

ASSESSMENT & PROJECTION OF BED CAPACITY IN THE EASTERN REGION

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Review Group

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CHAPTER SIX **90**

ANALYSIS OF BED REQUIREMENTS FOR THE ERHA TO 2011

SCHARR Report (School of Health and related research, Sheffield University)

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INTRODUCTION

The Eastern Regional Health Authority (ERHA) has undertaken this review in order to assess the adequacy of current bed capacity and bed use in the Eastern Region, and to project required bed capacity to 2011. The objective of the review is to determine how many acute beds are needed, based on:

- Good standards of efficiency and performance
- Population characteristics
- Medical / healthcare developments.

The diagram on the next page illustrates how demography, medical practice, and provision of different external services can impact upon requirements for hospital admission and bed use.

Hospital services and beds are part of a continuum of health and social care including primary, community, rehabilitation and long-term care. Requirements for hospital services and beds are therefore dependent on the availability of these other services which can help prevent the need for acute interventions, enable safe discharge to community or home-based care and act as either substitutes for or complements to hospital services. To view hospital beds in isolation is to see only part of the picture. This document therefore deliberately takes a “whole system” approach in considering future requirements for hospital services and beds.

This review was carried out in two stages.

Stage One of the review, included a comprehensive assessment of current bed capacity and use in the Eastern Region, comprising an analysis of demographic trends, hospital and patient activity trends, a summary of key influences on the current system, and a review of relevant literature and international comparisons.

Stage Two of the review comprised a seminar with ERHA personnel to agree policy objectives, assumptions and forecasts with regard to the components of a “whole system approach” to health care. It also involved the input of SchARR, The Health Research Unit at Sheffield University, who carried out a comprehensive bed modelling and forecasting study.

This final report identifies changes needed in hospitals in the Eastern Region, changes needed for a “whole system approach”, and projects acute beds needed for the major specialties in the Eastern Region to 2011.

Whole System Approach: ERHA

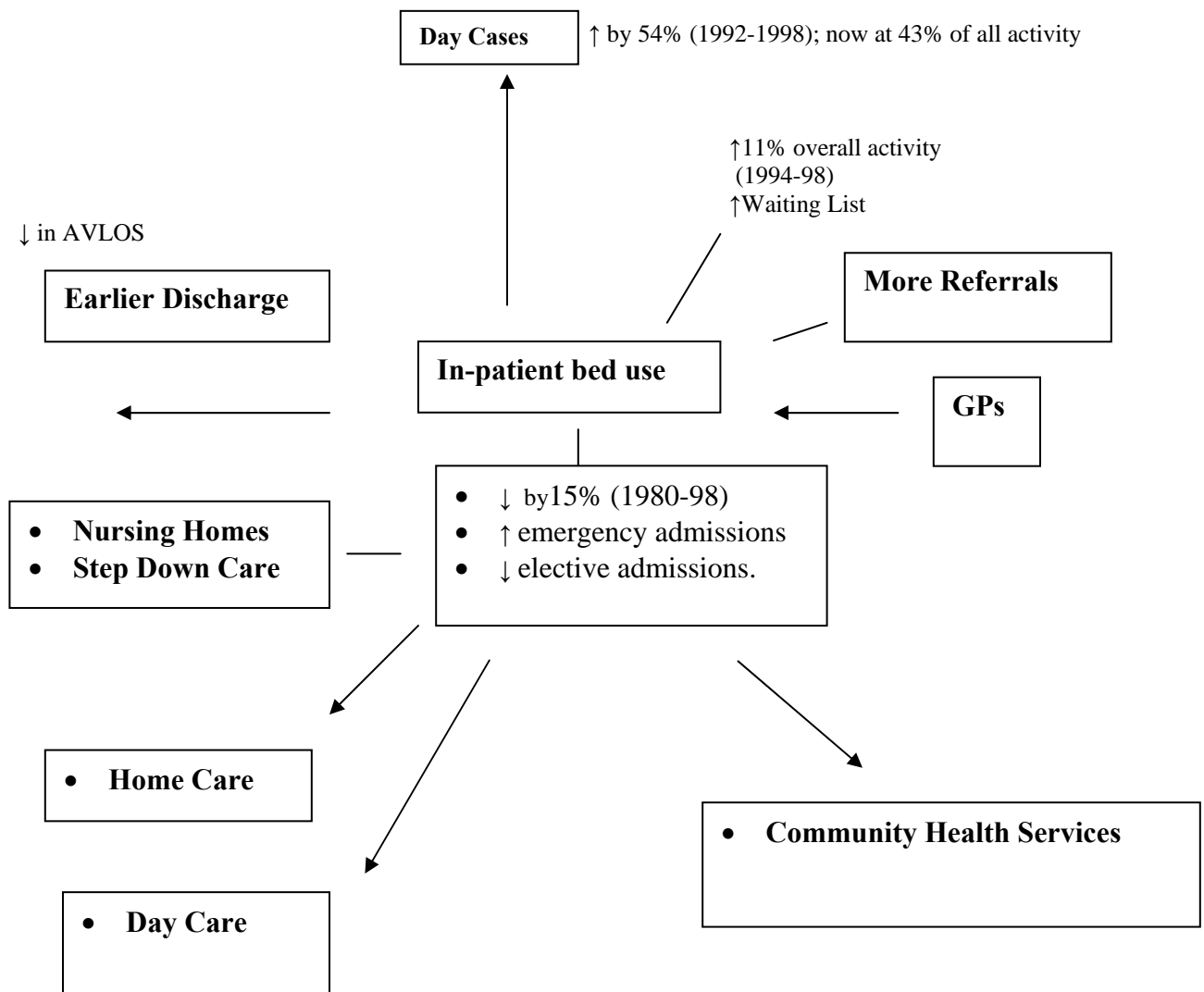
What has changed? Impact on use & need?

