level of funding may appear better than it is. For this reason when selecting Groupers for evaluation, only Groupers that meet the criteria above will be selected.

3. Integrated with a Clinical Coding scheme
The International Classification of diseases (which is developed by the WHO) classifies diagnoses in an internationally agreed format, in order that language, location, education and other matters do not act as a barrier to understanding data. The classification of the appropriate *procedures* allied to those diagnoses is a separate matter.

In Ireland we are using ICD-9-CM which is the *clinically modified* version of ICD-9 as it matches the procedures to the diagnoses. Some countries (for example United Kingdom and Germany) have in the past opted for the OPCS Classification scheme. However, the original HCFA Casemix Grouper (the basis on which all Groupers today are designed) used both ICD based diagnoses and procedures as it provided greater clarity and transparency. Any country seeking to use a non-I.C.D. based diagnoses classification has to ensure that the two datasets map together properly – not an insignificant task. Now that Germany are adopting the Australian Grouper they are transferring across from Office of Population Census Surveys (OPCS) to the Australian I.C.D. based coding scheme. When the UK made the decision to significantly broaden their Casemix programme they had to undertake several years of updates to OPCS in a single year.

4. Uses English

Casemix is an extremely technical topic and misunderstandings between those involved, even when using the same language, are common. Crossing national boundaries to countries that have different health care systems adds an extra dimension to the complexity. As Casemix is about funding, mistakes cost money. The ability to receive technical manuals in English, as well as converse in English with those assisting us is paramount.

5. Allows the move to ICD-10 in the medium-term

Ireland has sought to make the move from ICD-9 to 10 for some time (ICD-10 is now 10 years old). Clinicians in particular have sought this change as they see areas where clinical progress has not been matched by coding updates. However, the E.S.R.I. were unable to make the move to this significantly better system as the USA had not issued an ICD-10 based procedure classification and consequently HCFA had not designed an ICD-10 Grouper. If the Department chose an ICD-10 based Grouper (designed by a country using an ICD-10 based procedure classification system) then that would provide an excellent opportunity for the E.S.R.I. to move this issue forward.

6. Is open, transparent, inclusive and regularly updated

When companies supply a system, access to detailed technical information may be limited. This has proved an issue for us in the past. For example, we seek to understand exactly how cost information is collected, collated, audited, reviewed and summarised in the design process, in order that we can make local decisions on whether the system needs to be adapted locally. Where there are obstacles to such information, quality will suffer.

Regular, automatic updates are also essential and one must know, in advance, that they are planned.

7. Can be adapted for use in Ireland

A Grouper is designed to 'Group' similar patients into D.R.G's. If a Grouper is developed by a country with significantly different population and epidemiological conditions then when Grouping Irish patients the data will not be valid.

8. Does not require significant resources to develop, install and maintain

Any system must be *'Administratively feasible and cost effective'* to develop, install and maintain. The annual enhancements to the present system cause additional work for all involved. Minimising this disruption has always been the aim of Casemix Unit with the 'trade-off' being considered each time some new development is considered (most accurate reimbursement for the hospital vs. the extra work to install).

9. Produces internationally comparable data and is not unduly 'localised'
In Ireland under the guideline that any Casemix system must be '*cost* effective' to install, we presently do not consider that it would be best usage of scare resources to develop our own Grouper – although we are already making our own local 'enhancements' (such as our own Same-day D.R.G's etc.) Having the ability to compare our data internationally is vital, as is the need not to be using a Grouper that has been significantly 'localised' by another country (in which case it is difficult to understand whether outturns are due to local issues or the Grouper).

10. Allows us to 'buy-into' the system:
Not every country has an interest in allowing their products to be used by Ireland. The amount paid in royalties by us will only be a fraction of the Research and Development costs involved.

Ireland requires a system to 'buy-into' as the resources necessary to develop our own system could not be justified where a very workable alternative exists and where such a system can easily be adapted for local use (which is the intention).

11. Has local expertise available for contract to us
This is a very important issue. If one is using another country's Grouper then having qualified staff from that country available to assist in its adoption and implementation here is critical. Furthermore, the ability to recruit internationally qualified staff to give the benefit of their Casemix experience generally (all Casemix systems are based on the same methodologies) is a great advantage.

12. There is a long-term commitment to the ongoing development of the system
A government sponsored system such as ours must allow medium-term and long-term planning, and not be subject to the vagaries of private market forces, personalities, or whim. Even many government sponsored systems internationally do not have a clear political commitment to their ongoing use and development. The ability to link-up with another country that is committed to the process would be very advantageous.

Conclusion:

By setting down in advance the criteria which it was desirable that any system should meet, the risk of compromise or personal preference was reduced. If any system could meet the 12 criteria above it would indeed be an excellent solution.

Exercise 7: The Review of Clinical Coding Schemes

Introduction:

The World Health Organisation (WHO) develops *diagnosis* classifications in order to allow comparability of health statistics in any language around the world. However, the matter of developing a companion *procedure* classification is an entirely separate matter.

The current coding scheme that is used for coding procedures and *diagnosis* in Ireland is ICD-9-CM. It is the clinically modified classification from the American Hospital Association and incorporates both the diseases and their corresponding *procedures/treatments* (i.e. ICD-9-CM is the *clinically* modified version of ICD-9 and includes the associated procedures).

Ireland has always sought to use such an interlinking (diagnoses and procedures classification) system. Since the introduction of Casemix in 1989 the move to ICD-10 here was inhibited by the lack of a procedure classification to accompany the WHO diagnoses classification.

The E.S.R.I. review of various classifications:
The Root and Branch review provided the opportunity to review clinical coding schemes nationally and internationally as well as reviewing the impact of any new proposed Grouper on coding. Consequently, the Department of Health and Children commissioned the H.I.P.E. Unit of the E.S.R.I. to undertake a comprehensive review of coding schemes.

Criteria for choosing a clinical coding scheme:
The E.S.R.I. identified the following as central to the adoption of any coding scheme:

- The availability of an integrated coding scheme for diagnoses and procedures.
- The availability of regular updates for the coding schemes to ensure they kept pace with advances in clinical practice.
- Cross-national use which facilitated the use of the data for international comparisons.
- Software support and training programmes for the education of coders and quality checks on the data.

In commencing their review of clinical coding schemes, they focused on the following countries:

- The United States of America
- The Nordic Block
- Canada
- Australia

The report (available in full in Appendix 3) outlined the options available and the advantages and disadvantages of each coding scheme.

A brief synopsis of these issues is below.

United States of America
Since ICD-10 was published in the early 1990's the USA undertook a study to evaluate whether or not they should develop a clinical modification to ICD-10. The Centre for Health Policy Studies in the USA assessed whether the ICD-10 coding scheme was an improvement over ICD-9. Their report into this matter concluded that coding would be significantly improved and therefore endorsed the implementation of a clinical modification to ICD-10.

The E.S.R.I. Report outlines the progress to date that has been made since this decision was taken. The report states

> *While the momentum for the development of an ICD-10-CM system, including a procedure coding scheme, was considerable in the US through the mid to late 1990s, these developments now seem to have hit something of a hiatus... First, CMS and NCHS must finalize and present ICD-10-CM to the NCHVS (HIPPA) committee. Then the NCHVS committee must discuss and evaluate all the relevant issues and, when ready, submit ICD-10-CM for adoption and implementation as a new coding standard through the Proposed, and Final, Rule process. In addition, the HIPPA process provides for a two-year implementation window after a Final Rule has been published in the Federal Register...* ***The only option, therefore, which the US has to offer currently regarding an update of morbidity coding is an upgrading of the ICD-***

9-CM scheme which continues to be undertaken annually. [10]

The E.S.R.I. Report concluded that agreement on the new procedure classification for ICD-10-CM (PCS) was not imminent. The advantages and disadvantages of remaining with the present ICD-9 American supplied system are:

Advantages

- Very little additional training for coders.
- Same layout in the coding books for coders.

Disadvantages

- Unable to move to ICD-10 (and no view as to when the USA might move) as many other countries have now done.
- Many clinicians see the inability to move to ICD-10 as not keeping pace with clinical practice.
- Losing out on clinical updates and greater specificity and clinical sophistication offered by ICD-10.

The Nordic Block – Sweden, Iceland, Finland, Denmark, Norway

The Nordic countries have long been co-operating together in the area of health statistics. The framework for this co-operation is the Nordic Medico-Statistical Committee (NOMESCO). In 1987 a WHO Collaborating Centre for Classification of Disease was also established and is responsible for the updating and maintenance of the classifications used by the Nordic Block.

Since 1999 all the Nordic countries have been using ICD-10 for coding. However, each Nordic country may use a locally modified coding scheme based on ICD-10 for diagnostic coding.

For the coding of surgical procedures the E.S.R.I. report explains that

The WHO Collaborating Centre for the Classification of Disease in the Nordic Centre is responsible for updating and maintenance of the Nordic Medico-Statistical Committee (NOMESCO) Classification of Surgical Procedures (NCSP). The NCSP was developed from an initiative by surgeons from the five Nordic countries. [11]

The NCSP is updated annually by the Nordic Centre for Classifications of Disease and there are also nationally modified versions of NCSP.

The Nordic Block also has a corresponding Grouping System known as NordDRG. The E.S.R.I. Report stated:

... Each country uses a nationally modified version of the WHO ICD-10 system for coding diagnosis and nationally modified versions of the NOMESCO developed NCSP for coding procedures. The NordDRG is used in all Nordic countries and integrates a mapping system to accommodate national versions of the diagnostic and procedure coding schemes. [12]

The implications of implementing this type of coding scheme are as follows:

[10] Page 8, Updating Clinical Coding in Ireland: Options and Opportunities, E.S.R.I. 2003/4.
[11] Page 10, Updating Clinical Coding in Ireland: Options and Opportunities, E.S.R.I. 2003/4.
[12] Page 11, Updating Clinical Coding in Ireland: Options and Opportunities, E.S.R.I. 2003/4.

Advantages

- Coding scheme for diagnosis is comparable with WHO ICD-10.
- Coding systems are regularly updated.
- Coding system and associated literature is available in English.

Disadvantages

- Coding is performed by Clinicians in the Nordic Block, with few coding guidelines, formal training or support.
- No alphabetical index.
- There are five different versions of each diagnosis and procedure system.
- It would require Irish modification which is not possible at present as the level of expertise required is not available.
- Should Ireland choose to adopt the Nordic system, we would have to be collaboratively involved in developing the system (possibly including setting up a D.R.G. and Clinical Coding Institute) – which is not immediately feasible.

Canada

In Canada there are three classifications currently in use. The E.S.R.I. Report outlines these as:[13]

Diagnoses

ICD-10-CA – Enhanced Canadian version of the 10th revision of the International Statistical Classification of Diseases and Related Health Problems. ICD-10-CA replaces the ICD-9 and ICD-9-CM in Canada.

Procedures

C.C.I. – Canadian Classification of Health Interventions, developed to accompany ICD-10-CA. C.C.I. replaces the earlier Canadian Classification of Diagnostic, Therapeutic, and Surgical Procedures (CCP).[14]

Allied health

I.C.F. – International Classification of Functioning, Disability and Health (formerly known as ICIDH).

These classifications are supported by the Canadian Institute for Health Information (CIHI) and are discussed in detail in the E.S.R.I. Coding Report.

There are many issues surrounding the implementation of the Canadian Coding Classification. A brief synopsis of the advantages and disadvantages is as follows:

Advantages

- Available in English.
- Regularly Updated.
- Has a single set of national standards which could help Ireland in its development of National Coding Standards.
- There is a Quality Assurance Programme.

[13] Page 12, Updating Clinical Coding in Ireland: Options and Opportunities, E.S.R.I. 2003/4.

[14] The Canadian Classification of Diagnostic, Therapeutic, and Surgical Procedures (CCP) was originally developed by *Statistics Canada* in 1978 to meet Canadian needs for a procedural classification to be used in conjunction with ICD-9.

Disadvantages

- Not used outside of Canada as the CIHI have not yet established a licensing agreement to do so consequently.
- International comparability is questionable.

Australia

In Australia the Commonwealth Government fund both a clinical coding institute (the National Centre for Classification in Health (N.C.C.H.), which forms part of the Faculty of Health Sciences of the University of Sydney, and a D.R.G. development Unit within the Commonwealth Department of Health and Ageing, who both work in tandem to develop harmonised systems for application within the Commonwealth.

Australia has a long established and internationally respected clinical coding tradition which is overseen by the N.C.C.H.. Professor Rosemary Roberts, Director of the N.C.C.H., represents Australia at the WHO.

Originally, Australia adopted ICD-9-CM and used a HCFA Casemix Grouper (as do Ireland). However, as far back as 1992 the wish for better Casemix systems generally, resulted in the Commonwealth and the Clinical Casemix Committee of Australia (C.C.C.A.), beginning to develop their own more sophisticated Casemix Grouper (based on ICD-9-CM) known as AN-D.R.G's. Once in a position to do such work, the opportunity to move to ICD-10 became a real possibility In1997 they developed their own 'Australian Refined Diagnoses Related Groups' and in December the following year (1998), they released their 'Australian Modified' (AM) ICD-10-AM clinical coding scheme and also AR-D.R.G. version 4.1 – their first ICD-10 based Casemix Grouper.

ICD-10-AM:

ICD-10-AM is accompanied by a set of coding guidelines. The E.S.R.I. report explains that updates to ICD-10-AM are agreed and approved by the Coding Standards Advisory (CSAC) Committee that *Represents all interested parties and meets and approves any recommendations coming through from the Clinical Coding and Classification Groups (CCCG's). Updates are published in July every second year.*[15]

A detailed evaluation of the Australian system by the E.S.R.I. is available as part of their report but they have outlined the main implications of introducing this system in Ireland as follows:

Advantages

- ICD-10-AM has an integrated coding scheme for diagnosis and procedures.
- Systems are regularly updated.
- Good training systems established from N.C.C.H. and HIMAA.
- Coding books are available in English.
- There is an Australian Grouper available for Casemix Classification of data coded by ICD-10-AM.
- Good International Comparability.

Disadvantages

- There are five books for coding which may place high demands on coders.
- There are extensive coding guidelines for coders to adhere to.
- The procedure coding scheme is based on a benefits schedule and therefore may be

[15] Page 15, Updating Clinical Coding in Ireland: Options and Opportunities, E.S.R.I. 2003/4.

potentially challenging to understand and use when first introduced.

Conclusions of the review of clinical coding:
The E.S.R.I. report concluded that the systems reviewed all go someway to meeting the requirements of a new system being introduced. However, the report recommended that:

Prior to finalising any decision on the coding scheme of choice for Ireland, further consideration of the approach to procedure coding, in particular, within the ICD-10-AM system was considered advisable.[16]

Following the conclusion reached above, the E.S.R.I. conducted a pilot study to compare the application of coding in ICD-9-CM with ICD-10-AM. This study was also used to analyse the wider effects of implementing the ICD-10-AM coding scheme.

The Pilot study involved six hospitals, three from the Dublin region and three other regional hospitals. The coders were required to participate in a dual coding exercise. The data from this pilot study was then collated and evaluated and the following conclusion was reached:

Following the review of coding schemes for clinical data in use internationally, the ICD-10-AM system was found to comply with all of the factors considered important in the choice of an updated scheme for use within H.I.P.E.. The findings of the Pilot Study of ICD-10-AM also found that this coding scheme could be used successfully by coders in Irish hospitals and was found to be acceptable to these coders.[17]

Exercise 8: The Review of Casemix Groupers:

Introduction:
Many hospitals now have close to 50,000 patients admitted annually. For local managers to have a clear understanding of who these patients are, how and why they presented at hospital, the diagnoses and procedures they received, the manner in which they were discharged and an estimate of the approximate cost of treating them would be completely impossible without some form of 'case-mix' management report.

A Casemix 'Grouper' is merely a piece of software that 'Groups' a set of patients into Diagnoses Related Groups (D.R.G's) which are clinically meaningful and consume similar levels of resources. This is done through an extremely complex, detailed analysis of each record, linking it to tables of diagnoses and procedures and MDC flow-charts. In assigning a patient to a particular D.R.G. account has to be taken of:

- Diagnoses
- Procedures performed
- Sex
- Age
- Mode of admission.

Surgical hierarchies (determined by clinical panels), natural links or conflicts (age and sex), MDC assignments and a 'weight' of clinical complexity, are all to be considered before a case is assigned to any particular D.R.G. This process builds on decades of clinical and Grouper experience all based on real-life hospital patient experiences and how they were Grouped.

[16] Page 17, Updating Clinical Coding in Ireland: Options and Opportunities, E.S.R.I., Dublin, 2004
[17] Page 60, Updating Clinical Coding in Ireland: Options and Opportunities, E.S.R.I., Dublin, 2004

D.R.G. Rules:
Richard F. Averill outlines 4 basic rules for having a practical and meaningful patient classification scheme[18]:

1) The information should be limited to that routinely collected.
2) There should be a 'manageable' number of D.R.G's.
3) Each D.R.G. should contain patients with a similar pattern of resource intensity.
4) Each D.R.G. should contain patients who are similar from a clinical perspective.

Grouper Design:
Internationally Casemix teams work on reformatting their 'Groupers' to take account of changing clinical practice, local issues, national policy, local demographics, etc. There is no 'right' way, only the best way at any given point in time in a particular location, to serve a stated policy, taking account of local political, financial and management constraints. In Ireland we encapsulate these into the maxim that any H.I.P.E./Casemix policies must be *'administratively feasible and cost effective'* to implement.