Population Changes:

↑ by 33% in 30 years to 2011,
“Bulge” age 15-44 age group;
Highest increase: 45-64, over 65 age groups.

Bed Supply Changes:

↓ by 31% (1980-2000)



I SUMMARY

Major changes in hospital activity, bed supply and demand have occurred in the Eastern Region in the last 20 - 30 years.

These changes are closely linked to:

- Demographics
- Changes in bed use, medical practice and technology
- Bed closures.

A. DEMOGRAPHICS

The Eastern Region's population is 1.3 million, 35.7% of the national figure (1996 census data). This population increased by 8.5% between 1981 and 1996, compared with 5.3% for Ireland as a whole. Population growth in the Eastern Region represented 55.4% of national growth since 1981. Over the 30 year period between 1981 and 2011 the population is projected to increase by up to 33% to 1.6 million compared with 22% nationally. But between 1996 and 2011 the population in the Eastern Region alone is projected to increase by up to 22%.

Currently there is a "bulge" in the 15-44 age group in the Eastern Region as almost half of the population is in this age group. This "bulge" has a low use of hospital services and has "cushioned" overall demand on hospital activity.

Under 15 age Group:

The population of 0-14 year olds declined both nationally (-17.7%) and in the Eastern Region (-17.8%) between 1981 and 1996. Between 1996 and 2011 this age group is projected to increase by up to 13.5% in the Eastern Region and 2.1% nationally.

15 - 44 age group

Between 1996 and 2011 the number in this group will increase at a slower rate than the overall population in the Eastern Region (up to 15.4% compared with 22%). The proportion in the 15-44 age group may actually decline gradually after 2006. These population changes are markedly different to previous trends. They have important implications for hospital activity as the current "cushioning" effect of this age group on hospital activity will not continue.

45 - 64 age group:

This group accounts for 19% of the population in the Eastern Region. It increased by 13.5% in the 5 years between 1991-1996. Compared with other age groups it will have the greatest growth in population between 1996-2011, increasing by up to 118,000 or 48% with obvious implications for hospital services. This age group currently accounts for 23% of inpatient admissions and 23% of bed days. Admissions increased by 23% between 1994 and 1998.

Over 65's:

The over 65 age group accounts for 10% of the Eastern Region's population, 30% of inpatient hospital admissions and 49% of hospital bed days. It has increased at a faster rate in the Eastern Region than in Ireland as a whole. In the 5 years, 1991-1996, this age group increased by 7%, and hospital admissions increased by 13% between 1991-1998. In the 15 year period, 1996 -2011, the over 65 age group will increase by up to 36,000 or 29% to a total of 10.1% of the population in the Eastern Region.

B. BED SUPPLY

There was a reduction of 31% in acute hospital beds in the Eastern Region since 1980 from 7,066 to 4,884 (4,076 excluding Obstetrics and Psychiatry in acute hospitals).

- The Eastern Region accounts for 41% of all acute beds nationally and 41% of activity nationally.
- 20% of all hospital admissions and day cases in the Eastern Region are for patients who live outside the region. This has been a steady figure.
- When bed supply per 1,000 population in the Eastern Region is adjusted to account for patients from other health boards who are treated in hospitals in the Eastern Region, the ratio of beds is lower than both the national ratio, the UK / NHS ratio and the OECD average.
- The bed occupancy rate in the large acute hospitals (DATHs) in the Eastern Region ranges from 87.9% - 94.5%. The national average is 84%. In general medicine, occupancy is generally in excess of 93% in all hospitals. Studies suggest that occupancy above 85% does not allow flexibility for peaks in demand, for example, winter pressures and flu episodes.
- Some specialty hospitals, for example, for gynaecology, orthopaedics, ophthalmology and ENT have relatively low occupancy rates in some hospitals, even though these are high demand specialties with long waiting lists.
- Private hospitals account for 1 in 7 beds in the Eastern Region, and 1 in 6 admissions, primarily for elective surgery.

C. HOSPITAL ACTIVITY

The Eastern Region accounts for 41% of hospital activity nationally; 34% of inpatient activity and 52% of day cases.

Overall activity in the Eastern Region increased by 11% between 1994 and 1998. Inpatient discharges reduced by 15% since 1980 and by 5.4% since 1994. Day cases increased by 54% since 1992 and by 45% since 1994 with the greatest increase in the older age groups.

Older Persons:

Inpatient use declined by 6%. Day cases increased by 80.3%.

Admissions

Emergency admissions are steadily increasing and are now 60% of all admissions and 54% of bed days. Elective admissions declined by a factor of 22% and now represent 33% of admissions and 28% of bed days. Transfers from other hospitals remain steady at 7% of admissions and 18% bed days. This is similar to the trends in the UK.

Day Cases

Day cases increased from 33% to 43% of all activity in the Eastern Region between 1994 and 1998. This compares to 36.1% nationally. Patients from other health boards account for 21% of all day cases. Day case activity in the Eastern Region compares favourably with the UK.

Length of Stay

The average length of stay in the Eastern Region is 8.49, a modest decline since 1994, compared to 5.91 nationally. This reflects the tertiary specialties in the Region and also that half of bed days are occupied by the over 65 age group. However, unexplained variances between hospitals exist for high volume procedures. Internationally, length of stay has stabilised from the sharp decline that occurred in the 1980s.

Patients from other Health Boards

The inflow of hospital admissions has remained steady at approximately 20%. In 1998, 35% of elective activity in the East was for patients from other health boards as were 46% of transfer cases.

There are 3.13 beds per 1,000 population in the Eastern Region compared with 2.7 per 1,000 in the other health boards and 2.86 nationally. As approximately 20% of patients attending Eastern Region do not reside in the region a correction factor has to added to account for this. Consequently in reality there are 2.45 beds available per 1,000 population in the East and 3.11 per 1,000 residents of other health board regions. These data and other indicators of activity are shown in the following table. The ratio of available inpatient beds per 1,000 population in the UK is 3.

Comparative summary of Bed Availability

Indicator	Eastern Region	Other Health Boards	National
Unadjusted data:			
Number of acute inpatient beds available	4,076	5,786	9,862
Bed days available	1,481,515	2,112,012	3,593,527
Available inpatient beds per 1,000 population	3.13	2.7	2.86
Bed days available per 1,000 population	1,139.6	986.9	1044.62
Adjusted data to reflect ERHA residents use of acute beds in the East:			
Available inpatient beds per 1,000 population	2.45	3.11	-
Bed days available (adjusted to 78.5%)	1,162,989	2,430,538	-
Bed days available per 1,000 population	894.6	1,135.8	-
Inpatient discharges per 1,000 population (unadjusted)	116.8	139.9	131.2
Inpatient discharges per 1,000 population (adjusted to reflect non-ERHA residents use)	93.1	154.4	-
Day case rates:			
Day cases 1,000 population (unadjusted)	101.7	57.72	74.35
Day cases per 1,000 population (adjusted as 20.8% of day cases are for non-ERHA residents)	80.6	70.6	

**** acute beds refers to acute medical and surgical specialities. It excludes obstetrics and psychiatric beds that are in acute hospitals.**

D. OBSTACLES:

Waiting Lists

The continuing level of demand for elective cases reflects the sharp decline in elective admissions, the increase in emergency admissions, and the high occupancy levels in the larger acute hospitals.

Theatre use

Long waiting lists and waiting times for elective admissions are adversely affected by “down” theatre time. A recent ERHA survey shows that approximately 22% of theatre time is currently not available. This is equivalent of one week per month of theatre time. The main reason cited for lost theatre time is shortage of trained theatre nurses. The management of how theatre time is planned and allocated to different specialties requires attention.

Winter Pressures

Respiratory disease is the major cause of peaks in demand in the winter months, placing significant pressure on A&E and displacing elective admissions. It accounts for 15% of all emergency admissions and 15% of bed days used. The over 65 age group now accounts for 36% of respiratory emergency admissions, an increase of one-third since 1994. There are 162 designated respiratory specialty beds. The winter demand at 85% occupancy would require 528 respiratory beds, which could potentially be used in the “trough” low demand months for increased elective / waiting list activity.

Distribution of specialties

In some cases, there is an over reliance on one major hospital to carry out routine procedures. This results in long waiting lists in that specialty for that hospital. In other hospitals, specialty volume for certain procedures is very low. This raises issues of quality and efficiency in maintaining the appropriate case loads to maintain expertise.

Inappropriate use

National and international studies suggest an approximate 20% rate of inappropriate admissions to acute hospitals. Studies in Dublin hospitals suggest that while inappropriate admissions are low (generally under 10%), inappropriate bed days, i.e. length of stay is high at approximately 20%. Though there are many reasons for this, one important factor relates to the limited discharge resources for older people who require further care either, long-term, rehabilitation or convalescence.

In addition, there are unexplained variations among hospitals in average length of inpatient stay and use of day care for similar high volume procedures.

Non-Acute Beds for Care of Older People

The Eastern Region is 5th lowest out of all the health board areas in the supply of non-acute beds for older people. It has the highest reliance on private nursing home/convalescent care. It has the lowest ratio of public non-acute beds; two-thirds of this supply is extended care. There is limited convalescent and rehabilitation provision.