Traditionally, a review of Groupers focused on technical excellence as the technical ability of Groupers has been very much in debate. However, it is not unreasonable to say now that there is no such thing as a bad Grouper – only that some are technically better than others. It is completely feasible for even small countries such as Ireland to make local adjustments to the Grouper which will increase its performance in allocating patients to appropriate D.R.G's and such work has already been undertaken and implemented[19]. Nonetheless levels of severity and responsiveness to modern clinical practice and high-cost interventions remain a serious issue. Naturally, the management issues pertaining to choosing a Grouper should now have equal priority to the technical.

A wide range of Casemix Groupers now exist around the world. Not all of them provide the option of allowing other countries to buy into their system. Neither are they all suitable for the Irish patient population, bearing in mind different epidemiological constraints pertain in every country and the differing health care systems in operation.

The Review of Groupers process: - a data driven decision making process.
The review team was the C.T.G. within the DoHC with the advice and assistance of the E.S.R.I. and appropriate international experts, including Laeta Pty Ltd (for the review of Australian Groupers). Mr Chris Aisbett of Laeta Pty Ltd has been involved in Casemix since the 1980's in Australia and worked closely with Professor George Palmer in the introduction of Casemix systems in Australia in the early 1990's.

In addition there was assistance from participating hospitals. However, in a sense it was the patients themselves and the hospitals which made the decisions, in that in Ireland all technical decisions are data-dependant – i.e. Casemix in Ireland is a Data-driven Decision-making Process – all decisions have to be made on the basis that the ruling can be applied to all hospitals within the system, and personal views or considerations alone cannot, and are not, allowed to influence the decision making process.

[18] Richard F Averill "Development – Part I The D.R.G. Patient Classification System" in D.R.G's *Their Design and Development*, ed. Robert Fetter, Health Administration Press, 1991.
[19] 97 new same-day D.R.G's created, radically reformed Daycase Grouper implemented, etc.

Groupers for review:
As already discussed a policy decision was taken at an early stage that no Grouper would be reviewed where the Clinical Coding scheme could not readily be adapted here. For example, the U.K. uses the OPCS classification system for *procedures*, while using ICD-10 for *diagnoses*, which involves a national programme to 'map' the two datasets together.

The C.T.G. in consultation with the E.S.R.I., were of the view that there must be an established link between Coding and Grouping systems as the resources and patient population in Ireland are not sufficient to support a national programme to ensure both datasets linked adequately. It was further agreed that both the Grouper and Clinical Coding schemes must be internationally accepted as 'strong' and robust and internationally 'transferable' to Ireland as we seek to benefit from international research and development in the area. This resulted in several options being discarded before the technical review commenced.

It was as a result of this process[20] that both the Nordic block Grouper and the U.K. Grouper were not included in the technical review.

The Technical Review:
The technical review of 'testing' groupers involved taking 800,000 patient records and reviewing which of eight different international systems best 'grouped' the cases. This review was one of the most comprehensive reviews ever undertaken in Ireland. It was, in effect, an international 'competition' to establish which Grouper best categorises Irish patients.

It is important to understand, at least in broad terms, the methodology used internationally to assess Casemix Groupers. The methodology, known as Reduction in Variance or known as the R^2 exercise is a scoring system to access how well patients fit into any D.R.G. i.e. the homogeneity of D.R.G's and how well the Grouper works overall. This is a standardised measurement necessary where thousands of cases, in different countries, can be measured, compared and evaluated fairly and without recourse to personal opinion or views. It is used constantly by Casemix analysts to assess improvements in their work.

Reduction in variance – R^2:
A full technical explanation of the R.I.V. exercise is at Appendix 8. However, a simplified explanation might be as follows:

> *The greater the variance between individual cases and the mean for that D.R.G., then the less accurate it is as a method of reimbursment.*

Consider, for example, a 12 bed ward (call it D.R.G. A) where 1 bed is occupied by a patient for a year, while the other 11 beds are occupied by patients with an average length-of-stay of just 3 days. Obviously the costs for that ward (D.R.G.) would be skewed by the 1 'unusual' patient. However, if a new ward (or D.R.G. B) were created for that patient (alone), then the data in relation to the other 11 beds (D.R.G. A) in the ward would become significantly more 'accurate'. So it is with the effort to ensure that D.R.G's are 'homogenous' and contain relatively similar patients. In order to be able to undertake this analysis on diverse patient datasets, the Reduction in Variance (RIV) analysis was devised. RIV analysis of the two wards/ D.R.G's above would result in a better 'score' for the two D.R.G's than the original alone

[20] See the E.S.R.I. Grouper Report in Appendix 4.

(because the cases in each would now be closer to the mean for each).

However, the only way a perfect RIV score (which is '1') would be achieved would be if a separate D.R.G. was created for each patient treated. Obviously this would completely defeat the purpose as it would be unmanageable, so the purpose of this exercise is to compromise somewhere between limitless D.R.G's and sensible separation of case-types, varying complexity and cost. Nevertheless, having an exercise such as this available means that as changes are made to a Grouper it can be 'tested' and an improving RIV score indicates that its level of fairness is increasing.

Groupers reviewed:
Eight different Groupers (or to be more precise, four different versions of one Grouper, two different versions of another, and two other Groupers) were reviewed. The choice of these particular Groupers was determined for the following reasons:

HCFA-16:
This is our present Grouper – an ICD-9 based US Medicare Grouper. Obviously valid comparison between Groupers cannot be made without also subjecting our present Grouper to the same tests as the other Groupers.

CMS-D.R.G. v.20:
This is the updated version of our present Grouper. It is also an ICD-9 based US Medicare Grouper.

IR-D.R.G. v.12:
This is the new 'International' Grouper, developed by 3M health-care. It is an ICD-9 based Grouper but designed and tested using European data in order to better reflect European clinical issues. Each D.R.G. has a third severity level (i.e. without complication, with complications and with severe complications).

AP-D.R.G. v.18:
This is known as the New York Grouper and is an ICD-9 based Grouper. The AP Grouper has been in use for decades and is well tried and tested. It is in use in some European countries and should be considered in any new review.

AR-D.R.G. v.4.0:
This is the Australian Refined D.R.G. Grouper that grouped ICD-9-CM data. It was launched in July 1998. The ICD-9 based Australian Grouper was known as a serious contender and had been used for significant funding allocation over the years. It had also performed well at previous 'trials' – its inclusion was deemed essential.

AR-D.R.G. v.4.1, 4.2 & 5.0 (ICD-10):
Version 4.1 was launched in December 1998, version 4.2 was launched in December 2000 and version 5.0 was launched in December 2002 and has 665 D.R.G's. The three ICD-10-AM based Australian Groupers released were all obvious contenders for review. All are ICD-10 Groupers and would require 'mapping' our ICD-9 data to ICD-10. While it was known that these Groupers were superior, the question was whether mapping the data would detract from the scores achieved. Mapping related issues are reviewed in some depth at Section 15 "Mapping the data from ICD-9-CM to ICD-10-AM".

So, in summary the Groupers tested were as follows:

AR-D.R.G.V4.0	Australian ICD-9	
AR-D.R.G.V4.1	Australian ICD-10	
AR-D.R.G.V4.2	Australian ICD-10	
AR-D.R.G.V5.0	Australian ICD-10	
AP-D.R.G.V18	New York ICD-9	
CMS-D.R.G.V20	US Medicare ICD-9	(Updated version of present Grouper in Ireland)
HCFA-D.R.G.V16	US Medicare ICD-9	(Present Grouper in use in Ireland)
IR-D.R.G.V12	International US ICD-9	

These were all the Groupers, internationally, that could reasonably be tested within the parameters set out as part of the review process. At no point was the needless testing of other Groupers, which did not meet the specifications set out prior to the review (the terms of reference) considered, in order to broaden the review into an academic exercise. This was not felt necessary and would have been time consuming and ineffective.

The technical review:
Data for 1999, 2000 and 2001 was made available. Over 800,000 records (patients) were analysed in the eight different Groupers under four categories of analysis and then subdivided into surgical and medical analysis. The full results of this analysis are contained in the E.S.R.I. Grouper report in the Appendices.

A technical review of groupers was not the only procedure used to determine a Grouper's suitability for its introduction in Ireland. As stated the C.T.G. has agreed to implement a system that is administratively feasible and cost effective to implement. Therefore another study was conducted to rate each Grouper under eighteen headings which were divided into three main categories as follows:

- Technical & statistical excellence,
- Administrative feasibility, and
- Management quality.

These categories were developed so that it would be possible to determine how effective each Grouper would be for grouping Irish patient data.

Each of the Groupers tested was rated under all eighteen headings with scores being allocated as follows:

- Poor – 1;
- Adequate – 2;
- Fair/acceptable – 3;
- Good – 4;
- Excellent – 5.

The results of this exercise are detailed below.

Exercise 9: Conclusions and Recommendations of the Technical Review of Casemix systems

Introduction:

At the start of this review process, it was clear to the C.T.G. when reviewing the data already on hand, that the current system in Ireland had limitations and did not adequately address many issues. Consequently, the C.T.G. commissioned new studies to look at alternative systems which could be 'adopted' and 'adapted' nationally to enhance the national programme.

These studies included:

- a review of Clinical Coding in Ireland,
- a review of Casemix Groupers.

Clinical coding:

The technical review of clinical coding (refer to exercise 7) which included a review of various systems internationally, including Canada, the United States of America, the Nordic 'Block' and Australia, concluded that the introduction of ICD-10 (the Australian version) into Ireland would be of significant benefit. It was demonstrated that the Australian Clinical coding system could be adopted in Ireland as it has the least drawbacks to its implementation and had the greatest potential for development and enhancement of the current system.

Before a final recommendation was made, a pilot study of the implementation of ICD-10-AM coding system was conducted in a selection of hospitals around the country. The pilot study concluded that the ICD-10-AM coding scheme

> *...could be used successfully by coders in Irish hospitals and was found to be acceptable to these coders.* [21]

Recommendation:

The introduction of the ICD-10-AM clinical coding scheme was recommended by the E.S.R.I. if the Australian ICD-10 based Casemix Grouper were being considered for implementation nationally.

Casemix Groupers

A technical review of Casemix Groupers (refer to Exercise 8) was also undertaken in an effort to determine which Grouper might be most appropriate for use in Irish hospitals. This review included the best Casemix Groupers available internationally, with a proven track record or the backing of internationally respected bodies. However, only Groupers already in use for the allocation of significant amounts of funding were considered.

Technical Review:

Issues reviewed included reviewing whether or not each Grouper was designed to Group both Inpatients and Daycases; whether they were compatable with the coding scheme and other issues such as being up-to-date, allowing the move to ICD-10 and whether they were reasonably representative of the Irish population.

[21] Page 96, Updating Clinical Coding in Ireland: Options and Opportunities, E.S.R.I., 2003/4.

Grouper 'Score' results:
By analysing the RIV score and examining the trimmed cases and the ability of the grouper to handle both inpatients and Daycases the final results of the technical review ranks the groupers in the following order of merit:

1st	AR-D.R.G.	Australian (all four versions of the Grouper)
2nd	IR-D.R.G.V12	International US
3rd	CMS-D.R.G.V20	US Medicare
4th	HCFA-D.R.G.V16	US Medicare
5th	AP-D.R.G.V18	New York

All versions of the Australian Grouper, both ICD-9 based and ICD-10 based (with mapped data) outperformed all other Groupers. While the ICD-9 based Australian Grouper was expected to perform well, the fact that all the ICD-10 based versions outperformed our present Grouper – even though all the data had to be mapped – speaks volumes with regard to the superiority of the system.

The 'scores' achieved for the final four Groupers reviewed were:*

1. Australian Refined (AR) 26 points
2. IR (Internationally refined) 3M Grouper 21 points
3. CMS (the most up-to-date version of our present Grouper) 19 points
4. AP (All Patient) 18 points

Table showing scoring in relation to 'Technical & statistical excellence':

Marking/Scoring system for the selection of a new Grouper

	3M IR	Australian	AP	HCFA/CMS
Technical & Statistical Excellence:				
Groups both Inpatients and Daycases	3	4	3	3
Compatibility with present coding scheme	5	3	3	5
Up-to-date	5	5	5	5
Representative of Irish Population	3	4	3	3
Option to use ICD-10	1	5	1	1
RIV Score	4	5	3	2
Total	21	26	18	19

* For the purposes of scoring the Groupers the H.C.F.A. Grouper and the C.M.S. Grouper were amalgamated. The C.M.S. Grouper was scored as this is the latest version of our present H.C.F.A. 16 Grouper.

Technical Review Recommendations:
The AR Grouper scored highest in the R^2 exercise (the most internationally accepted

methodology for reviewing how well Groupers divide patients into D.R.G's) as well as allowing us to move forward to ICD-10 in particular. Consequently, the recommendations arising out of the Technical Review were that the Australian Casemix Grouper and ICD-10 based Clinical coding Scheme were clearly the best 'technical' solution in recording and classifying Irish patients.

Management Review:
The management review then focused on the 'Administrative feasibility' and 'Management quality' issues pertinent in choosing a new system.

Administrative Feasibility:
When considering ease of purchase, ease of installation, cost, acceptability by H.I.P.E./Casemix staff, openness & transparency and language is English, the AR Grouper again scores highest as detailed below.

Management Quality:
In the review of acceptability of the design company, acceptability of vendors, support and acceptability to managers and clinicians, the AR Grouper again scored highest.

Table showing scoring in relation 'administrative feasibility and management quality':

Administrative Feasibility:	**3M IR**	**Australian**	**AP**	**HCFA/CMS**
Ease of Purchase	**5**	**5**	**5**	**5**
Ease of Installation	**5**	**5**	**4**	**5**
Cost	5	5	5	5
Acceptability by H.I.P.E./Casemix Staff	4	5	2	3
Openness & Transparency	3	5	4	2
Language is English	5	5	5	5
Sub-Total	**27**	**30**	**25**	**25**
Management Quality				
Acceptability of "design" company	4	5	4	4
Acceptability of vendors (government or private)	3	5	4	3
Short-term support	2	5	1	2
Long-term support	1	5	1	1
Acceptability to managers	3	5	3	3
Acceptability to clinicians	3	5	3	2
Sub-Total	**16**	**30**	**16**	**15**
Total	**43**	**60**	**41**	**40**

The key issues here were: being a government sponsored system, both short and long-term support, and acceptability to managers and clinicians (who would place a high priority on clinical excellence, being up-to-date and openness and transparency in how decisions are made in the design process).

Administrative feasibility Review Recommendations:
The recommendations from this part of the review were obviously that the Australian system was outperforming the other groupers and is administratively feasible to implement and would be accepted by all types of managers as being a quality product. The C.T.G. could not but recommend the proposal.

Conclusion:

It was clear from the reviews above that the Australian System outperforms all others and would be the best system to recommend for introduction to Ireland. The review then went on to consider whether this system could meet the '12 Tests' set down at the start of the review process.

Section 7: Evaluating the Proposed Solutions

Exercise 10: Detailed review by the C.T.G. of the 12 Tests for choosing a new system:

Introduction:
The 12 tests that any new Grouper should meet before being adopted for use in Ireland were identified by the C.T.G. as follows:

1. A Government sponsored system.
2. Already in use for a significant level of funding.
3. Integrated with a Clinical Coding scheme.
4. Uses English.
5. Allows the move to ICD-10 in the medium-term.
6. Is open, transparent, inclusive and regularly updated.
7. Can be adapted for use in Ireland.
8. Does not require significant resources to develop, install and maintain.
9. Produces internationally comparable data and is not unduly 'localised'.
10. Allows us to 'buy-into' the system.
11. Has local expertise available for contract to us.
12. There is a long-term commitment to the ongoing development of the system.

The Australian system meets all 12 criteria set out in advance as being desirable in any new system. Each issue is considered in turn.

A Government sponsored system:
It warrants re-stating that the C.T.G. was of the view that one of the most important issues for consideration in this part of the review was having a system which was a Government sponsored one. While many technical shortcomings in a Casemix system can be overcome, this cannot. Again, this comes back to the view of the C.T.G. that many Casemix 'reviews' lay too much emphasis on the 'technical' and not enough on the 'management'. The needs of those at Top Level Management are different to those engrossed in the 'number crunching'. Managers at this level cannot devote sufficient time to learning the intricacies of such a

complex system as a D.R.G. Grouper – they need to know if it works, how it works (simply), is it reliable, is it up-to-date, is it flexible, will it still be there in at least seven years time?

The C.T.G. considered the Australian system being a Government sponsored system provides Ireland with a commitment to its development. That commitment of the Commonwealth of Australia is emphasized with the signing of a new 5 year plan which ensures the continued progression of the system. With the system being licensed to other countries (e.g. Germany, New Zealand, Singapore) the continued development of the system is assured.

Already in use for a significant level of funding
The C.T.G. also considered that the fact that the system is being used in the state of Victoria for 100% funding further enhances the dependability of the system. Victoria has long led the drive towards Casemix development in Australia and many enhancements to the system have been derived from their initiatives. Any 'country/state' wishing to fund at 100% (or as near as makes no difference) have to have an extremely robust system and be willing and able to adapt that system annually to hospital and government needs.

Integrated with a Clinical Coding scheme
Having both the agency responsible for clinical coding and the agency responsible for the development of the Casemix Grouper coming under the one 'umbrella' on the Commonwealth is absolutely crucial. The only alternative is significant investment in development infrastructure. The 'new' system is a fully integrated one.

Uses English
When dealing with such a technical topic, clarity is paramount, as is the facility to receive technical manuals in English (written by those for whom English is their first language).

Allows the move to ICD-10 in the medium-term
The Australians have already made this move. Ireland will commence coding in ICD-10-AM (4th edition) for H.I.P.E. discharges on or after 1/1/2005.

Is open, transparent, inclusive and regularly updated
Again the C.T.G. consider this issue alone almost enough to warrant them recommending the Australian system. The Australians provide ready access to their websites, and their literature, including papers on the decision making process – this allows us to review such decision from a local perspective and consider whether different solutions are more applicable here. As you may be aware from developments in recent years (such as the Casemix conference, the Peer Group package, the review of Daycases, etc.) the C.T.G. is fully committed to openness and transparency.

Can be adapted for use in Ireland
This process has already begun. The similarities in systems are striking. Transferability of skills and knowledge between Australia and Ireland is not an issue.

Does not require significant resources to develop, install and maintain
Adapting the Australian system into Ireland will be relatively inexpensive and will not involve hospitals in undue administration.

Produces internationally comparable data and is not unduly 'localised'
Our data will be easily comparable with our international colleagues and our 'new' D.R.G's will be easily understood.

Allows us to 'buy-into' the system
The Commonwealth have welcomed other countries into their 'Casemix family'. This is not necessarily the case in many other countries, which have no particular interest in 'sharing' their systems.

Has local expertise available for contract to us
This is one of the key benefits of the Australian system in that there is a wealth of experts able and willing to provide technical assistance to us. This assistance can be characterised as 'local' rather than international with consequent benefits in pricing and the willingness to share knowledge.

There is a long-term commitment to the ongoing development of the system
The Commonwealth of Australia has 'signed-up' to another five years of programme development. The indications are that Casemix, as a concept, will continue to be 'rolled-out' in some form (varying between States and Territories) for the foreseeable future. They are agreed that this is the best system available.

Exercise 11: Detailed review of the (13 main) Issues to be addressed:

As detailed previously, the matters that were raised in submissions, data already on hand, Grouper issues and coding matters can be summarised into 13 main issues that need to be addressed as part of any modernisation proposals.

Having now decided that the Australian Grouper and coding scheme are the most administratively feasible and technically excellent, it is now necessary to show how the system will answer the 13 main issues requiring to be addressed.

Issue No 1: The Daycase budget model:

The issue surrounding Daycases is well discussed both earlier in this report and in previous reports.

C.T.G. Response:
The manner in which Daycases are handled within Casemix is a long-standing issue for debate. A review of international best-practice in this area revealed, unfortunately, that most other countries had the same difficulties identifying cases most appropriate to the Daycase setting; the difficulty preventing outpatient cases being treated in a Daycase setting; how to encourage Day-work while not penalising hospitals for a physical lack of infrastructure; how to define 'admitted', 'ambulatory', 'emergency' etc. It was accepted that the whole area needed urgent review.

Following one of the most extensive consultations ever undertaken by the C.T.G. and taking into account the findings of the E.S.R.I. Report on the matter, a complete overhaul of the Daycase Model was undertaken (see separate Daycase Report). Rather than waiting for the publication of this final report the revised model was implemented immediately as part of the 2003 Budget run. However, the work of updating the Model is not complete. The completion of a Daycase Register has now been finalised this year, and the Register will be reviewed and updated each year. This will bring much greater clarity and accuracy to Daycase clinical coding and costing and replace the old 'Inclusion' and 'Exclusion' lists with greater clinical and management autonomy.

However, even this is not enough. The C.T.G. proposes (in 2005)'testing' Daycases within the new Australian Grouper to see if it can be adopted and adapted to 'handle' all cases – inpatients, same-day emergency inpatients/daycases, and elective daycases and to reimburse each case in relation to its treatment setting. This should provide a much more fair and accurate reflection of activity and costs within hospitals. This matter will be explored further next year.

All issues raised as part of the audit of Daycases have been, or are being, addressed as part of the complete re-modelling of the Daycase Budget system.

Issue No 2: Catastrophic Levels of Severity:
The lack of sufficient severity levels to adequately reflect clinical and financial complexity is acknowledged.

C.T.G. Response:
The C.T.G. along with international experts has for some time wished to address the lack of sufficient severity levels in our present system. It is accepted that the American Health Care Financing Authority was unable to address this issue due to local American issues.

The Commonwealth Government of Australia sought to develop their own systems and further develop Casemix. The new AR Grouper provides 4 levels of severity, ranging from none to catastrophic. This issue is outlined in further detail in Part 4.

Issue No 3: Obstetrics & neonates:
The lack of adequate neonatal D.R.G's has been a significant obstacle to progress with regard to hospitals where such cases present nationally.

New protocols in the management and treatment of obstetrics cases, including Midwife led teams, home-birth services, walk-in clinics, etc.; all impinge on the ability of the Casemix system to adequately reflect differing practice nationally.

C.T.G. Response:
The C.T.G. is working with the maternity hospitals and maternity units in the larger acute hospitals, to agree new methodologies to adequately reflect activity and costs in such cases. This remains a 'live' issue.

Regarding neonates, the C.T.G. is delighted to confirm that the new Grouper provides 26 new D.R.G's, many of them at the highest level of severity (and reimbursement), to now handle such cases. Section 4 details this and this should serve to deal with many of the issues raised.

Issue No 4: Paediatrics:
Stand alone paediatric hospitals have traditionally raised concerns as to whether Casemix adequately reimbursed for their workload. In fact, how paediatrics is handled within Casemix has been a matter of debate since the inception of Casemix itself. This debate was in part fuelled by the original U.S Casemix work that used adult cases for the basis of developing their Groupers. However, as time moved on Casemix developers strove (successfully) to incorporate adequate responses to these issues within their Groupers.

The issue of age splits generated substantial debate. While clinicians sought to have age splits

at 14, 16 or 18 within the Groupers, the 'young chronic sick' lived longer, passing these original watersheds and living into adulthood and negating earlier age-splits.

Paediatric hospitals continue to maintain that their treatment protocols are different (and consequently their costs) and have sought to be compensated accordingly.

C.T.G. Response:
For Paediatrics the issue of age splits has often been top of the agenda. With the introduction of the new Australian Grouper this issue has been generally addressed. Age splits have been removed and have now been replaced by severity levels on the basis that it is the cost of treating the child – the severity – that is the issue, not the age.

However, having done so, the argument shifted towards issues such as differing levels of anaesthetic care being required for paediatric cases versus adults, referral patterns, etc. The C.T.G. is aware that there is a tendency to 'treat beyond prognosis' in paediatric cases (i.e. it is not acceptable to allow a child to die, even if the treatment protocols would suggest such a course of action), so care continues, regardless of cost.

Does this mean going back to paediatric only D.R.G's, or funding paediatric hospitals separately, or funding tertiary referral paediatric hospitals or activity separately? What of the well established fact that the same activity in teaching hospitals tends to be more expensive than non-teaching? Is this valid and should it be funded accordingly? Will this and can this be accepted at a national level in funding policy?

The C.T.G. will continue to review paediatrics and is seeking involvement from national experts to contribute to a National Casemix Clinical Panel to review this matter, amongst others. Consultation with our colleagues in the NHS who have undertaken detailed work in this area will also have to take place. Meaningful participation and active involvement from paediatric hospitals themselves will be sought. Those responsible for funding such hospitals will also have to become involved in this debate and be mindful and knowledgeable of these issues.

Note: Orthopaedics:
Issues such as limb lengthening now have their own D.R.G. under the new scheme - this had been raised as an issue by some paediatric hospitals.

Regarding orthopaedics in general, revision of hips now has a separate D.R.G. and the Relative Value for many orthopaedic D.R.G's has now risen considerably. The result is greater specificity and more accurate and realistic reimbursment.

Issue No 5: Irish cost weights:
It is agreed that Ireland must move away from weights devised elsewhere and must commence an Irish Cost Weights Programme, particularly as blend-rates increase.

C.T.G. Response:
The C.T.G. has engaged international cost-weights experts from Australia who contribute nationally to the production of cost-weights for the State of New South Wales and the State of Victoria. An international collaboration between New Zealand, Victoria and Ireland has already begun. This is required to study Irish cost data in light of detailed patient level cost data collected in Australia and New Zealand. It is also required so that cost data

collected here may be adapted based on the study of the patient level experience in Australia and New Zealand. Technical papers on the matter were presented at the International Casemix Working Conference in Budapest in October, for international peer-group review.

The C.T.G. is also using this opportunity to consider how best an Irish Cost-weights Study might be commenced, with the assistance of certain key/lead hospitals here. This issue is being addressed, and will continue to be addressed in order that we have a fair and accurate reflection of costs at hospital level.

Issue No 6: Lack of Demarcation between A&E/OPD/Daycases & Inpatients:

Clinical practice in Ireland, the lack of stand-alone Day Hospitals, etc., make the need to review this area crucial. The advent and proliferation of new Medical Assessment Units of differing form nationally, also contribute to increasing the urgency for review.

C.T.G. Response:

Casemix must ensure that there is fair and accurate comparison of activity and costs nationally. Consequently, this is why the C.T.G. has agreed that recording the 'place' of treatment is critical (via a 'Ward Indicator' on H.I.P.E.).

A decision has to be taken as to which issue takes precedence – recording clinical activity or linking only auditable data in Casemix. As Casemix is not a national clinical policy, but merely seeks to ensure that hospitals are reimbursed for the patients they treat, then the needs of Casemix linking auditable data must take precedence, in order that hospitals are not financially disadvantaged.

However, this is not an issue that can be explicitly dealt with by the new system. It is essentially a hospital issue which needs further analysis.

Issue No 7: Hospital 'Groupings':

The national programme must be fair. Hospitals, especially those who are losing funding, wish to be in the best position to maximise their performance.

C.T.G. Response:

This is the one area which did not (yet) yield satisfactory answers to complex questions. It is also the only area where review of international best-practice did not assist. Some international study in this area suggests that the identification of particular cases within H.I.P.E. as being either 'teaching' or not be used to reimburse hospitals. However, international experience also shows that teaching hospitals are more expensive for the less complex cases which many less specialised hospitals 'process' with great capability.

The question arises as to whether or not it is fair to penalise teaching hospitals accordingly? Should they be treating such cases – do they have any choice? These are issues that are currently being asked by the Hanley Report. Again, it is stressed that Casemix is not a national health policy and this matter will have to be debated further nationally. In the meantime, the C.T.G. can only assure management that account of each hospital's submissions in the matter will be taken and will apply the same national policy to all.

Note: Recently the C.T.G. undertook a review of this whole area. The review focused on the complexity of cases treated; the numbers of specialties within hospitals and the number that were above the national mean and the value of those CMI's; the number of Daycases and Inpatients treated and the ratio of one to the other and the CMI of Daycases and Inpatients. This confirmed the general acceptability of the original logic of hospital Groupings. However, it did not answer the question as to how to deal with the new breed of hospitals existing between Group 1 and Group 2. The inclusion of the stand-alone Dublin Maternity hospitals and the proposed inclusion of the Dublin Paediatric hospitals adds further to the debate.

Issue No 8: Urban & rural differences:
There are no real 'urban – rural' differences in Ireland, when compared internationally. However, hospitals wish to ensure that infrastructural, demographic and clinical protocols do not mitigate against them.

C.T.G. Response:
The C.T.G. concluded that, in Ireland, there is not a need for a national 'urban/rural' Casemix policy as issues raised tend to be hospital specific. What is required is to address each issue as it arises. These may be categorised broadly into 'national' issues and 'hospital specific' issues.

National policy:

- **Pressure on A&E:**

There is presently no Casemix policy specifically relating to A&E. However, it is the intention to bring A&E within Casemix this year (2005 budget allocation) at a very low blend-rate of just 1% initially (in an effort to include all patient encounters with the hospital in the system for better and fairer data). Full account will be taken of the fact that hospitals have to maintain A&E facilities regardless of throughput, and regard will be taken of international best practice in this area. As many patients are admitted through A&E, this will provide much stronger and accurate data.

It should be understood that admissions through A&E do not have a bearing on Casemix outturns, as the complexity of cases admitted as emergencies is fully taken into account.

- **Lack of step-down facilities:**

The C.T.G. has reviewed and updated their policy on this area several times over the last few years. Hospitals are now fully compensated within Casemix, under what is termed 'equivalencing[22]'. This policy allows the full care cost for patients, regardless of length-of-stay (even if years). It is the East Coast which benefits principally from this policy as they are fully compensated for the long stay patients they may have in hospital as a result of a lack of step-down facilities.

Hospital specific issues:

- **Discharge implications of 'long-distance' patients:**

It is known that in some rural hospitals patients may have travelled up to 50 miles to be admitted. The possibility of discharging such patients at short notice is limited by geography. Many patients, in these circumstances will be 'held' longer than necessary.

[22] 1 case may become 'equivalent' to many.

The C.T.G. has addressed this issue through 'equivalencing'.

- **Lack of funding for 'lower clinical profile' rural hospitals:**
  While this may be a service delivery issue for hospital management, such hospitals normally benefit within Casemix from their low cost base. One of the cornerstones of Irish Casemix policy is to redirect funding, and realign budgets, from their historical levels to a payment by results basis.

Issue No 9: Inter hospital transfers of complex cases:
There is concern that the Casemix system does not reimburse appropriately for inter hospital transfers. Very often the case will fall into the same D.R.G. for the transferring hospital as it does for the tertiary hospital.

Any new Grouper must be able to differentiate between cases admitted for stabilisation and ongoing tertiary referral. Ideally, the procedures administered would result in such cases falling into different (higher value) D.R.G's.

C.T.G. Response:
Initially, such cases referred to above did indeed fall into the same D.R.G's. At that time the C.T.G. sought to use 'equivalencing' policy and also the 'outlier' policy (the agreed payment rates that apply to non-standard cases) to compensate for such cases. However, there were cases in which these policies did not adequately address the issue of the high costs involved.

Over the past three years the C.T.G. has steadily revised their national policies on such cases to better reflect the issues involved. For example, the 'long-stay' in the tertiary referral centre was better funded, while the short stay in the referring hospital was reduced. Also, tertiary hospitals could submit claims under the 'National Specialty Deduction' process for such cases, and generally agreement was secured between the hospitals and the C.T.G. However, both sides would agree that the solution was far from ideal.

The introduction of the 'new' AR Grouper, with its four severity levels, will deal comprehensively with this issue. Also, the introduction of over one hundred new D.R.G's, many for specific illnesses, will categorise such cases separately, allowing all sides to 'see' such cases clearly, and agree appropriate reimbursement rates. The new Cost Weights programme will take the Australian 'relativities' and apply them to Irish cases, allowing us to 'gross-up' payment rates for higher severity cases. In the new system the case which is admitted to the first hospital will fall into a separate, lower D.R.G., and the case referred to the tertiary hospitals will fall into a higher, more complex, D.R.G..

New D.R.G's which will benefit hospitals in this area are: Craniotomy with catastrophic complication, spinal injuries with catastrophic complication, etc.

It has also been noted that some rural hospitals are admitting and 'holding' patients untreated, while they await their 'slot' in Dublin and this does impact on their Casemix outturns.

There is also an issue surrounding the 'double-crediting' of patients. Double crediting occurs where a patient is admitted into a rural hospital, then transferred to a specialist centre in Dublin and then transferred back to the same hospital. As a result the patient is

classified within the same D.R.G. once in Dublin and twice in the rural hospital. With the new system the following will generally apply: the cases in the rural hospital should fall into less complex D.R.G's, and with equivalencing (their ALOS will be shorter than the national norm), the amount 'payable' will be reduced. The cases in the Dublin hospital should fall into a higher Clinical Complexity Level D.R.G. (with an appropriately higher payment) and should also benefit from equivalencing.

Issue No 10: National specialty activity:
The significant clinical complexity and cost associated with national specialty/national centre of excellence work is of great importance to the hospitals involved.

C.T.G. Response:
The C.T.G can confirm that the new AR Grouper provides extra D.R.G's required for most of such cases. These extra DRGs are outlined in detail in Part 4. The C.T.G. is hopeful that the new Grouper will eliminate the great majority of cases presently having to be reviewed within this area.

However, issues such as a small number of 'unique' high-cost patients not covered by normal D.R.G's will always have to be reviewed each year.

Issue No 11: Time lag in reflecting modern clinical practice:
Everyone involved in Casemix has highlighted the importance of the system being able to quickly respond to changes in clinical practice, and their associated costs. There are two key issues:

- Inability to code in ICD-10 and
- Having a Grouper that has a time-lag vis-à-vis clinical practice

C.T.G. Response – both issues – general comment:
The C.T.G. is delighted to announce that the changeover to the Australian system will give us a system that is up-to-date and will remain so.

In Australia it is the C.C.C.A. which provides clinical advice on classification issues and other Casemix issues to the Government. The C.C.C.A. has established 23 Clinical Classification and Coding Groups. Any clinical matters regarding Casemix are referred to these groups and they assess clinical issues raised. Therefore Clinicians can be assured that the Australian system is not just one of the most clinically up-to-date systems available, but a system that is 'live' (i.e. being constantly updated) and the only time-lag is that which is introduced in order to make it 'administratively feasible' to implement.

Victoria proactively modify their D.R.G's and costs weights in advance of updates by the Commonwealth (often 2 years later) in an effort to remove time lags completely.

However, it is the intention of the C.T.G. to deal with issues immediately as they arise and allow appropriate national H.I.P.E. & Casemix personnel (including a clinical panel) to input directly and annually into the process.

ICD-10: The C.T.G. Response:
The C.T.G. is finally in a position to respond to this criticism by permitting the E.S.R.I. to introduce ICD-10-AM with effect from 1 January 2005.

The new clinical coding scheme being introduced is updated by the NCCH every two years. The clinical coding system is linked directly to the Casemix Grouper, with the same national organisation (the Commonwealth of Australia) being responsible for both organisations and issues.

Casemix Grouper: The C.T.G. Response:
The C.T.G. is now actively working to adapt and adopt the AR Grouper for the December 2004 budget run. A new release of the Grouper is issued every two years and changes will be debated at our national Casemix Conference accordingly.