UK research shows that regions with greater residential and nursing care provision had lower hospital bed use. The effect seems to result from reduced length of stay rather than reduced admissions. Greater provision of public health nursing was also associated with lower bed use. The Eastern Region has the second lowest ratio of public health nurses nationally.

II. CURRENT SITUATION: CONCLUSIONS

- A. **Hospital activity in the Eastern Region has become more efficient**, accommodating an increased population above national growth, and greater activity with significantly fewer beds in real terms and by national and international ratios. Medical practice has substantially altered with reduced length of stay and a high proportion of day cases.
- B. **However, demand is exacerbated** by a steady increase in emergency admissions, winter pressures in respiratory conditions, exceptionally high occupancy levels, a steady decline in elective admissions, persistently high waiting list levels for elective specialties, and a high level of inappropriate bed days / length of stay for elderly patients.
- C. **This demand and its pressures though severe is in fact “buffered or cushioned”** by two key factors:
- i) The demographic “bulge” in the 15 - 44 age group which has moderated the much higher use of hospital services by the 45 - 64 and over 65 age groups.
 - ii) Care in private hospitals in the Eastern Region accounts for 1 in 7 beds and 1 in 6 admissions in the region, largely for elective admissions.
- D. **“Obstacles” in the system include:**
- Discharge facilities for older persons, especially insufficient step-down facilities, convalescent care, nursing home and home care;
 - Waiting list management at hospital-specific level;
 - Theatre use, theatre capacity and management;
 - Winter pressure management;
 - Variations in length of stay and day case use among hospitals for similar procedures;
 - Distribution of specialties among hospitals;
 - High inflow of residents from other health boards for elective activity.
- E. **Forecasted demand will continue and increase** as the 45 - 64 and over 65 age groups steadily increase in age and the current favourable demographics alter. At present these two groups account for three-quarters of inpatient bed use:
- Age 45-64 use:***
- 31% of all day care
 - 23% of admissions
 - 23% of bed days
- Over 65 age group use:***
- 21% of all day care
 - 30% of admissions
 - 49% of bed days

There will be an increase in real terms from 1996 to 2011 of 48% in the 45-64 age group, the largest increase of all age groups. The over 65 group will increase by 29% compared with a 13.5% increase in the under 15 group and a 15.4% increase in the 15-44 group. Increased age is

the most significant indicator of increased hospital use.

- F. This report concludes that the current system, notwithstanding obstacles cited that require improvement, is working at capacity and that increased bed supply is required both currently and to meet forecasted demand.**

An approximate “stand-still analysis” of the current situation, prior to projecting forward/forecasting, indicates:

Taking the ten main acute hospitals in the Eastern Region, adjusting for an 85% occupancy rate overall and in the major specialties, taking the impact of the waiting list on bed requirements, at 85% occupancy would result in a requirement of an additional increase of 674 beds (16%) on the acute bed complement of 4,076 to meet the current situation.

The following section describes the methodology and projections / forecast for bed requirements in the Eastern Region from now until 2011.

111. Looking Forward: Summary of Methodology & Bed Projections

Objective

The overall objective was to:

- i. estimate the future number of acute hospital beds required for the major specialities in the Eastern Region from 1998 to 2011
- ii. provide alternate scenarios to ERHA policy makers related to bed supply and changes or improvements in the system.



A. Inputs to the methodology included:

- (i) Policy assumptions: the ERHA has set policies of relevance to the acute hospital system and this study. These include:
 - Reducing inappropriate length of stay through the development of non-acute discharge facilities for the elderly. The ERHA plans to develop and increase capacity with 550 sub-acute beds, 1,000 extended care and convalescent beds, and 300 acute rehabilitation beds, giving a total of 1,850 additional beds.
 - Reducing unnecessary hospital admissions by expanding vaccination schemes e.g. meningococcal C and influenza and by expanding hospital day care facilities.
- (ii) Demographic trends and projections, by age and sex.
- (iii) Analysis of hospital activity using IMR and HIPE data by major diagnostic category and speciality.
- (iv) Comparative data from the UK.

B. Methodology

The diagram below shows the simple equation used in the methodology.
The number of inpatient beds required in a hospital can be expressed as a simple equation:

$$\text{Inpatient Beds} = \frac{\text{Activity}}{\text{Throughput}}$$

% Day Cases Average Length of Stay
Patient Flows % Bed Occupancy

Demographic Effects

This diagram shows that the activity level is influenced by factors such as the percentage of admissions that can be treated as day cases, changes in patient flows within the Eastern Region, referrals from outside the Eastern Region, and general increases in demand through demographic factors such as an increasing ageing population. The factors that effect throughput are the average length of stay and the bed occupancy level. The methodology derives future estimates for each of the factors that effect bed numbers to construct average bed estimates for each speciality.

Each of the factors that effect future bed numbers is outlined in Chapter 6 with the data sources and methods used in deriving the future estimates.

C. Scenarios to for inpatient bed requirements to 2011

In order to introduce sensitivity analysis into the projections, and to provide policy makers with alternatives, two main scenarios were developed.