Issue No 12: Audit & Training:
Areas for review include:

- H.I.P.E.
- Casemix and
- Specialty costs.

H.I.P.E.:
The Casemix system aims to be open, transparent and fair. Many felt that an independent audit by someone outside the present system, or even Ireland, would be desirable.

C.T.G. Response:
The C.T.G. can confirm that a completely independent review of the training programmes and data quality initiatives in the national H.I.P.E. programme has been under taken by Ms Michelle Bramley, a Lecturer of the School of Health Management, University of Sydney. Ms Bramley has extensive knowledge of coding systems as she was previously employed by the National Centre for Classification in Health in Sydney for eight years. She was assisted in her work by Professor Beth Reid, Chair of Health Information Management at the School of Health Management.

This review was undertaken with the purpose of evaluating the audit, data quality and coding training procedures in place in Ireland. It also evaluated the production of coding guidelines and their application. The final report is included in Appendix 2, with the conclusions and recommendations at Section 14 – 'Strengthening the national structures'. A significant expansion of the present H.I.P.E. training programme is envisaged.

Casemix:
Linked to the H.I.P.E. audit issues above, the need for training for H.I.P.E./Casemix Coordinators nationally has been raised.

C.T.G. Response:
All Casemix hospitals in particular need to have a better linkage between H.I.P.E./Specialty Costs/Clinical Input and Management Input into their Casemix programme.
This C.T.G. is agreed that more needs to be done to bring this about and an action plan is being drawn up for immediate implementation.

Specialty Costs:
This extremely important and difficult area grows in importance each year as blend-rates increase. The need for both the department and individual hospitals to address the issue of more / better training is also an ongoing matter of concern.

C.T.G. Response:

The C.T.G. is agreed that more needs to be done and an action plan is being drawn up – see Section 14 – 'Strengthening the national structures.

Issue No 13: Clinical involvement:

Clinical support for Casemix is vitally important for the system's development. However the C.T.G. is aware of the problems hospitals face in trying to obtain clinical support for Casemix.

C.T.G. Response:

The need for 'Clinicians in Management' is well known. The doubling of consultant numbers over the long-term will help this process. We are aware that the Brennan proposals to designate consultants as 'units of accountability' would have profound implications for everyone involved.

The C.T.G. is agreed that more needs to be done and an action plan is being drawn up – see Section 14 – 'Strengthening the national structures'.

Section 8: Conclusions and Recommendations of Management Review

Introduction:

Internationally, Casemix system reviews have tended to focus on the 'technical' competence of programmes, rather than on the 'managerial' issues. The C.T.G. has termed this 'managerial' aspect as the 'administrative feasibility' consideration. Our approach is that any system must be capable of being understood by local managers and not cause undue disruption to implement regardless of technical excellence.

Summary of conclusion to date:

Previous sections of this report have shown that the AR Grouper and ICD-10-AM are the best technical solutions nationally (exercise 9). When reviewing the 12 'tests' which any new system should meet from an 'administrative feasibility' and 'management quality' perspective, the Australian system was also demonstrably best (exercise 10).

The next part of the management review was to consider the thirteen main issues which were identified as requiring to be addressed nationally (exercise 11), and considering whether the Grouper chosen (AR) could provide solutions to the problems identified as important to address in the modernisation process, the C.T.G. concluded that, with the new system and with the enhancements to the national programme which would have to go hand-in-hand with the adoption of the Australian system, they would be in a position to address most of the issues raised immediately, and the remaining in the short to medium term.

Conclusion:

Adopting and adapting the Australian system provides great benefits to all the stakeholders (the Department of Health and Children, the E.S.R.I., Health Boards and the hospitals). In addition, the cost of 'buying into' the Australian system is small when compared to the cost of developing such a system ourselves. All stakeholders will also benefit from the expertise of those who work in this area in Australia. Already various Australian Casemix experts have been retained by the Department to offer 'technical' advice; 'map' the data from ICD-9 to ICD-10; advise on how best we might 'adapt' the Australian system to be an 'Irish system for Irish patients'; review cost weights, etc. Various small consulting firms in Australia are already offering their services to assist in any way possible.

Submission to MAC & the Minister:
Having reached the conclusion that the system could be enhanced and would result in a system robust enough to be 'rolled-out' to become a 'central pillar' in acute funding policy, the C.T.G. submitted their conclusions and recommendations to the Management Advisory Committee to the Secretary General and Michéal Martin T.D. (former) Minister for Health and Children.

Recommendations:
The main recommendations of the review were as follows:

- The adoption of the Australian Casemix system as being the best for Irish patients while also being one of the most open, transparent, Government sponsored systems internationally.
- Developing links with the State of Victoria in Australia who use Casemix for all acute sector funding and who have similar demographics to us.
- Moving to ICD-10-AM which will provide an up-to-date in clinical coding classification.
- Adapting the 'system' so that it is an 'Irish' system for Irish patients.
- The incremental expansion of the national Casemix programme to all acute hospitals, and all areas of acute hospitals.
- The development of strategies for the funding of sub-acute and non-acute activity via Casemix.
- The incremental expansion of 'blend-rates' to 50% at a minimum.
- Strengthening of the national Casemix structures and management team and support for hospitals in implementing H.I.P.E. and Casemix.

These recommendations were accepted.

Casemix Conference:
In his foreword to the Proceedings of the 2004 Casemix Conference held in Kilkenny, Minister Martin stated:

"It is agreed that in an era of evidence based medicine, we must also have evidence based management. The Health Strategy 'Quality and Fairness' committed us to the development of Casemix when it stated:

Performance measurement and transparent, evidence-based allocations are essential. The most developed system for assessing comparative efficiency and for creating incentives for good performance is Casemix.

When the Strategy was published, a very extensive 'Root-and-branch' review of the entire Casemix system had already commenced and included direct consultation with all the stakeholders. This review process is now finalised. Information days on the review will be held around the country.

I am pleased to inform you that I have accepted these recommendations and my Department is committed to their implementation.

The modernisation process will address all the issues you have raised ... and when (it is) completed, Ireland will have a truly world-class Casemix system. The patients deserve it. You deserve it. The clinicians deserve it. The tax-payer deserves it."

PART 4

The 'new' system being introduced

Section 9 - An introduction to health systems in Victoria & Australia generally

Section 10 - Comparative data Ireland/Australia/Victoria

Section 11 - Benefits of ICD-10-AM

Section 12 - Benefits of the new AR-D.R.G. Casemix Grouper

Section 13 - New D.R.G's now available

Section 9: An Introduction to Health Systems in Victoria and Australia Generally

Introduction:

Australia comprises eight states and two territories. Each state and territory has significant independence with regard to laws and government. However, a Health Care Agreement exists relating to public hospitals and whereby approximately half the cost of running such hospitals is met by the Commonwealth (from national taxes).

Australian hospital services:

Hospital services in Australia are provided by public hospitals (about 75% of hospitals, two-thirds of separations (discharges) and private hospitals (the balance). Australians use about one bed day per person per year with an admission rate of about 300 admissions per thousand population per annum. Provision rates for public hospitals have declined significantly (by 40%) over the last 20 years but separation (discharge) rates have increased. Average length-of-stay for overnight patients has been stable but, because the proportion of same day patients has increased dramatically, overall length-of-stay has declined from around seven days in the mid 1980s to around four days in the late 1990s. Overall, the Commonwealth and state governments each meet about half the costs of public hospital care, private health insurance meets about two-thirds of the costs of private hospitals.

Australian Health Review 2002[23]

The Commonwealth Government

The Department of Health in Australia was established in 1921. Since then it has undergone numerous changes in function, name and structure. It is now known as the Department of Health and Ageing. The Department develops the broad national policies on health, sets out regulations and provide some funding. However, it is the role of the State, territory and local government to deliver and manage public health services and maintain direct relationships with healthcare providers.

The Australian Government operates three major national subsidy schemes:

- Medicare,
- Pharmaceutical Benefits Schedule,
- 30% Private Health Insurance Rebate.

Medicare is the universal health care system introduced in Australia in 1984. Under this system the Australian and State Governments jointly fund public hospital services. Medicare was established to provide entitled Australian residents with affordable, accessible and high quality healthcare. Medicare provides access to free treatment as a public patient in a public hospital.

The Pharmaceutical Benefits Schedules provides Australian residents to access to affordable medicines. The Health insurance rebate is an initiative introduced by the Government to encourage the uptake of private health insurance.

[23] Australian hospital services – An overview, S.J. Duckett in Australian Health Review – Funding of Hospitals in Australia – Vol 25 No 1 2002, Journal of the Australian Healthcare Association.

There is a mixture of both public and private sector health service providers in the Australian health system.

In 2002-2003 there were 748 public hospitals in Australia of which 728 were public acute hospitals whilst 21 were public psychiatric hospitals. There were 549 private hospitals of which 248 were Private Free-Standing Day hospitals facilities and 301 were Other Private Hospitals.

The average length of stay (excluding same-days) for 2002-03 for all hospitals was 6.5 days.

Private Health Insurance

All Australians have the right to choose if they wish to receive free public healthcare or if they wish to have private health insurance which provides them with a choice of doctor and other benefits.

The 30% Private Health Insurance Rebate initiative by the government is aimed at supporting people's choices to take up private health insurance and retain it.

There are two different types of private healthcare insurance:

- Hospital Insurance Cover: Covers all or some of the costs of hospital treatment.
- Ancillary Cover: Helps to cover the cost of services such as physiotherapy, dental and optical.

Some policies will provide packages that cover both areas.

The Private health insurance industry recently went under major changes with the introduction of the Lifetime Cover initiative. The government introduced this in July 2000. It was designed to encourage people to take up private health insurance early on in life. By the end of June 2004 the number of Australians that had private health insurance was 8.6 million or 42.9% of the population.

Hospital Services in Victoria

Victoria is the second most populous state in Australia and its capital is Melbourne (to put this in context note that, although it is the second most populous state it is approximately four times the size of Ireland but with more or less the same population)[24]. Health Services in Victoria are directed by the Victorian Department of Human Services.

The provision of health services in Victoria is legislated for under the 1988 Health Services Act. However, Public hospital services in Melbourne are legislated for differently than the rural and regional services in Victoria.

In July 2000, 12 Metropolitan Health Services were established in Melbourne to govern the public hospitals. Public hospitals in rural and regional Victoria are included under section 31 of 1988 Health Services Act. The act determines that the boards must consist of 6 to 12 people appointed by the Governor in Council.

[24] State of Victoria is 227, 420km².

Section 10: Comparative data Ireland/Australia/Victoria

This section outlines some comparative data between Ireland, Australia and Victoria. As previously stated Victoria and Ireland have very similar characteristics.

Population:
The populations of both countries/states are extraordinarily similar as can be seen below:

	Victoria 2000/01	Ireland 2000
Public Hospitals		
Number of Hospitals	**144**	**60**
Number of Beds	**12,137**	**12,612**
Utilisation		
Number of Inpatient Discharges in Public Hospitals	**499,918**	**552,093**
Number of Sameday Discharges in Public Hospitals	**528,718**	**324,245**
Total Number of Discharges in Public Hospitals	**1,028,636**	**876,338**
Sameday Discharges as % of Total Discharges	**51%**	**37%**
Average Length of Stay in Public Hospital in Days	**3.8**	**4.5**
Average Length of Stay in Public Hospital excluding Same day Discharges in Days	**6.7**	**6.7**
Private Health Insurance		
% of Population with Private Health Insurance	**45%**	**50%**

Source: Irish Central Statistics Office website and Australian Bureau of Statistics website.

Land Mass:
Victoria has a land mass of 227,402Km^2 while the Republic of Ireland has a mass of approximately 72,000Km^2.

Utilisation:
It is also useful to look at the comparative statistics for the health services in both Ireland and Victoria.

The following table outlines the provision of hospitals, utilisation of hospital services and the private health insurance coverage based on 2000-2001 data. As can be seen the two are broadly similar.

The first point of note is that Ireland has bigger hospitals, while Victoria has more hospitals with fewer beds – probably due to the lower population density.

The second key feature is that the 'Daycase' rate of treatment is higher in Victoria (51% vs. 37%), resulting in over 150,000 extra patients being treated (for the same number of bed days). This will warrant closer study in the future. However, lack of infrastructural investment

in the past, and the lack of any 'free-standing' Day-hospitals in Ireland is obviously a significant factor – especially if one considers that some of our major teaching hospitals now treat more patients on a day-case basis than as inpatients.

Private healthcare:
However the area of Private healthcare provision is one that Ireland, Victoria and Australia generally differ on.

The provision of private hospitals in Ireland is very small in comparison to Australia. In Ireland the state does not, presently, provide funding for private hospitals (although certain tax incentives towards the capital cost of developing private hospitals is now provided). However private beds are available in public hospitals (about 20% of the total) and the implications of this are a matter of some debate nationally.

If a patient avails of a private bed in a public hospital, the patient must pay for both maintenance and treatment.

There are approximately 32 private hospitals and treatment centres in Ireland.[25] Victoria however has a large number of private hospitals and private day hospitals as shown below. The number of private hospitals in Victoria in 2002/03 is as follows:

Type of Hospital/Facility	Number of Hospitals/Facility
Private free-standing day facilities	52
Other private hospitals	88
Total Private Hospitals	**130**

Source: AIHW, Australian Hospital Statistics 2002-2003.

This may explain why Australian has a much higher percentage of Sameday cases as a percentage of total discharges than Ireland.

OECD data:
Other comparative data of interest is that compiled by the OECD as shown in the tables below. Points of interest include:

- Table 1: From a very similar base in the period 1992-1997 (3.8% in Australia and 4.8% in Ireland), Ireland had a major increase in total health expenditure and public health expenditure from 1997 onwards (9.8% vs. 4.4%), combined with a GDP increase that was far in excess of that of Australia for the entire period from 1992-2002 (6.8% vs. 2.9% and 7.1% vs. 2.6%)
- Chart 1: Health expenditure as a percentage of GDP is higher in Australia (9.1 vs. 7.3), most likely due to the stronger economy in Ireland as health expenditure per capita in US$PPP (Chart 3) shows Ireland and Australia side-by-side.
- Similarly, the number of practicing physicians is almost exactly the same at 2.5 and 2.4 per 1,000 of population.

[25] This is the number of private hospitals and Treatment Centres that Participate in the VHI and BUPA Health Insurance Schemes (including private hospitals on the same site as public hospitals) – figures are a guide only.

Table 1: Annual average growth rates of total and public health expenditure and GDP, 1992-2002

	Total health expenditure		Public health expenditure		GDP	
	1992-1997	1997-2002	1992-1997	1997-2002	1992-1997	1997-2002
Australia	**3.8**	**4.4**	**4.3**	**4.6**	**2.9**	**2.6**
Austria	1.5	2.5	0.5	2.5	1.3	2.2
Belgium	3.1	3.0	-	3.4	1.6	1.8
Canada	-0.3	4.7	-1.4	4.6	2.0	3.1
Czech Republic	8.0	2.7	7.1	2.6	2.3	1.7
Denmark	1.7	3.2	1.5	3.4	2.3	1.8
Finland	-1.6	3.2	-2.5	3.0	2.8	3.1
France	1.5	3.1	1.4	3.1	0.8	2.3
Germany	2.2	1.8	1.8	1.7	0.7	1.5
Greece	5.0	3.8	4.4	3.8	1.3	3.6
Hungary	0.1	6.9	-1.5	3.8	2.1	4.6
Iceland	1.7	6.3	1.4	6.4	2.2	2.3
Ireland	**4.8**	**9.8**	**5.7**	**9.9**	**6.8**	**7.1**
Italy	-0.4	3.4	-1.7	4.4	1.2	1.5
Japan	3.6	3.5	4.5	3.5	1.4	0.3
Korea	7.0	9.0	11.7	15.3	5.8	3.2
Luxembourg	2.0	5.0	1.9	3.4	2.7	4.0
Mexico	-0.6	4.9	0.2	5.0	0.6	1.8
Netherlands	1.5	4.3	0.1	-	2.1	1.9
New Zealand	2.4	5.2	1.9	5.3	2.7	2.3
Norway	3.2	3.6	3.0	3.8	4.0	1.5
Poland	3.9	4.3	2.7	4.4	5.6	3.2
Portugal	5.9	4.1	7.9	5.6	1.9	2.2
Slovak Republic	-	2.7	-	2.1	4.6	3.2
Spain	2.6	2.6	1.3	2.4	1.9	2.2
Sweden	1.3	5.4	0.9	5.2	1.6	2.9
Switzerland	1.8	3.2	2.4	4.2	0.1	1.2
Turkey	5.1	-	6.5	-	2.8	-0.6
United Kingdom	2.6	4.9	1.6	5.7	2.9	2.4
United States	2.3	4.2	3.6	4.1	2.2	1.8
OECD	2.5	4.3	2.4	4.5	2.4	2.5
EU-15	2.2	4.0	1.8	4.1	2.1	2.7

Source: OECD Health Data 2004, 1st edition.
Notes: (1) Growth rates in health spending and GDP are based on 1995 GDP constant prices.
(2) Australia, Japan and Korea 1997-2001.
(3) OECD average excludes Turkey.

Chart 1: Health expenditure as a percentage of GDP, 2002

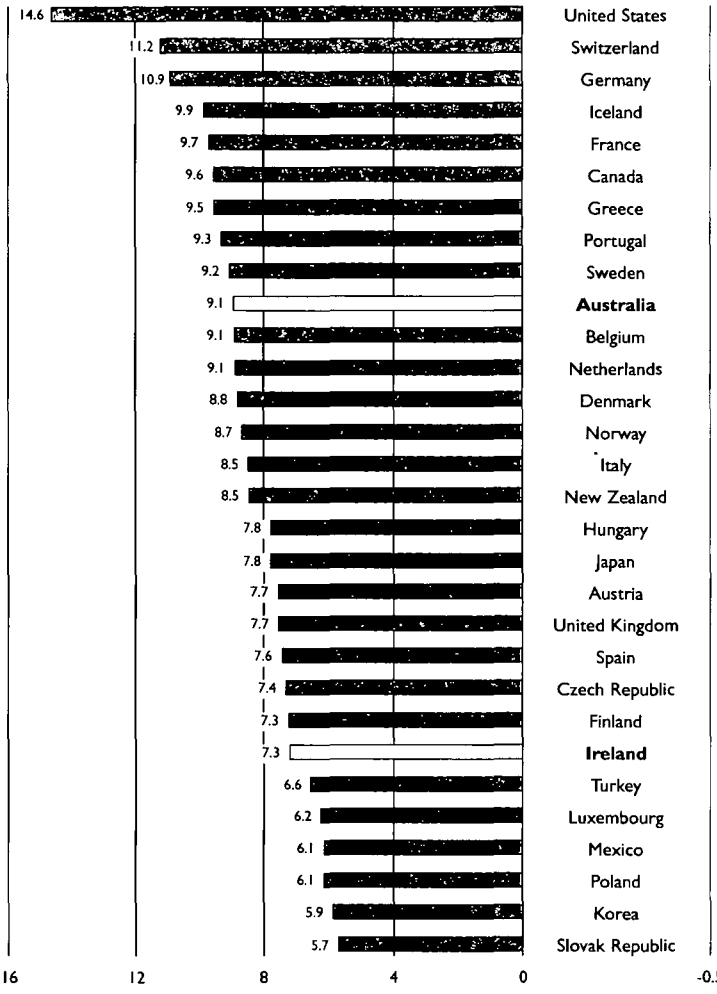
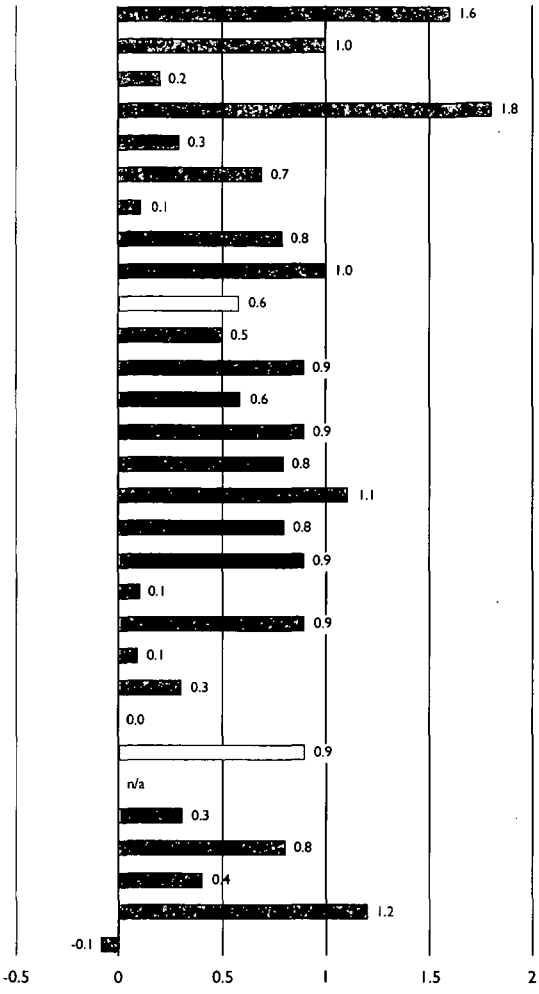
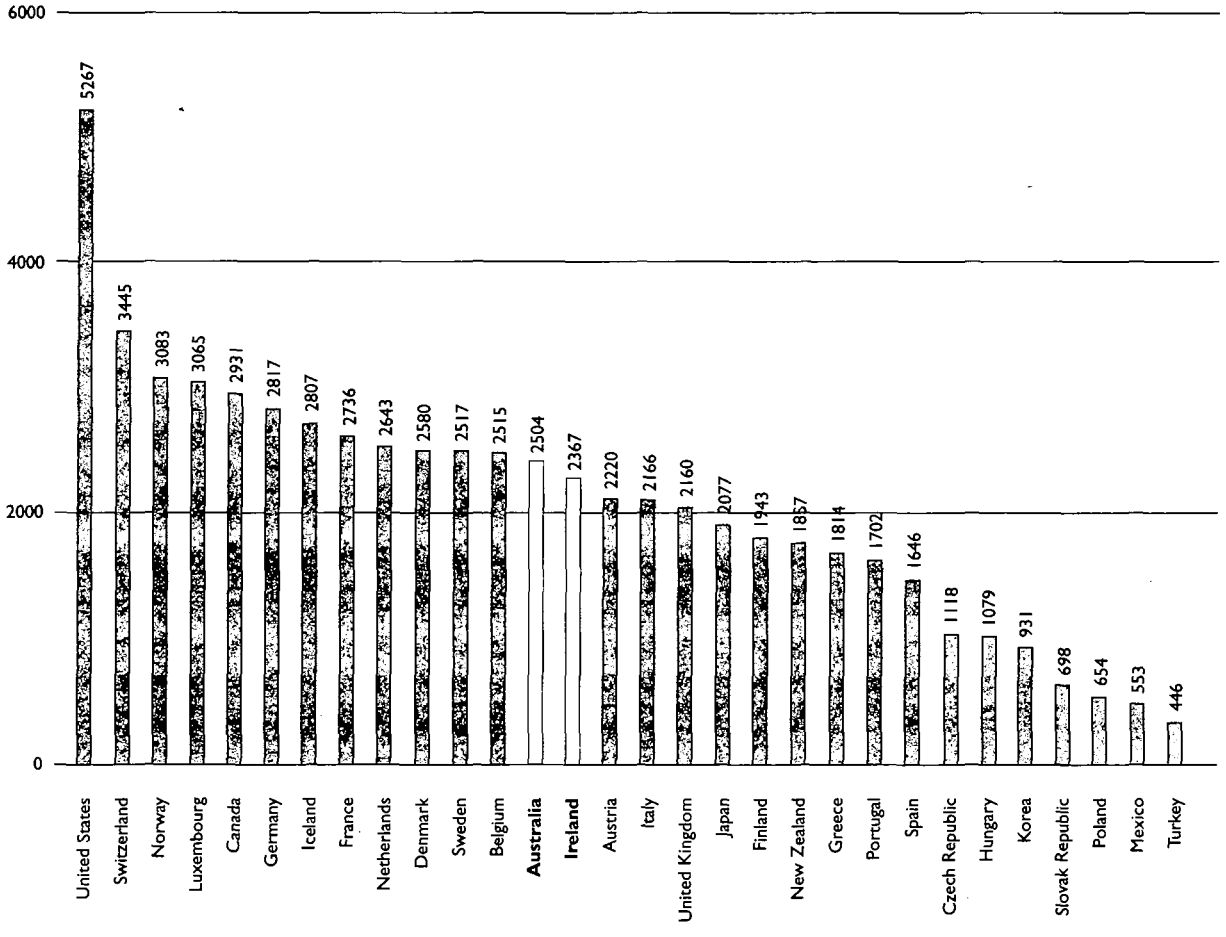


Chart 2: Change in total health expenditure as a percentage of GDP, 1997-2002



Source: OECD Health Data 2004, 1st edition.
Note: Australia, Japan, Korea 2001; Turkey 2000.

Chart 3: Health expenditure per capita, US$PPP, 2002



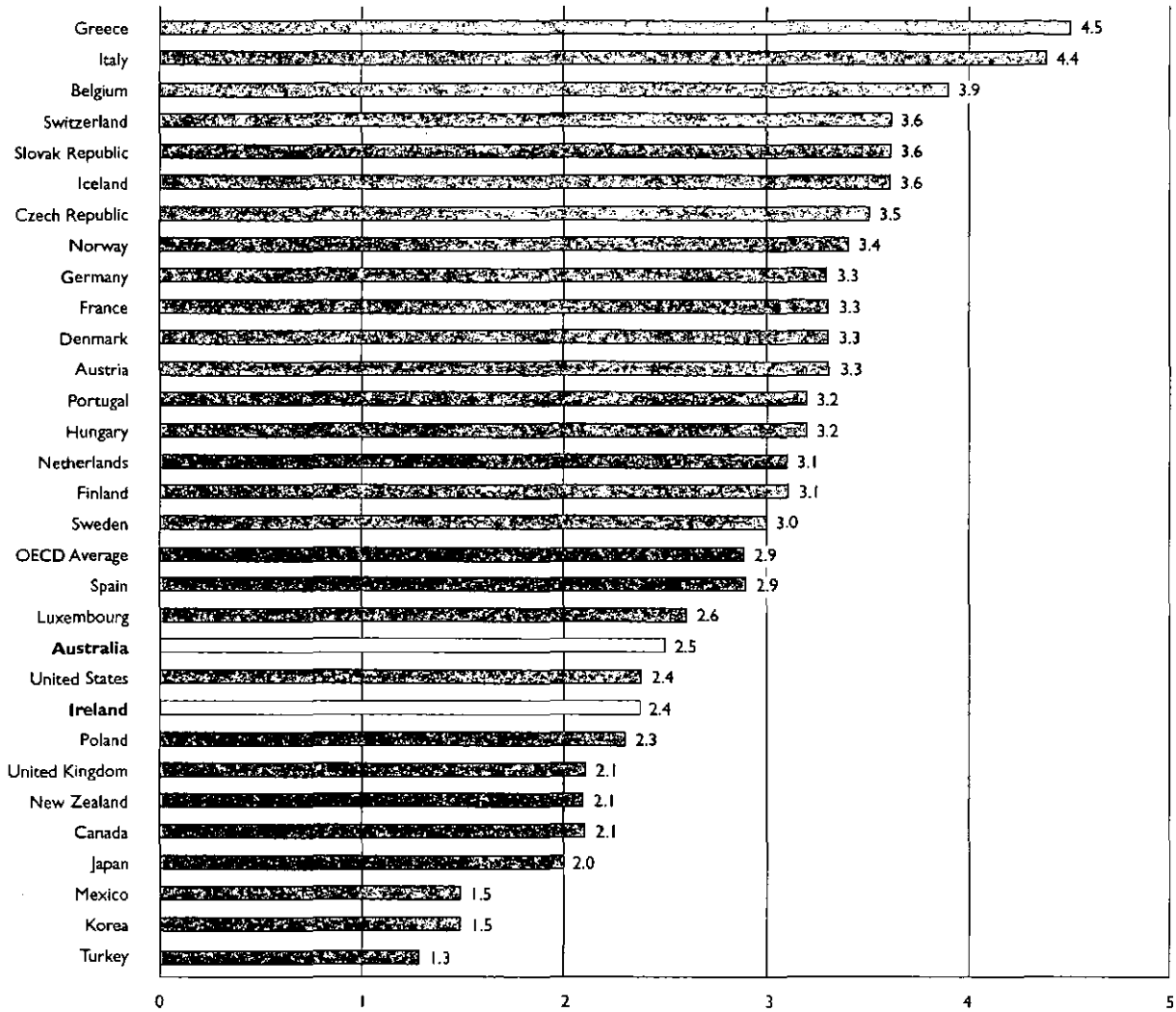
Source: OECD Health Data 2004, 1st edition.

Notes: (1) *Australia, Japan, Korea 2001; Turkey2000.*

(2) Netherlands: Public/private split of total health expenditure in unavailable.

Purchasing power parities (PPPs) provide a means of comparing spending between countries on a common base. PPPs are the rates of currency conversion that equalise the cost of a given 'basket' of goods and services in different countries.

Chart 4: Practising physicians per 1000 population, 2002.



Source: OECD Health Data 2004, 1st edition.
Notes: Australia, Greece, Portugal, United States 2001; Sweden 2000.
Belgium, Denmark, France, Iceland and Luxembourg include physicians working in industry, administration and research. The Czech Republic and Norway report full time equivalents (FTE) rather than headcounts. Finland, Ireland and Netherlands provide the number of physicians entitled to practise rather than actively practising physicians.

WORLD HEALTH REPORT 2000

Country	Efficiency Overall Health System Performance	Country	Quality Overall Goal Attainment
France	1	Japan	1
Italy	2	Switzerland	2
San Marino	3	Norway	3
Malta	5	Sweden	4
Singapore	6	Luxemburg	5
Spain	7	France	6
Oman	8	Canada	7
Austria	9	Netherlands	8
Japan	10	United Kingdom	9
Norway	11	Austria	10
Portugal	12	Italy	11
Monaco	13	**Australia**	12
Greece	14	Germany	14
Iceland	15	USA	15
Luxemburg	16	Iceland	16
Netherlands	17	Monaco	18
United Kingdom	18	Spain	19
Ireland	19	Denmark	20
Switzerland	20	San Marino	21
Sweden	23	Finland	22
Germany	25	Greece	23
Canada	30	**Ireland**	25
Finland	31	New Zealand	26
Australia	32	Singapore	27
Denmark	34	Malta	31
USA	37	Portugal	32
Cuba	39	Cuba	40
New Zealand	41	Hungary	43
Kuwait	45	Kuwait	46
Hungary	66	Oman	59
Iran	93	Russia	100
Russia	130	Iran	114
Sudan	134	China	139
China	144	Sudan	148
Ethiopia	180	Ethiopia	186

Note: Goal attainment and performance are defined as: disability-adjusted life expectancy, health equality in terms of child survival, responsiveness level, responsiveness distribution, fairness of financial contribution, performance on level of health, and overall health system performance.

Section 11: **Benefits of ICD-10-AM**

E.S.R.I. Clinical Coding Report:
The E.S.R.I. report into the matter of moving to ICD-10-AM (see Appendices) elaborates the full benefits of moving to ICD-10-AM. However, a synopsis of the numerous benefits might include:

- more clinically up-to-date and meaningful,
- more codes available,
- greater specificity,
- alphanumeric coding scheme giving greater facility for expansion,
- facility to code anaesthetics,
- 'Allied Health' Intervention codes identifying important additional information,
- coding scheme linked to Grouper development,
- availability of support in implementation and ongoing training,
- clear future strategy and government sponsorship,
- better international comparability.

DoHC perspective:
From the Department of Health and Children's perspective, there can be no justification for not moving to ICD-10, as we always seek to be at the forefront of epidemiological data collection. Once the obstacle of having a companion procedure classification system to accompany the disease classification has been overcome, the opportunity to use ICD-10 is a facility that cannot be ignored. As more and more countries move to ICD-10, the ability to compare our data internationally is increased. Furthermore, many clinicians here have cited the inability to code in ICD-10, and the consequent inability to capture anaesthetics, allied health (occupational therapy, physiotherapy, prosthetics etc.) interventions, etc., as a serious impediment to their participation in Casemix. This move solves many different stakeholder issues, raised over many years, at a single stroke.

The benefit of having the clinical coding development programme by the N.C.C.H. linked to the Casemix Grouper development programme by the Commonwealth is one that cannot be over-stated. Issues will arise regarding coding which will have an impact on the Grouper (e.g. the introduction of a new code for SARS would require not only a new code but also modifications to the Grouper). In Australia these issues are discussed and considered with both sides taking each others issues on board in their development programme.

The commitment of the Commonwealth of Australia to the continued development of their systems and their willingness to licence it for use overseas is the long-term commitment that the C.T.G. has identified as crucial to the decision to adopt this scheme.

The hospital challenge:
However, we are aware that it will be a challenge for hospitals. Senior management must support their H.I.P.E. staff in this endeavour if it is to succeed. Significant modernisation requires significant change.

Section 12: Benefits of the AR-D.R.G. Grouper

Introduction:
The benefits, nationally, of the AR Grouper, have been discussed in Exercise 10. Some of the benefits of the AR Grouper, from a hospital perspective, are very significant.

Why the Australians developed their own Grouper:
The Australian Grouper was born of the desire to base 100% of funding on Casemix analysis although all Australian States and Territories use Casemix, it is Victoria that drove the system forward initially (and still does) particularly with their comprehensive funding policy.

In Victoria the decision to fund as close as possible to100% via Casemix provided the impetus for aggressive Research and Development into Grouper related issues. The need to have it fully accepted as an accurate system was fully understood. The desire to quickly implement changes and operate in a stakeholder friendly, open, transparent manner was deemed essential. These qualities were not always attainable in the system they used prior to the initiation of their own national Casemix programme, just as it was not available to us. The present system is clinically up-to-date, technically competent, easy to understand and responsive to change.

The AR Grouper consists of 665 D.R.G's (as opposed to the 498 in our present HCFA-16 Grouper (although there are 511 D.R.G's listed, there are several 'empty' D.R.G's due to renumbering etc.). Some of the additional D.R.G's relate to increased levels of severity (four levels now available). However, many relate to completely 'new' D.R.G's for specific conditions. The new D.R.G's are discussed in the next chapter.

Overall, some of the benefits might be synopsised as follows:

- Increased levels of severity;
- Additional D.R.G's for specific conditions and diseases;
- Linked to coding scheme;
- MDC, medical/surgical split, severity rating all 'at-a-glance';
- Better numbering system generally;
- Regularly updated;
- Open, transparent, inclusive;
- Government commitment to its continued development.

The new numbering system:
In order to explain some of the benefits of the new system more clearly, the new numbering system is firstly described.

All D.R.G's have 4 digits/letters and the numbering system **'ADDS'** up as follows:

- **A** the first letter/digit indicates the MDC (or pre MDC);
- **DD** the next two digits identify the D.R.G. or 'adjacent' D.R.G's;
- **S** the last letter indicates the severity split.