- (i) **Scenario 1 a (“Stand-still scenario”)**: This scenario shows the future estimated bed requirements for each specialty allowing for regional demographic changes but assuming that there is no change in:
- a) patient flows from the 1998 figures
 - b) individual hospitals average length of stay
 - c) day case rates.

The only measure to alter is the average bed occupancy rate. As an average bed occupancy in excess of 85% leads to elective deferrals and problems in handling

emergency admissions, it was assumed that the average percentage bed occupancy would remain the same as the 1998 level if it did not exceed 85%; or else it would be reduced to 85%. This scenario does not provide for waiting list demands. It is simply a ‘stand-still’ picture if the current situation was to pertain.

Further calculations on this scenario were undertaken to estimate the number of beds required to take account of waiting list demands (**scenario 1 b**).

- (ii) **Scenario 2 (“Desirable and realistic scenario”)**: Recent trends show that the average length of stay has been reducing (though stabilising), while day case activity has been increasing in all specialities. This scenario introduces a further 10% reduction in average length of stay together with a further 10% increase in the overall day case rate. Therefore a 1998 hospital length of stay of 10 days would become a planning figure in 2011 of 9 days and a 1998 day case rate of 40% would become a 2011 planning figure of 44%. All other variables remain the same as scenario 1. It also allows for increased activity by an extra 0.5% per annum in addition to that suggested by demographic changes alone, (this extra increase in activity is to model the possibility of an unanticipated increase in overall demand and the possibility of more inflow into Dublin from outside the Eastern Region). In addition the impact of inpatient and outpatient waiting lists on any additional inpatient services have to be considered. An additional factor of 10% was included to account for waiting list ‘conversion’ to inpatient services, 7% for inpatient and 3% as a proxy figure for outpatients.

The SchARR analysis in Chapter 6 details overall projections by specialty for each of the two scenarios.

It should be noted that these projections cannot forecast advances in medical practice which may occur over the next 10 years. However, it is assumed that while some advances may increase demands on hospital beds other advances may have the opposite effect, (refer to literature review).

This Review Group concludes:

- **Scenario 1, “Stand-still”, is the ceiling for acute bed capacity needed to 2011, with the understanding it provides for no improvements in the system, while:**
- **Through system improvements and increased elderly discharge resources, scenario 2, “Desirable and Realistic” can be used as a target for the management of system and hospital performance, and planning of bed capacity.**

D. Acute Bed Needs to 2011

Year	1998	2011		
		<u>Scenario 1a</u>	<u>Scenario 1b</u>	<u>Scenario 2</u>
		“Stand still”	“Stand still with waiting lists factored in)	“Desirable & realistic”
No. Beds	3,913 *	5,182	6,059	5,189
Additional requirements	-	1,269	2,146	1,276

*The figure of 3,913 beds is used as a baseline rather than 4,076 as some specialties were not forecasted e.g. pain management, dental and genito-urinary medicine. In addition beds in Hume Street (31) and Peamount Hospitals (61) were not forecasted. All these additional beds need to be added to the final calculations.

- (iii) Thus Scenario 1a with an increase of 1,269 beds represents the stand-still requirements without waiting list demands. Scenario 1b with an increase of 2,146 beds represents a stand-still analysis adjusted for waiting lists demands. Scenario 2 with an increase of 1,276 beds represents required capacity given improvements in length of stay, day care, and elderly services. It also provides for absorption of the waiting list and provision of unanticipated demand.
- (iv) Additional analysis is being undertaken to determine the proportion of patients from other health board regions that could be treated by their own health board.

Specialities with highest bed increases under Scenario 2 are general medicine, general surgery, cardiology, oncology and orthopaedics.

Specialities with the smallest changes in bed numbers under scenario 2 are gynaecology, ophthalmology, plastic surgery, neurology, neurosurgery, and urology.

IV RECOMMENDATIONS

1. Against a ceiling of 2,146 (scenario 1b) additional acute beds to accommodate a standstill situation to 2011, **the ERHA target should be 1,276 (representing scenario 2) additional acute beds for management and planning purposes.**

This will provide impetus for reducing length of stay (by 10%) where appropriate, including significantly, through the planned development of discharge resources for the care of older persons. It provides impetus for reducing admissions through planned expansion of relevant preventive health programmes and hospital day care use (by 10%).

This projection also incorporates capacity for the current waiting lists and provides some flexibility for unanticipated demand.

2. **The above recommendation depends upon developments in non-acute services for care of older persons.** Such an expansion is essential to allow sufficient capacity in acute hospitals in the Eastern Region in the future.
3. **Developments in acute day facilities is needed** particularly as many patients on long waiting lists could be managed as a day case. Dedicated acute day care facilities or unit should be considered.

Acute day beds account for only 7% of all beds in hospitals in the Eastern Region; while their use has increased rapidly to 43% of all discharges. Day care is used for 35% of all procedures, however there are unexplained variations among hospitals for routine procedures.