Finding the Major Diagnostic Category (MDC):
The **'A'** in **A**DDS indicates the MDC (or pre MDC), using letters rather than numbers *(For example MDC 2 = 'C' Diseases and Disorders of the eye).*

Finding the D.R.G.:
The **'DD'** in A**DD**S identifies the D.R.G. Within each MDC the D.R.G's may re-start at the number '1' *(e.g. B01Z, C01Z etc.)*.

A system of 'adjacent' D.R.G's is used *(e.g. fever W CC (T62A) and fever W/O CC (T62B) are deemed to be the same D.R.G. but split into differing severity levels)*. This allows for the expansion of D.R.G's without changing the initial number.

Finding the Severity Level:
The **"S"** in ADD**S** indicates the severity level.

There are 4 severity levels

- A = multiple major problems or catastrophic problems;
- B = major problems;
- C = other problems ;
- D = without problems;
- Z indicates no split *(i.e. it is a stand-alone D.R.G. e.g. Ungroupable)* so its severity level is not related to other 'adjacent' D.R.G's, but takes its severity rating from whatever the data deems appropriate.

Finding the case type (medical/surgical/other split at a glance):
Another innovation is that the numbers are used to indicate is a D.R.G. is medical, surgical or other:

- 01-39 indicates surgical;
- 40-59 indicates 'other';
- 60-99 indicates medical.

Example:
P65A (neonate with adm. Wt. of 1500-1999g)

- ***P*** indicates that the MDC = 15 (Newborns/neonates);
- ***65*** is the D.R.G. number and *as the D.R.G. is in the range 60-99 it is a medical D.R.G. and;*
- **A** indicates that there are multiple major problems.

D.R.G's that start with a '9':
Hospital records that contain clinically atypical or invalid information are assigned to one of six Error D.R.G's. These are divided into three different case 'types' and are explained below:

Group 1 — 901Z, 902Z, 903Z – These are used when all the operating room procedures are unrelated to the MDC of the patient's principal diagnosis.[26]

Group 2 — 961Z, 963Z – These are used when the principal diagnosis will not allow the episode to be assigned to a clinically coherent D.R.G..

Group 3 — 960Z – This is used when the principal Diagnosis is invalid, or when other essential information is missing or incorrect.

Better numbering system:
The present HCFA Grouper numbering system has the limitation that the D.R.G. number does not indicate what MDC it belongs to or whether it is a medical or surgical D.R.G..

[26] Page 11, AR-D.R.G. v5.0 Definitions Manual Volume 1, Commonwealth of Australia (Department of Health and Ageing) 2002.

Furthermore, it does not show whether one D.R.G. is linked to another with regard to severity. This means that if a new split is created, the numbering system is thrown out of sequence. Although this seems a trivial matter, to those working on a daily basis with D.R.G's, these limitations are meaningful.

Extra D.R.G's can be included without putting the other D.R.G's out of sequence.
The current system in HCFA does not provide for this. The following example explains what would occur if an extra D.R.G. was to be introduced to HCFA.

E.g. D.R.G. 294 – Diabetes >35
D.R.G. 295 – Diabetes <35

Should there be a need to specify a new D.R.G. for Diabetes 0-17 this would require all other D.R.G's from 295-511 would be moved out of sequence.

A sample from MDC 7 is below:

MDC 7 (H) Diseases and Disorders of the Hepatobiliary and Pancreas	
Surgical	H01A Pancreas, Liver and Shunt Procedures W Catastrophic CC
Surgical	H01B Pancreas, Liver and Shunt Procedures W/O Catastrophic CC
Surgical	H02A Major Biliary Tract Procedures W Malignancy or Catastrophic CC
Surgical	H02B Major Biliary Tract Procedures W/O Malignancy W Severe or Moderate CC
Surgical	H02C Major Biliary Tract Procedures W/O Malignancy W/O CC
Surgical	H05A Hepatobiliary Diagnostic Procedures W Catastrophic CC or Severe CC
Surgical	H05B Hepatobiliary Diagnostic Procedures W/0 Catastrophic CC or Severe CC
Surgical	H06Z Other Hepatobiliary and Pancreas O.R. Procedures
Other	H40Z Endoscopic Procedures for Bleeding Oesophageal Varices
Other	H42A ERCP Other Therapeutic Procedure W Catastrophic or Severe CC
Other	H42B ERCP Other Therapeutic Procedure W Moderate CC
Other	H42C ERCP Other Therapeutic Procedure W/O CC
Medical	H60A Cirrhosis and Alcoholic Hepatitis W Catastrophic CC
Medical	H60B Cirrhosis and Alcoholic Hepatitis W Severe CC
Medical	H60C Cirrhosis and Alcoholic Hepatitis W/O Catastrophic or Severe CC
Medical	H61A Malignancy of Hepatobiliary Sys, Pancreas W Catastr CC or (Age>69 W Sev CC)
Medical	H61B Malig Hepatobilry Sys, Pancreas (A<70 W/O Cat CC) or (A>69 W/O Cat/SevCC)
Medical	H62A Disorders of Pancreas Except for Malignancy W Catastrophic or Severe CC
Medical	H62B Disorders of Pancreas Except for Malignancy W/O Catastrophic or Severe CC

The benefits of the Australian Grouper:

Additional D.R.G's for specific conditions and diseases:
Many centres of excellence who undertake national specialty work, will welcome the innovations in this area as an extremely significant development 'answering' many of the questions they have raised with the C.T.G. over the years. The C.T.G. welcomes the resolution of the vast majority of such issues, which have had to be dealt with under the auspices of the 'National Specialty Deductions' that forms part of the annual budget process.

Increased levels of severity
In the original development of D.R.G's by the Yale team, it was recognised that the presence of additional complications would lead to greater resource consumption. One of the 'rules' for D.R.G's is that they consume similar resources.

However the 'early' Groupers (and our present HCFA-16 Grouper) only specified two severity levels:

- With complication and
- Without complication

This was due to the lack of data at the time and also we are aware that 'political' considerations at a local hospital level hindered the development of work in this area.

Additional severity is directly linked to increased cost. Additional severity levels were created to compensate hospitals in a transparent manner, for high cost cases and to allow such cases to be 'seen' easily for clinical and management purposes. The number of severity levels could easily be expanded beyond 4 and is only limited by the original D.R.G. 'rules' that the number be clinically meaningful, consume similar resources and be 'manageable'. There will always be an element of slightly different case types and costs being 'Grouper' into the same D.R.G's. The bottom line is that D.R.G's are a management tool.

The result of using four levels of severity will be a more accurate reimbursement rate for each level of severity. Further, unlike earlier D.R.G. versions, AR-D.R.G's allow for the multiplicative effect of several independent complications rather than relying on the single most serious complication.

Regularly updated:
The Commonwealth of Australia have a continuous Casemix Grouper Development Programme. The only limitation on 'revisions' is the administrative feasibility of implementing them. Currently, the Commonwealth produce a minor update to the Grouper every second year, and a major update every fourth.

Open, transparent, inclusive:
The Commonwealth actively seek input from all the stakeholders. The management process and the data itself is in the public domain.

Government commitment etc:
As discussed elsewhere in this report, there is a long-term to committment to the continued development and implementation of Casemix systems within the Commonwealth of Australia.

Linked to coding etc:
The benefits of having the N.C.C.H. and Casemix Development Unit of the Commonwealth

sharing a similar agenda and working in harmony to deveop an interlinking system cannot be overstated.

New/expanded/revised D.R.G's:
A table of all AR-D.R.G's is included in the Appendices. A sample of the 'new' DRGs (only) now available to Ireland is also included below. Some of the DRGs relate to increased levels of severity and some relate to specific clinical conditions. Detailed by Major Diagnostic Category these are as follows:

Pre MDC (A):

- Lung or Heart/Lung transplant;
- Autologous bone marrow transplant with Catastrophic CC;
- ECMO w/o. cardiac surgery;
- Intubation age <16 W CC;
- Established paraplegia/quadriplegia W or W/0 O.R Procs W Catastrophic CC.

MDC 1 (B) Diseases and disorders of the nervous system:

- Ventricular shunt revision;
- Procedures for cerebral palsy, muscular dystrophy, neuropathy W Cat or Sev CC;
- Admit for Apheresis;
- Dementia and other chronic disturbances of cerebral function;
- Delirium W Catastrophic CC;
- Cerebral palsy;
- Stroke W Catastrophic CC;
- Febrile convulsions;
- Intracranial injury W CC;
- Skull fracture.

MDC 2 (C) Diseases & Disorders of the Eye

- Major Corneal, Scleral and Conjunctival Procedures;
- Procedures for Penetrating Eye Injury;
- Dacryocystorhinostomy;
- Strabismus Procedures;
- Eyelid Procedures;
- Other Corneal, Scleral and Conjunctival Procedures;
- Lacrimal Procedures;
- Glaucoma and Complex Cataract Procedures.

MDC 3 (D) Diseases & Disorders of the Ear, Nose Mouth & Throat

- Cochlear Implant;
- Maxillo Surgery W CC;
- Parotid Gland Procedures;
- Nasal Procedures.

MDC 4 (E) Diseases & Disorders of the Respiratory System

- Cystic Fibrosis W Catastrophic or Severe CC;
- Sleep Apnoea;
- Chronic Obstructive Airways Diseases W Catastrophic or Severe CC;
- Whooping Cough and Acute Bronchiolitis W CC;
- Respiratory Problems Arising from Neonatal Period;

- Chronic Obstructive Airways Disease W/O Catastrophic or Severe CC;
- Respiratory System Diagnosis W Non-invasive Ventilation.

MDC 5 (F) Diseases & Disorders of the Circulatory System

- Implantation or Replacement of AICD, Total System W Catastrophic or Severe CC;
- AICD Component Implantation/Replacement;
- Circulatory System Diagnosis W Ventilator Support;
- Skin Ulcers for Circulatory Disorders;
- Congenital Heart Disease;
- Non-Major Arrhythmia and Conduction Disorders W Catastrophic or Severe CC.

MDC 6 (G) Diseases & Disorders of the Digestive System

- Pyloromyotomy Procedure;
- Other Gastroscopy for Major Digestive Diseases;
- Complex Colonoscopy;
- Other Gastroscopy for Non-Major Digestive Diseases;
- Complex Gastroscopy W Catastrophic of Severe CC;
- Abdominal Pain or Mesenteric Adenitis W CC;
- Hernia Procedures Age<1.

MDC 7 (H) Diseases & Disorders of the Hepatobiliary and Pancreas

- Endoscopic Procedures for Bleeding Oesophageal Varices;
- ERCP Complex Therapeutic Procedure W Catastrophic or Severe CC;
- Other Therapeutic Procedure W Catastrophic or Severe CC.

MDC 8 (I) Diseases & Disorders of the Musculoskeletal System & Connective Tissues

- Hip Revision W Catastrophic or Severe CC;
- Hip Replacement W Cat or Sev CC or Hip Revision W/O Cat or Sev CC;
- Limb lengthening Procedures;
- Infect/Inflam of Bone & Joint W Misc Musc Sys & Conn Tiss Procs W Catastr CC;
- Stump Revision;
- Cranio-Facial Surgery;
- Maxillo-Facial Surgery;
- Musculotendinous Disorders Age>69 W CC;
- Fractures of the Pelvis W Catastrophic or Severe CC;
- Fractures of the Neck of Femur W Catastrophic or Severe CC;
- Knee Replacement and Reattachment;
- Knee Reconstruction or Revision;
- Inflammatory Musculoskeletal disorders W Cat or Sev CC.

MDC 9 (J) Diseases & Disorders of the Skin, Subcutaneous Tissue & Breast

- Micro vascular Tissue Transfer for Skin, Subcutaneous Tissue & Breast Disorder;
- Lower Limb Procs W Ulcer/Cellulites W Catastr CC;
- Major Breast Reconstructions;
- Lower Limb Procs W/O Ulcer/Cellulites W Skin Graft W Cat/Sev CC.

MDC 10 (K) Endocrine, Nutritional & Metabolic Diseases & Disorders

- Obesity Procedures;
- Severe Nutritional Disturbance;

- Endoscopic or Investigative Procedure for Metabolic Disorders W/O CC;
- Diabetic Foot Procedures.

MDC 11 (L) Diseases & Disorders of the Kidney and Urinary Tract

- Arthroscopy;
- Lithotripsy for Urinary Stones;
- Cystourethroscopy, Sameday;
- Operative Insertion of Peritoneal Catheter for dialysis W Cat or Sev CC.

MDC 12 (M) Diseases & Disorders of the Male Reproductive System

- Cystourethroscopy W/O CC.

MDC 13 (N) Diseases & Disorders of the Female Reproductive System

- Hysterectomy for Non-Malignancy;
- Oophorectomies and Complex Fallopian Tube for Non-Malig W Cat or Sev CC;
- Diagnostic Cutterage or Diagnostic Hysteroscopy.

MDC 14(O) Pregnancy, Childbirth & the Puerperium

- Antenatal & Other Obstetric Admission.

MDC 15 (P) Newborns, & Other Neonates

- Neonate Died or Transf <5 Days of Adm, W/O Significant O.R. Proc, Born Here;
- Cardiothoracic/Vascular Procedures for Neonates;
- Neonate, AdmWt 1000-1499g W Significant O.R. Procedure;
- Neonate, AdmWt 1500-1999g W Significant O.R. Procedure;
- Neonate, AdmWt 2000-2499g W Significant O.R. Procedure;
- Neonate, Ad Wt >2499g W Significant O.R. Procedure W Multi Major Problems;
- Neonate, AdmWt <750g;
- Neonate, AdmWt 750-999g;
- Neonate, AdmWt 1000-1249g W/O Significant O.R. Procedure;
- Neonate, AdmWt 1250-1499g W/O Significant O.R. Procedure;
- Neonate, AdmWt 1500-1999g W/O Significant O.R. Proc W Multi Major Problems;
- Neonate, AdmWt 2000-2499g W/O Significant O.R. Proc W Multi Major Problems;
- Neonate, AdmWt >2499g W/O Significant O.R. Procedure W Multi Major Problems.

MDC 17 (R) Myeloproliferative Diseases & Disorders and Poorly Differentiated Neoplasms

- Lymphoma and Leukaemia W Major O.R. Procedures W Catastrophic or Severe CC.

MDC (U) 19 Mental Diseases and Disorders

- Schizophrenia Disorders With Mental Health Legal Status;
- Paranoia & Acute Psych Disorder With Castrophic/Severe Complications or W Mental Health Legal Status;
- Major Affective Disorders W Catastrophic or Severe Complications or (Age>69 W/O Catastrophic or Severe Complications;
- Other Affective and Somatoform Disorders;
- Anxiety Disorders;
- Eating and Obsessive-Compulsive Disorders;
- Personality Disorders and Acute Reaction;
- Mental Health Treatment, Sameday with ECT.

MDC 20 (V) Alcohol/Drug Use and Alcohol/Drug Induced Organic Mental Disorders

- Opioid Use Disorder and Dependence;
- Alcohol Intoxication and Withdrawal with CC.

MDC 21 (X) Injuries, Poisonings & Toxic Effects of Drugs

- Mic Tissue Transfer of (Skin Graft W Cat/Sev CC) for Injuries, Excluding Hand;
- Other Procedures for Injuries to Lower Limb Age>59 or W CC;
- Other Procedures for Injuries to Lower Limb Age<60 or W/O CC.

MDC 22 (Y) Burns

- Other O.R. Procedures for Other Burns;
- Burns, Transferred to Another Acute Care Facility < 5 Days;
- Other Burns W Skin Graft Age>64 or W Cat or Sev CC or W Complicating Proc.

MDC 23 (Z) Factors Influencing Health Statistics & Other Contracts with Health/Services

- Multiple, Other and Unspecified Congenital Anomalies;
- Abdominal Procedures for Multiple Significant Trauma;
- Rehabilitation, Sameday.

MDC 24 (W) Multiple Significant Trauma

- Multiple Trauma, Died or Transf to Another Acute Care Facility, LOS<5 Days;
- Abdominal Procedures for Multiple Significant Trauma.

PART 5

The Agreed Way Forward

Section 13 - Implications of adopting/adapting a more sophisticated system

Section 14 - Strengthening the National Structures

Section 13: Implications of adopting/adapting a more sophisticated system

It should be clearly stated and fully understood that 'adopting' a more sophisticated 'system' (both coding and grouping) involves much more than merely purchasing and installing it. There is some international evidence of countries which have mistakenly done so, with catastrophic consequences. The 'old' system is at least understood. Any 'new' system which is installed without study of the implications of change, will inevitably, produce erroneous data. Failure to develop and maintain the (more sophisticated) support systems that are inevitably required to run a more sophisticated system, will result in the old 'rubbish-in, rubbish-out' scenario.

Returning to the original strategy, it is agreed, at a national level, that Casemix be broadened in its application. This requires both a more sophisticated Casemix Grouper and better support systems nationally – something that has been known for some time. The strengthening of the national structures is considered in Section 14 below. However, in broad outline they include:

- Better support for casemix related staff;
- Better support for managers and CEO's;
- Greater clinical involvement;
- Various national Casemix Committees.

Section 14: Strengthening the national structures

As discussed previously, it is agreed, at a national level, that Casemix be broadened in its application. This requires both more sophisticated technical systems and better support systems and structures nationally. A new 'system', without the requisite educational and support structures for those expected to manage and use it, will fail.

These supports include:

- Better support for Casemix related staff and systems in hospitals, including possibly an annual Casemix 'Summer School' to deal with Specialty Costs and Casemix training, more web based support, etc.
- Better support for managers and CEO's to understand and use their data better and more effectively and to input into the national programme in a more meaningful manner, perhaps through a Senior Managers forum.
- 'Independent' audit, undertaken in a non biased, non-judgmental manner, to identify areas for review and report both to the Department and the hospital.
- A National Casemix Committee to liaise between the stakeholders and the Department. This committee would allow representation from all the stakeholders (within hospitals: Management, Finance, H.I.P.E., Clinicians) and the various national groups outside (such as the Clinical group, HIPE groups, Cost weights group, H.i.Q.A., H.S.E., N.H.O. etc).
- Greater clinical involvement, including a national clinical panel to represent and bring individual clinicians views forward to the national Casemix Committee.
- A national Cost Weights programme (and other technical) programme(s).

Education and training:
A further part of the review process was an 'independent' review of the National H.I.P.E. Programme by the School of Health Management at the University of Sydney. The report entitled *Towards Best Practice in the Coding of Morbidity Data (2004)* is below.

Terms of Reference of the Review

In 2004, Bramley and Reid from the University of Sydney were commissioned to undertake a review of clinical coder training programmes and data quality audit procedures within the Hospital In-Patient Enquiry Unit, E.S.R.I. The objectives of this consultancy included a review of:

- coder training programmes and monitoring procedures;
- existing coding guidelines and compliance with same and
- policies and procedures at hospital (local) and national level concerned with auditing and improving quality assurance of coded records.

Overview of the Report

This report, *Towards Best Practice in the Coding of Morbidity Data (2004)*, provides a detailed overview of the operation of many of the functions of the E.S.R.I.'s H.I.P.E. & NPRS Unit. Given the plans to introduce a new coding scheme (ICD-10-AM) in January, 2005, the findings of this report should help to guide developments in the area of data coding and quality, in particular, over the next three years and beyond. In addition, the expanding role of H.I.P.E. & NPRS data in a wide range of applications has implications for the operation of other areas of the system, specifically approaches to accessing H.I.P.E. data and improving communications with current and potential users.

Conclusions

Following the review of the current operation of the H.I.P.E. system at the E.S.R.I., the report concludes that "The professional support coders receive from E.S.R.I. is excellent and this needs to be recognized in the national training strategy....That one body controls all aspects of the H.I.P.E. data collection process is a clear advantage, particularly for data quality" (p33). With regard to the H.I.P.E. data collection and reporting system developed by the E.S.R.I. and used in all hospitals, Bramley and Reid conclude that the "system is user friendly and the technology support delivered by the E.S.R.I. is second-to-none" (p.16). The report goes on to note that "The 'ace' in the Unit's pack of data quality initiatives is the H.I.P.E. computer system...Processing of national data is simplified through uniformity – each hospital submits the same data in the same format and data are run through the same validity checks...The ability to correct validation errors at the source is another good strategy for improving data quality" (p37). The reporting functions for the H.I.P.E. system are also considered to be very useful by those consulted.

Recommendations

However, the Report lists various areas where the national programme needs to be broadened, expanded, and developed and have made the following recommendations among others:

a. That E.S.R.I. broaden and deepen their training sessions over a longer time frame to: avoid repetition; build on skills learnt; and include topics such as medical terminology, anatomy and physiology, classification theory, information management and casemix.

b. That E.S.R.I. develop a set of data quality performance indicators, establish acceptable error rates and set benchmarks.
c. That E.S.R.I. explore opportunities for publishing the results of their data quality activities. In particular, E.S.R.I. could publish data quality performance information in their annual report on hospital activity and in Coding Notes.
d. That E.S.R.I. give priority to auditing coding problem areas and developing guidelines for these. This work should be done with the national advisory committee to E.S.R.I.
e. That E.S.R.I. develop a standard template for use in hospital-based audits.
f. That E.S.R.I. develop standardised error and reason categories for data quality audits involving a recoding or comparison methodology and include this information in the standard template.

With regard to improving clinician commitment to the H.I.P.E. system, it is further recommended that every clinician registered in the H.I.P.E. computer software should be sent an information/education package about the move to ICD-10-AM and AR-D.R.G's. It is proposed that this package should include: "guidelines for completing the H.I.P.E. summary sheet; good documentation guidelines for charts; the impact of documentation on data quality; and clinicians' roles and responsibilities as part of the data quality team" (p41).

This set of recommendations is just a selection from those proposed in a wide ranging report. The implementation of the recommendations of this report will be an important step towards the achievement of the standards of data quality considered essential for a national data system which is used for such purposes as financing and service planning in the acute hospital sector. There are clearly significant resource implications associated with the implementation of these recommendations and these need to be taken into account when planning future investment in the national casemix programme.

Comment from the C.T.G.

The C.T.G would like to point out that one of the most significant advantages of both the H.I.P.E. and Specialty Costing Programme in Ireland is that it is mandatory to submit data in a standardised format – not the practice in many countries internationally.

Arising out of the report findings it has been agreed between Casemix Unit and the E.S.R.I. that education and training nationally will be strengthened significantly and issues such as accreditation, quality audit and support received will be reviewed urgently. The Department is indenting appropriate resources for the E.S.R.I. in 2005 to commence implementing the recommendations of the Bramley and Reid report.

Also agreed, is the need to develop Casemix training modules for all grades of staff and establish greater links between senior management and H.I.P.E./Casemix staff.

Support mechanisms:
As Casemix is 'rolled-out' and becomes more central to financial allocations, the importance of adequate support systems for hospitals grows. It is agreed that senior managers need to use their data more for management purposes, and, in order to do this, the necessary support systems must be available to them.

New national structures:
In order to allow stakeholders input in a way that is both meaningful and allows them to feel

included in the Appendices. The review's remit included training, audit and quality.
an integral part of the process, four new structures will be developed:-

- A National Casemix Clinical Committee;
- A National Casemix Forum;
- A Senior Managers Forum;
- A National Cost Weights Group.

Clinical support:
The C.T.G. has long advocated greater clinical support, both within hospitals themselves, and as part of the national management team.

The C.T.G. is recommending the establishment of a Casemix Clinical Committee. The CCC will act as a national forum, independent of all other national Casemix/H.I.P.E. bodies, to allow individual Casemix hospitals and clinicians to bring Casemix related issues of concern to them to a national level. It is hoped to 'launch' this committee before, or during, the Casemix conference in April 2005.

Management support – National Casemix Forum:
The C.T.G. is recommending the establishment of a National Casemix Advisory Group to liaise between all the stakeholders and the various national groups (Clinical, Cost weights, H.I.P.E., H.i.Q.A., H.S.E., N.H.O., etc.), and Casemix Unit of the Department.

Management support – Senior Managers Forum:
The C.T.G. is also recommending the establishment of a Senior Managers Forum, to allow managers meet and discuss matters of mutual concern to them, and to benefit from relevant training modules designed to assist them tap into the 'Value-added' benefit to be gained from analysis of their Casemix related data. Managers need to have the ability to 'audit' their data and gain insights into the reasons for budget adjustments and be able to 'mine' their data without undue reliance on outside agencies.

This forum might meet as part of the 'Summer School' being proposed.

Specialty costs:
The C.T.G. is also agreed on the need to develop more training modules into the Specialty Costing process (now a very significant exercise annually, with major implications for hospitals). This too may form part of the 'Summer School' agenda.

The C.T.G. is already working with International cost weights experts with a view to completing a study on our weights in order that changes will be implemented as part of the November 2004 budget run. A national cost weights group will be 'launched' at next years Casemix conference.

I.T. Issues:
The C.T.G. is actively working on the development of more sophisticated, more timely, more user-friendly systems that will provide stakeholders with ready access to the data and systems they require in order to better participate in the system and also obtain the 'value-added' gains that should flow from access to such an enormous database of epidemiological and cost data.

One of the system enhancements agreed by the C.T.G. is the development of a significant

web-based facility allowing speedy, interactive access to data. The C.T.G. has already initiated this project and look forward to meaningful constructive suggestions from hospitals on how we might better serve their needs. This matter too will be discussed at next year's conference.

Casemix constitution:
An inherent part of these arrangements will be the 'writing' of a Casemix 'Constitution' (encompassing both H.I.P.E. and Specialty costs), in order to set down agreed parameters and lines of demarcation between the various stakeholders; setting out the rules by which all participate in the process and specifying minimum datasets, their collection, usage and sharing. This is important as issues such as revised areas of responsibility; increasing blend-rates, broadening of the programme to OPD & A&E, etc., designation of the consultant as unit of accountability, FOI implications, all have increasing significance for all stakeholders as time goes by.

Conclusions and Recommendations:
The agreed conclusions and recommendations arising from this part of the review are as follows:

- A significant expansion of the H.I.P.E. education/training and support programme for Coders, HCC's, Specialty Cost staff and Senior Managers;
- Development of training programmes for Casemix specifically;
- Development of training programmes in relation to Specialty Costs specifically;
- Development of I.T. support systems to allow greater/easier access to data and its use for local management purposes;
- Improved audit tools to allow hospitals gain a better understanding of budget outturns;
- A National Casemix Committee;
- A National Casemix Forum;
- A Senior Managers Forum;
- A National Cost Weights Group;
- A Casemix 'Summer school' for senior staff (for whom a detailed working knowledge of Casemix is essential) to meet and learn;
- A 'Casemix constitution' (incorporating all Specialty costing and H.I.P.E. related matters) to be agreed as soon as possible.

Summary:
Proposals are being brought forward to strengthen the national structures on the lines above, and these will be discussed at the national conference next year, at the latest.

The Health Service Executive:
There is a central role for the new Health Service Executive (HSE) to play in the development of Casemix related programmes, particularly from the hospitals perspective. Presently it is not the function of Casemix Unit in the Department of Health and Children to instruct hospitals how they should staff their units or their teams – Casemix Unit can only indicate national norms and seek to persuade agencies to adopt particular practices. Casemix Unit are well aware of the limitations managers face in recruiting and retaining high quality staff, within the confines of pressures of day-to-day management of acute hospital services operated in the public gaze. Hopefully the provision of a more centralised management structure by the HSE will facilitate these issues, which will include greater assistance to CEO's themselves, as well as their staff. We look forward to holding discussions with the HSE on these matters as soon as practicable.

Conclusion:

It must be reiterated again clearly that significant modernisation requires significant change. This change will involve all the stakeholders – the Department, the E.S.R.I., the HSE, senior hospital management and the staff at the 'coal-face' – the coders, the HCC's and the Specialty Costs personnel and the Casemix teams generally. There are great challenges ahead, but also great opportunities. There are already European countries that consider Ireland a well run model for them to follow.

PART 6

Implementing the New System

Section 15: Mapping the data from ICD-9-CM to ICD-10-AM

Introduction:
For those involved in H.I.P.E. & Casemix a basic understanding of some of the general issues involved in 'mapping' data is important, particularly where mapped data was used to evaluate the new Grouper, and where proposals are being implemented to use mapped data in the Casemix Budget Model. This is particularly important for those who already have some understanding of the issues from reading international papers on the subject, and being aware of views held by experts in the field. Technical papers are included in the Appendices. A general overview of the issues is below.

Background:
Some 'Groupers' are designed to 'Group' Clinical codes from a particular coding scheme. For example, the HCFA Grouper was designed to 'accept' ICD-9-CM codes (i.e. the Grouper software 'expects' ICD-9-CM codes) and 'Group' them into D.R.G's.

However, some Groupers are designed to accept codes from a different system (e.g. the HRG Grouper in the U.K. was designed with ICD-10 diagnoses codes and OPCS procedure codes in mind). How then can one 'test' one's data in a different Grouper (e.g. ICD-9 codes in an ICD-10 Grouper)?

The solution is similar to using different versions of 'Windows' – the software is adapted to 'map' data from one system to another. So, if one map's ICD-9 clinical codes to an ICD-10 Grouper one must first determine where the equivalent code is in the new system – a tremendous challenge, with the quality of the result being directly equivalent to the effort devoted to the task.

Internationally, there was always been a keen debate about the reliability of 'mapping' data from one clinical coding system to another. This has been particularly so where small studies were conducted for 'papers' being presented at conferences. Some of these papers would have shown the results to have been poor.

The Australian experience:
As discussed in other parts of this report, one of the key strengths of the Australian 'system' is that both the body responsible for clinical coding (the National Centre for Classification in Health (N.C.C.H.) in association with the School of Health Service Management at the University of New South Wales) and the body responsible for producing the Grouper (Casemix Classification Section of Acute Care Division of the Department of Health and Ageing) receive funding from the Commonwealth of Australia, with the obvious result that everyone is working towards the same agreed goal, with an understanding of the implications of policy decisions taken locally, on the national programme (it is this very lack of integration that has, in the view of the C.T.G. mitigated against the harmonious development of the U.S. system).

When the Commonwealth made the decision that they should move from ICD-9 to ICD-10 they, unlike many other countries around the world, understood that this had major implications for their Grouper and an ICD-10 based Grouper would have to be developed and introduced. They also understood that 'mapping' would be an integral part of this exercise and that 'errors' in the system would have financial implications for hospitals. In a country where Casemix funding was playing a major role in budgets (a policy decision that

had many critics), it was understood that a very significant effort would have to be devoted to getting the change right. This took the mapping from being an academic exercise to a funding one; from being a 'local' exercise to being a national one. It was also undertaken in the glare of acute hospital funding policy decisions. The move from ICD-9-CM (Australian modified version) to ICD-10-AM was made in 1998.

This project by the Commonwealth, involving the best personnel available (many of whom were working at an international level, including at the WHO), was an enormous national effort over a period of years. A brief extract from *'Development of the Australian Refined Diagnosis Related Groups Classification, Version 4.1'* stated:

> *'A significant effort was involved, with all the key players, at a national level, working together to achieve a harmonious, integrated outturn.*
>
> *(A full technical report is available from the Commonwealth as 'Volume 4' of the report dealing with the development of AR-D.R.G. Classification version 4.1.)*

In a preliminary paper for the C.T.G. produced during the mapping process, Laeta stated:

> *It is important to realise that medical record coding experts have been aware of the code mapping issues for some time, and work has been done to alleviate them. The Health Services Management Group at Yale University gained early experience during their development of the D.R.G. system, with both the change from ICD-8 to ICD-9 and onto ICD-9-CM and of course through the constant changes in editions of the systems. They also had to deal with the practical and conceptual development of their invention (D.R.G's) as they brought it to implementation and into general operation.*
>
> *The Australian development of D.R.G. groupers experienced the same type of challenge when D.R.G's were investigated in the 1980's by the School of Health Service Management at the University of New South Wales. Over the decade, the expertise developed in the School expanded into other institutions (such as the National Centre for Classification in Health) and was a key component in the eventual modification of the DRG system to Australian conditions. The work done in the School was aimed at a level of detail that would allow accurate evaluation of DRG classification systems using Australian data.*
>
> Laeta 2004'

The net result was Australia produced its own companion set of procedure codes to be used in tandem with the WHO ICD-10 diagnosis classification and this 'twin' publication is known as ICD-10-AM ('Australian Modified' – 'AM') and a very significant effort was devoted to the mapping exercise – it is into this experience that we here in Ireland have tapped.

The Irish context:

Ireland remained and remains (until 1/1/2005) on ICD-9 (although a later, more up-to-date version of it than that last used in Australia).

The C.T.G.-E.S.R.I. Group adopted a twin approach to the mapping exercise:

- Mapping the data for the review of Groupers and
- Mapping the data for use in the next Budget Model run

The Review of Groupers:
For the review of Groupers exercise 'Laeta' were commissioned to conduct, inter alia, the technical Grouping of Irish ICD-9-CM data into all the Australian Groupers, including both ICD-9 based and ICD-10 based Groupers. When reviewing the ICD-10 Groupers, it was necessary for Laeta to map the data across. The Laeta team have significant experience in the area of 'mapping' data to 'fit' various Casemix Groupers. In order for them to complete this exercise they reviewed the original 'mappings' produced by the Commonwealth and undertook further work in order to ensure compatibility (an enormous technical exercise which few firms internationally would have been capable of completing)

The Budget Model:
However, 'cleaning' the data for inclusion in the Budget Model is a completely different matter. As mentioned above, this takes it from an 'academic' exercise, to being a financial one. When a decision was taken by the C.T.G. to assess the technical obstacles of using the AR-D.R.G. Grouper in the next Model run, Laeta commenced an in-depth analysis of the mapping process. This exercise involved over six months of work between the C.T.G. the E.S.R.I. and Laeta in a literally, record-by-record review of Irish H.I.P.E. data, in which thousands of records were re-assigned. It is as a result of this exercise that so few queries arose as part of the 'Review of Mapping' process undertaken in September in consultation with the hospitals.

Laeta commented further:
'The later work was much more detailed, and more closely addresses issues of concern for Irish mappings. The code mapping produced for the evaluation of groupers for Irish hospitals was of similar detail to that done for the Australian evaluation. It was, however, greatly assisted by experience of that work, experience in changing from ICD-9-CM to ICD-10-AM, experience in changes in versions of AR-D.R.G's, and by the existence of the code mappings generated by the N.C.C.H. and its New Zealand equivalent along with the Victorian Department of Human Services. In effect, the code mapping used went a long way towards that needed for implementation of AR-D.R.G's in Ireland; however more detailed work has been done to address further issues.

At this point it is appropriate to observe the development of ICD-10-AM coding expertise in H.I.P.E. personnel (or other coders highly experienced in the Irish Hospital System) as a necessary step to progressing some of the key issues. Some issues are of an epistemological nature and/or are highly clinical concepts. This has been recognised by Dohc and acted on appropriately.'
LAETA

In summary, the C.T.G.-E.S.R.I. team working with Laeta and the N.C.C.H. spent most of 2004 reviewing the data. Issues reviewed included: Ungroupable records, burns, OR procedures unrelated to principle diagnoses, chorioretinal lesions, retinal tears, biopsy of tongue, per cutaneous aspiration of kidney, wound debridement, etc., etc. Over 10,000 records were reassigned/remapped to more specific D.R.G's as a result. Analysis of those cases remapped showed a significantly better R-squared score (i.e. the cases were a better 'fit' in their 'new' D.R.G's).