4. Inpatient length of stay shows unexplained and material variances among hospitals in the Eastern Region for some high volume procedures:
 - (i) **length of stay (and the variation therein) require further analysis** and likely improvement.
 - (ii) **Discharge planning, based on care planning upon admission, should be developed** as a hospital function.
5. Strategies are needed **to protect elective admissions** from deferral due to the increasing level of A&E admissions and winter pressures. These could include planning higher levels of elective work in the “trough” periods instead of year round and / or by developing a discrete elective hospital or units.
6. The **distribution of specialities requires review** and possible re-organisation, on two levels:
 - (i) In some specialities with long waiting lists for selected procedures, it was found that one of the main hospitals appeared to be the predominant provider as it had the highest activity and highest waiting list. This was the case with ENT and orthopaedics which together account for 32% of the waiting list.
 - (ii) In some specialities with high volume procedures, some hospitals have a significantly low level of activity. Issues of quality of care, maintenance of expertise, efficiency, and the possibility of low volume contributing to higher lengths of stay need to be considered in these cases.

7. Two aspects of **patient referral management** and the waiting list require review:-
- (i) There is little migration from hospitals with high waiting lists in a particular speciality to hospitals with a small waiting list in the same speciality.
 - (ii) Specialist hospitals for gynaecological, orthopaedics, ophthalmology all have lower occupancy and smaller waiting lists than the larger acute hospitals for the same procedures.
- Waiting list management at regional level, rather than at hospital - specific level as present, should be addressed.**
8. The loss of **theatre time** is a major contributor to the waiting list and length of stay variances. While nursing shortages are a key factor, other factors emerged as requiring attention.
- (i) **The planning and allocation of theatre time should be a core management task** and should be managed in association with consultants. This should include provision for flexibility and adjustment in allocation to specific specialities and procedures.
 - (ii) **Discrete day care theatres** should be established.
9. The **inflow of residents from other health boards for routine elective procedures** requires particular examination and the development of strategies to achieve appropriate in-flow to hospitals in the East.

Chapter six, the SchARR Forecast, details hospital activity by specialty. This report utilised HIPE data for combined activity for residents from other health boards. A subsequent review should analyse HIPE data by county and health board area for each specialty.

CHAPTER ONE

DEMOGRAPHIC TRENDS

Since 1981, important changes in demographic profiles both nationally and in the Eastern Region have occurred, and further changes are projected up until 2011 and beyond. One of the most notable changes relates to increases in the elderly population, especially in the Eastern Region, and this can be expected to have a very significant impact on the use of hospital resources.

The key demographic factors are summarised in Table 1.1 (where a net annual population inflow into the Eastern Region of ~10,000 between 1996-2011 is assumed). This scenario is considered to be the most likely given the recent trends in migration.

Figure 1.1 shows the population structure for Ireland and the Eastern Region between 1981 and 2011 and Figure 1.2 shows expected population changes in the Eastern Region in greater detail.

- A. The total population of Ireland increased from 3.44 million in 1981 to 3.63 million in 1996 (an increase of 5% over 15 years). Between 1996-2011 the national population is projected to reach 4.20 million (an increase of 16% over 15 years).

The total population of the Eastern Region increased from 1.19 million in 1981 to 1.30 million in 1996 (9% increase in 15 years). By 2011, this population is projected to reach 1.47 million (13% increase in 15 years) through natural increase, and between 1.56-1.59 million when migration flows are included (approximately 21.5% increase in 15 years). Over the 30 year period (1981-2011) the national population is projected to have increased by approximately 22%, and that of the Eastern Region by 23% through natural increase alone, but by between 31%-33% when migration flows from 1996 onwards are included.

- B. The population increase in the Eastern Region between 1981 and 1996 (approximately 101,000 extra persons) accounted for 55% of the increase in the national population (approximately 183,000 extra persons). Between 1996-2011 the Eastern Region is projected to account for 30% of the increase in population through natural increase alone, and by between 46%-50% when migration flows are included.
- C. The Eastern Region accounted for 34.7% of the national population in 1981, 35.7% in 1996, and is projected to account for 35.0% of the national population by 2011 through natural increase alone, and approximately 37.5 % when migration flows are included.
- D. Over the 15 year period (1981-1996) the populations in the 45-64, the over 65 and over 75 year age groups in the Eastern Region area have grown at a considerably faster rate (approximately 10%) than has occurred nationally. In the subsequent 15 year period (1996-2011), the rates of increase in both populations in these age groups are expected to be more similar.