Conclusions on mapping;
Having conducted the extensive in-house review of data, the C.T.G. then issued each Casemix hospital with its own H.I.P.E. data (in both HCFA and AR), in order that they could conduct a

clinical review of the mapping. Apart from a few individual queries, and the obvious question as to the value that would be payable to cases under the 'new' system the exercise was a success.

Conclusion:

The 'mapping' exercise was undoubtedly a success. As discussed, when 'testing' Groupers, both ICD-9 based and ICD-10 based Groupers were evaluated and Irish data grouped extremely well in both ICD-9 and ICD-10 based Australian Groupers.

The possibility of moving up a classification from ICD-9 to ICD-10 was an opportunity for significant modernisation that could not be ignored. Consequently, the decision was taken by the C.T.G. to recommend moving to ICD-10-AM for clinical coding, in tandem with adopting and adapting the Australian ICD-10 based AR Grouper as soon as it was practicable to implement it. That question is considered below.

Section 16: Going 'live' with ICD-10-AM & AR-D.R.G's

Time-table for the introduction of the new system into Ireland:
Although the policy decision to 'adopt' and 'adapt' the Australian system of ICD-10-AM for clinical coding and AR-D.R.G's for Casemix Grouping had been taken, the C.T.G. and the C.T.G.-E.S.R.I. Group had to consider the technical feasibility issues surrounding these decisions, particularly as they related to the time-frame for implementation – i.e. how quickly could these new systems be safely implemented in a manner most fair to hospitals?

Clinical Coding:
The E.S.R.I. seized the opportunity to make the leap forward to ICD-10 and decided that, despite the tremendous obstacles that would have to be overcome, and the extremely tight run-in period, they would immediately commence training in ICD-10-AM and make its use mandatory for all patients discharged w.e.f. from 1 January 2005 (this was supported by the hospitals who had expressed disappointment at the possibility of any delay in implementation).

Casemix Grouper:
The C.T.G. considered three possibilities regarding the introduction of the AR Grouper. These options were:

1. Use our present HCFA (ICD-9) Grouper pro-tem
2. Use one of the Australian AR-D.R.G. Grouper in its ICD-9 format (their older Grouper) pro tem or
3. Use the most modern ICD-10 based Australian Grouper (AR-D.R.G. version 5) as soon as practicable.

These options are discussed below.

(1) Using our present HCFA (ICD-9) Grouper:
The December 2004 Casemix Budget Model run will use 2003 H.I.P.E. data (and costs). Obviously the 'safe' option would be to use our present Grouper while waiting for ICD-10-AM H.I.P.E. data to come on stream (as coding in ICD-10 commences on 1/1/2005, this data will be available for the December 2006 budget run).

Unfortunately this would continue to restrict hospitals to two levels of clinical severity only, and continues to ignore national specialty activity issues requiring dedicated D.R.G's.

(2) Using an ICD-9 Australian Grouper:
One of the Australian Groupers tested in the technical evaluation was ICD-9 based Grouper that has now been superseded by ICD-10 ones. As was shown in the technical review, even this older Grouper outperformed our present Grouper. However, as this Grouper is no longer being developed (updated), this would mitigate against its introduction here. This was rejected by the C.T.G. as an 'interim' solution that could not be termed 'administratively feasible' as the work involved in its introduction here, both by the C.T.G. and by hospitals, would outweigh the benefits.

(3) Using AR-D.R.G. (ICD-10-AM) version 5:
The benefits of using this Grouper are enormous and obvious. The disadvantage of introducing the AR Grouper immediately is that Irish H.I.P.E. data has to be 'mapped' from ICD-9 to ICD-10 (a considerable 'technical' task). However, the disadvantage of waiting to introduce it until Irish ICD-10-AM H.I.P.E. data is available for the December 2006 budget run is that a new version of the AR Grouper is released every two years and a considerable part of the review would have to be undertaken again at that point (what might be termed paralysis by analysis).

Furthermore, the C.T.G. was aware that blend-rate increases could not be deferred for the entire of this interim period. If we waited, the new Grouper would be introduced at blend-rates double the present and any 'local' issues requiring resolution would have twice the cost implications for hospitals.

The only disadvantage of using the AR-D.R.G. Grouper this year is that it has required us to become involved in the mapping exercise discussed above, which is a challenge not just for the C.T.G.-E.S.R.I., but also for individual hospitals, in ensuring that any hospital specific issues are uncovered and addressed.

Recommendation:

The C.T.G. was of the opinion that the advantages of introducing the AR Grouper immediately, far out weighed the disadvantages, and have recommended accordingly. The 'new' AR Grouper will be used in the November/December Casemix Budget Model run, using 'mapped' H.I.P.E. data. The same scenario will apply next year in the November/December 2005 Casemix Model run. However, hospitals will be able to 'see' their activity Grouped in both the 'old' and the 'new' systems. In 2006 ICD-10-AM H.I.P.E. data will be available for the first time, and the transition will be complete.

Updates:
With regard to 'updates' of the Grouper, these happen every two years (similar to the updates for the clinical coding), as updates every year would be administratively impossible to implement.

In 2005 the C.T.G. will review, in consultation with Laeta and the E.S.R.I., the newly released version 5.1 of the Grouper and consider whether it should be implemented here in the December 2005 budget run. This will be discussed at the Irish Casemix Conference in April 2005.

PART 7

The Future of Casemix in Ireland

Section 17 - Timetable for Developments

Section 17: Timetable for developments

The continued roll-out of the programme in an incremental fashion, as/when technically feasible, has been agreed, but with the following targets:

2004:

- Adopt and adapt the Australian Grouper in Ireland for Inpatients only – no increase in Inpatient blend-rates this year
- Commence training in ICD-10-AM for usage with discharges w.e.f. 1/1/2005
- Commence a review of Cost-weights
- Increase Daycase blend-rate from 10% to 20% and link permanently with Inpatient blend-rate thereafter
- Include A&E in Casemix at a low blend rate initially, to be increased incrementally subject to technical review and feasibility
- Publish the Final Review Report and hold 'Open'/Information days on the new system as required.
- Mandatory to supply OPD data by MRN

2005:

- Increase Inpatient blend rate to 30% (2006 allocation)
- ICD-10-AM (4th edition) will be used for all patients discharged w.e.f. 1.1.2005 (with the assistance of the N.C.C.H. Australian).
- Commence work on inclusion of OPD in Casemix a.s.a.p.
- Test whether new Grouper can be used for Daycases also and implement accordingly if possible
- Mandatory to use place of treatment 'ward-indicator' on patient record for Daycases
- Write a Casemix 'constitution' for all areas of Casemix (H.I.P.E./Specialty costs) by which all Stakeholders would abide
- Commence the significant enhancement of the national Casemix management team and the national structures and services to the stakeholders in order that the technical, clinical and management skills to maintain manage and develop the national programme, and gain much greater stakeholder participation, are in place

2006:

- Increase Inpatient blend rate to 40% (2007 allocation)
- Mandatory to use place of treatment 'ward-indicator' on patient record for all H.I.P.E. cases

2007:

- Increase Inpatient blend rate to 50% (2008 allocation) at which time the further extension of the programme can be considered

2008:

- Partially fund all acute hospitals with 4,000 admissions p.a. via Casemix by 2009

2009:

- Develop strategies to fund all acute hospitals, regardless of size, via Casemix by 2010
- Develop strategies for funding sub-acute and non-acute via Casemix by 2010 at the latest
- Bring all blend-rates (OPD/A&E) into line with the 50% target as soon as possible thereafter, if not already done.

All these developments are conditional on the technical ability to implement them – i.e. as Casemix is a Data driven Decision making Process, the data must be strong and indicate the ability to implement those decisions with confidence. However, the timetable for developments may be foreshortened and the scope of the programme broadened, provided it is technically possible and administratively feasible to do so, and if agreed as part of a revised national strategy.

Glossary of Terminology

Blend-rate
The rate at which an individual hospital's cost per case and the national cost per case are 'blended' in order to arrive at an agreed tariff to be paid for each D.R.G. in each hospital.

A 50% blend rate indicates that the agreed payment is the national tariff plus 50% of the difference between that tariff and what the hospital costs were.

Presently a 20% blend rate applies – this is due to increase to 50% over the next three years.

Budget Neutral
When the 'blend rates' are applied as efficiency levies, the funding saved is redistributed to hospitals with above average performance.

Daycases
A daycase is presently defined as:

> *..a patient who is admitted to a hospital (under the care of a consultant), on an elective basis for care and/or treatment which does not require the use of a hospital bed overnight and who is discharged as scheduled.*

D.R.G.
Diagnosis Related Groups:
Groups of patients who are clinically similar and consume similar levels of resources.

Economic and Social Research Institute (E.S.R.I.)
For the purposes of this report the E.S.R.I. means the Hospital Inpatient Enquiry Unit (H.I.P.E.) and the National Perinatal Reporting System (NPRS) of the Economic and Social Research Institute.

Grouper
A patient classification system (see PCS below)

H.I.P.E.
The national programme responsible for collecting acute hospital discharge abstract activity on behalf of the DoHC.

I.C.D.
International Classification of Diseases. The International Classification of Diseases is published by the World Health Organisation for the classification of morbidity and mortality information for statistical purposes.

ICD-10-AM
ICD-10-AM is the Australian modification of the World Health Organisations ICD-10 classification of diseases.

Inpatients
A patient who is admitted to a hospital (under the care of a consultant) for care and/or

treatment requiring the use of a hospital bed overnight.

Ireland
For the purposes of this report Ireland means the Republic of Ireland.

MDC
Major Diagnostic Category

A means for summarising D.R.G's on the basis of common cause of disease or common body system.

PCS
Patient Classification System

A system (usually sold as a software package) for summarising hospital activity into groups on the basis of common clinical characteristics and levels of resource use.

Relative Value
An expression of how costly an individual D.R.G. is relative to the average cost for all D.R.G's.

Abbreviations

A&E	Accident & Emergency
ALOS	Average Length of Stay
C.C.C.A.	Clinical Casemix Committee of Australia
C.C.I.	Canadian Classification of Health Interventions
C.T.G.	Casemix Technical Group
DoHC	Department of Health & Children
D.R.G.	Diagnosis Related Group
E.S.R.I.	Economic and Social Research Institute
H.i.Q.A.	Health information and Quality Authority
H.I.P.E.	Hospital Inpatient Enquiry System
H.I.S.	Hospital Information System
H.S.E.	Health Service Executive
I.C.D.	International Classification of Diseases
I.C.F.	International Classification of Functioning, Disability and Health
LOS	Length of Stay
MDC	Major Diagnostic Category
N.H.O.	National Hospitals Office
N.C.C.H.	National Centre for Classification in Health
NCSP	Nordic Classification of Surgical Procedures
NOMESCO	Nordic Medico-Statistical Committee
OPD	Outpatients Department
RV	Relative Value
UK	United Kingdom
USA	United States of America
WHO	World Health Organisation

HIPE

Hospital In-Patient Enquiry

HIPE stands for Hospital In-Patient Enquiry system. This system is the principal source of national data on discharges from acute hospitals in Ireland. The HIPE & NPRS Unit at the Economic and Social Research Institute is responsible for overseeing the collection, coding, input, quality, processing and reporting of data from participating hospitals.

Each HIPE discharge record represents one episode of care. Patients admitted to hospital(s) more than once with the same or different diagnosis have a HIPE record for each hospital stay. The HIPE discharge records therefore facilitate analyses of hospital activity rather than incidence or prevalence of disease.

Data Collection and Reporting

The majority of participating HIPE hospitals are equipped with specialised computer software. This ensures standardisation of the data collected by hospitals. The software is designed for both data entry and reporting, and facilitates further processing with other software packages.

The data collected by the HIPE system can be logically grouped into administrative, clinical and demographic data.

What kind of data are collected?

Administrative Data

- Patient name (retained within hospital)
- Hospital number
- Case reference number
- Dates of admission and discharge
- Dates of principal and first procedure
- Day case indicator
- Admission type
- Admission source
- Discharge status
- Discharge destination
- General Medical Service status (i.e. Medical Card)
- Admitting Consultant and Discharge Consultant (encrypted by hospital)
- Intensive Care days (ITU/CCU/HDU/PICU)
- Private Care Days
- Public Care Days (optional)
- Infant Admission Weight– for all neonates (0-27 days) and infants up to 1 year of age weighing less than 2500 grams

Clinical Data

- Principal diagnosis and up to **19** secondary (additional) diagnoses coded in ICD-10-AM , with effect January 2005
- Principal procedure (when performed) and up to **19** secondary (additional) procedures coded in ICD-10-AM, with effect January 2005

Demographic Data

- Date of birth
- Sex
- Marital status
- Area of Residence by county and country

Examples of Requests for HIPE Data

What are the 10 most frequently occurring diagnoses - nationally/ in your Health Region/ in your hospital?

What proportion of cases were emergency admissions? How many were planned admissions?

What was the distribution of day patients to in-patients for a procedure and/or a hospital?

How many patients over 65 had a hip replacement in 2003? What was the length of stay for men and women?

What percentage of Diabetes Mellitus episodes are Type 1 compared to Type 2?

How many cases of skin cancer were recorded? What areas of the body were affected?

How many discharges due to Road Traffic Accidents involved drivers under 21 years? How many were male?

How many patients died with a principal diagnosis of Myocardial Infarction? What was the age profile of these patients?

What county in Ireland had the most patients under 15 years of age admitted with Asthma? What month has the most discharges for patients under 15 years of age admitted with Asthma?

How many hospital admissions were children aged under 12 years with a diagnosis of insulin dependent diabetes?

What was the age/sex profile of hospital admissions with a diagnosis of fracture neck of femur? What was the Length of Stay for the over 65 years age group?

What is the age profile of patients who had a cleft lip repair?

Uses of HIPE Data

HIPE data have a wide range of potential uses including:

- Measurement of hospital workload nationally
- Patient care studies
- Epidemiological studies requiring hospital activity statistics related to diseases/procedures
- Changes in practice patterns at clinical and hospital level
- Input to population health profiles at Health Region level
- Planning and service provision
- Estimation of the casemix adjustment for acute hospital budgets by the Department of Health and Children
- Quality assurance studies
- Market Research
- Drugs trials etc.

Recent Changes

Introduction of ICD-10-AM Classification

THE INTERNATIONAL STATISTICAL CLASSIFICATION OF DISEASES AND RELATED HEALTH PROBLEMS, TENTH REVISION, AUSTRALIAN MODIFICATION (ICD-10-AM)

All patients discharged from the 1st January 2005 are now coded using the ICD-10-AM coding classification. This classification offers many advantages over the previously used ICD-9-CM classification:

- ICD-10-AM is an internationally recognised integrated coding scheme for diagnoses and procedures
- Regular updates are available, thus ensuring that clinical coding keeps pace with advances in clinical practice
- Cross-national use facilitates international comparisons
- Software support and training programmes for the education of coders and quality checks on the data are readily available

Other features of ICD-10-AM include the facility to collect Anaesthesia codes and details of Pharmacotherapy treatments by mode of administration and agent delivered.

FURTHER INFORMATION

Access to HIPE Data

HIPE Data are available nationally and locally as follows:

For general information on the HIPE system: Please visit www.esri.ie

For information or reports on local hospital data:
Please send your request in writing to the *HIPE Office* in your hospital

For information or reports on national HIPE statistics:
Please send your request in writing to:
Ms Aisling Mulligan,
HIPE & NPRS Unit,
The Economic and Social Research Institute,
4 Burlington Road, Dublin 4
E-mail: Aisling.Mulligan@esri.ie

For further information on coding and data quality:
Please send your request in writing to:
Ms Deirdre Murphy,
HIPE & NPRS Unit,
The Economic and Social Research Institute,
4 Burlington Road, Dublin 4
E-mail: Deirdre.Murphy@esri.ie

Reference Publications:
Activity In Acute Public Hospitals in Ireland, 1990-1999

Activity In Acute Public Hospitals in Ireland, 1992-2002 (Summer 2005)

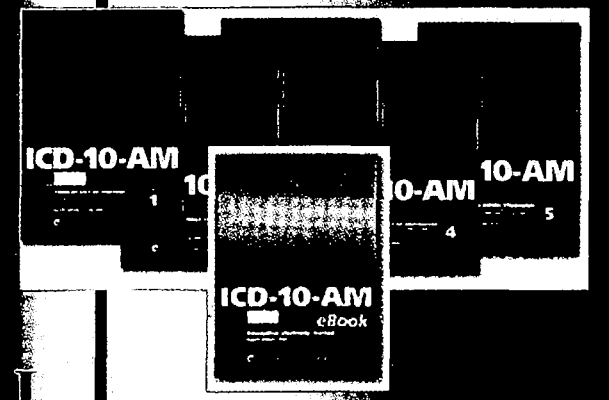
Updating Clinical Coding in Ireland: Options and Opportunities (August 2004)
D. Murphy, M.M. Wiley, A. Clifton and D. McDonagh

Copies are available on request from
The Economic and Social Research Institute
Tel: 01-667 1525
www.esri.ie

Produced by the ESRI, February 2005

HOSPITAL IN-PATIENT ENQUIRY

HIPE



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3rd Edition, February 2005
ICD-10-AM Update

THE MODERNISATION OF THE NATIONAL CASEMIX PROGRAMME IN IRELAND

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OF HEALTH AND
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SLÁINTE AGUS LEANAÍ