- E. The population structure (males and females combined) of the Eastern Region is projected to remain broadly similar to that of Ireland as a whole. Overall, a marked demographic “bulge” will continue to be present in the 15-44 age group both nationally and in the Eastern region, and will account for approximately 45% of both populations. However, the effect of the demographic bulge can be seen to be already moving into the 45-64 age group, and in later decades it is likely to have a dramatic effect on the older age groups.
- F. The key changes in the individual age groups are as follows:
1. The under 15 year population, after a period of marked decline between 1981-1996, is projected to increase again in the subsequent 15 year period (1996-2011) both nationally and in the Eastern Region (at a much higher rate than nationally).
 2. The 15-44 year old population between 1996-2011 is projected to increase at a slower rate nationally (10% increase) than in the previous 15 year period (15% increase), whereas in the Eastern Region, between 1996-2011 this age group is projected to increase by 3% when the effect of migration is not considered, and by between 13%-15% when migration flows are included, similar to the 15% of the previous 15 years.
 3. Marked increases have occurred in the 45-64 year age group both nationally and in the Eastern Region between 1981-1996 (19% and 29% respectively). However, even greater increases are projected to occur between 1996-2011 both nationally (increasing by 42%) and in the Eastern Region (39% through natural increase alone and between 46%-48% when migration flows are included). Over the 30 year period (1981-2011), this age group is projected to have increased by 70% nationally and in the Eastern Region by 79% through natural increase, and approximately 90% when migration flows are included, making it the fastest growing age group.
 4. Between 1981 and 1996, the over 65 year age group increased in the Eastern Region at a greater rate than nationally (23% and 12% respectively) with an increase of an extra 24,000 persons approximately in the Eastern Region. A similar increase in population is projected to occur in this age group between 1996-2011 in the Eastern Region (between 25%-29%) involving a further 31,000 persons through natural increase alone and approximately 36,000 persons when migration flows are included.
 5. The over 75 year age group has increased markedly between 1981 and 1996 both nationally and in the Eastern Region (32% and 39% respectively), and the age group is projected to increase at a slower rate between 1996-2011 (by 19% in both populations). In the Eastern Region between 1981-1996 this age group increased by an extra 14,000 persons approximately, and between 1996 and 2011, it is projected to increase by a further 10,000 persons approximately.

G. Conclusions on the influence of migration on population changes in the Eastern Region:

1. Migration tends to account for a significant proportion of the difference between high and low population projections.
2. Whilst a high degree of reliance can be placed on the natural population increase calculations, the potential volatility of migration flows in response to a wide range of regional, national and international influences, especially over longer time periods of time, is acknowledged.
3. The overall inflow onto the Eastern Region of 8,000 to 10,000 persons (to include the net effect of international and internal migration) per annum on average between 1996 and 2011 is used in the population projections outlined in Table 1.1.
4. The effect of migration is estimated to account for approximately 7.5% of the projected total population of the Eastern Region by 2011.
5. A high proportion the immigrant population is likely to be in the 15-44 year age group (between 70%-80%), and it will therefore contribute to the demographic “bulge” in this age group as discussed above. Furthermore, a significant proportion of women in this population will be in the prime child bearing age group and so population inflows are likely to significantly contribute to the increase in the child population in the Eastern Region.
6. The above demographic calculations should be reviewed in light of the publication of Regional Projections for the Greater Dublin Area (Dublin and Mid-East) by the CSO, following a review the accuracy of the projections by the Expert Group. More detailed data relating specifically to the to Eastern Region may become available subsequently, including such important refinements as the different age and sex structures of various migration flows.
7. Outward and inward migration are known to be the most uncertain factor influencing population changes. Hence, these demographic estimates should be reviewed as new data become available, especially following the 2001 census.

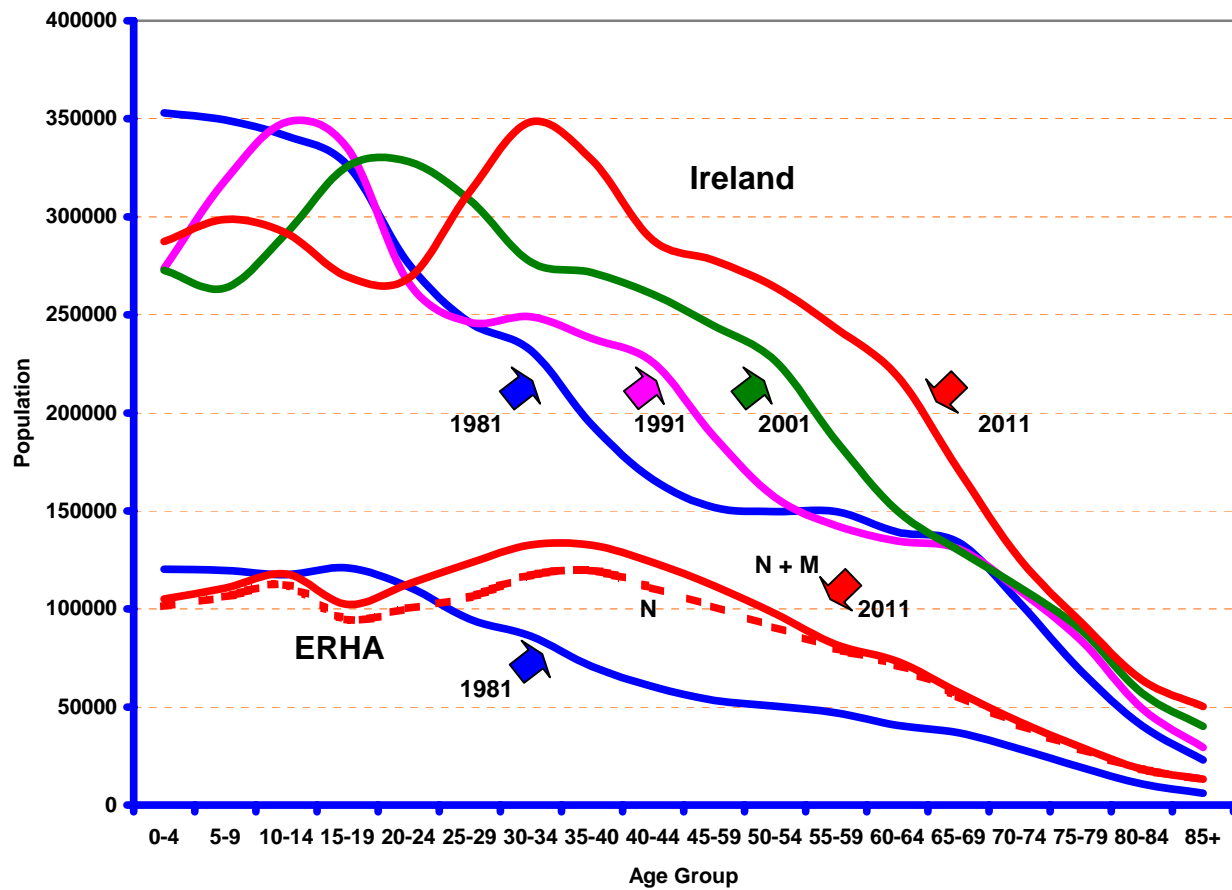
Table 1.1 Population trends, 1981-2011, Eastern Region and Ireland including a net migration inflow of ~ 10,000 per year 1996-2011 into the **Eastern Region**

Population	Year		Age group (years)					Total
			0-14	15-44	45-64	65+	75+	
1981		East	357581	544158	191426	101570	36133	1194735
		Ireland	1043729	1440320	590402	368954	131897	3443405
1986		East	343674	579422	200827	108315	41073	1232238
		Ireland	1024701	1540143	591444	384355	143861	3540643
1991		East	316548	594285	216949	117443	46452	1245225
		Ireland	940574	1560562	621683	402900	162823	3525719
1996		East	294051	630256	246361	125271	50363	1295939
		Ireland	859424	1648981	703800	413882	174531	3626087
2001		East	306035	692099	280942	133392	54243	1412468
		Ireland	828134	1771550	806330	427697	186761	3833711
2006		East	320162	722919	321577	144190	56863	1508848
		Ireland	844535	1820347	914199	452354	196251	4031435
2011		East	333612	727171	364279	160953	60991	1586015
		Ireland	877543	1816327	1003490	503821	207440	4201181
Percentage	1981	East	29.9	45.5	16.0	8.5	3.0	100.0
		Ireland	30.3	41.8	17.1	10.7	3.8	100.0
1986		East	27.9	47.0	16.3	8.8	3.3	100.0
		Ireland	28.9	43.5	16.7	10.9	4.1	100.0
1991		East	25.4	47.7	17.4	9.4	3.7	100.0
		Ireland	26.7	44.3	17.6	11.4	4.6	100.0
1996		East	22.7	48.6	19.0	9.7	3.9	100.0
		Ireland	23.7	45.5	19.4	11.4	4.8	100.0
2001		East	21.7	49.0	19.9	9.4	3.8	100.0
		Ireland	21.6	46.2	21.0	11.2	4.9	100.0
2006		East	21.2	47.9	21.3	9.6	3.8	100.0
		Ireland	20.9	45.2	22.7	11.2	4.9	100.0
2011		East	21.0	45.8	23.0	10.1	3.8	100.0
		Ireland	20.9	43.2	23.9	12.0	4.9	100.0
% Difference	1981-1996	East	-17.8	15.8	28.7	23.3	39.4	8.5
		Ireland	-17.7	14.5	19.2	12.2	32.3	5.3
	1996-2011	East	13.5	15.4	47.9	28.5	21.1	22.4
		Ireland	2.1	10.1	42.6	21.7	18.9	15.9
	1981-2011	East	-6.7	33.6	90.3	58.5	68.8	32.8
		Ireland	-15.9	26.1	70.0	36.6	57.3	22.0
Absolute change	1981-1996	East	-63530	86098	54935	23701	14230	101204
		Ireland	-184305	208661	113398	44928	42634	182682
	1996-2011	East	39561	96915	117918	35682	10628	290076
		Ireland	18119	167346	299690	89939	32909	575094
	1981-2011	East	-23969	183013	172853	59383	24858	391280
		Ireland	-166186	376007	413088	134867	75543	757776

Sources: National data - PHISV4BETA, 1996-2011 projections - MI, F2 assumptions. Eastern Region 1996-2011 projections: Health Information Unit, Department of Public Health, ERHA: natural increase plus the effect of a net inflow of ~ 10,000 into the area per annum 1996-2011 ;TRF 1.75 (age-specific fertility rates, Population & Labour Force Projections 2001-2031 (Table D) applied to the age profile of immigrants, Population & Migration Estimates April 200, release 12 Sept 2000 (Table 6) divided proportionally into 5 year age groups. Data to be reviewed following publication of Regional Population Projections, CSO.

Figure 1.1

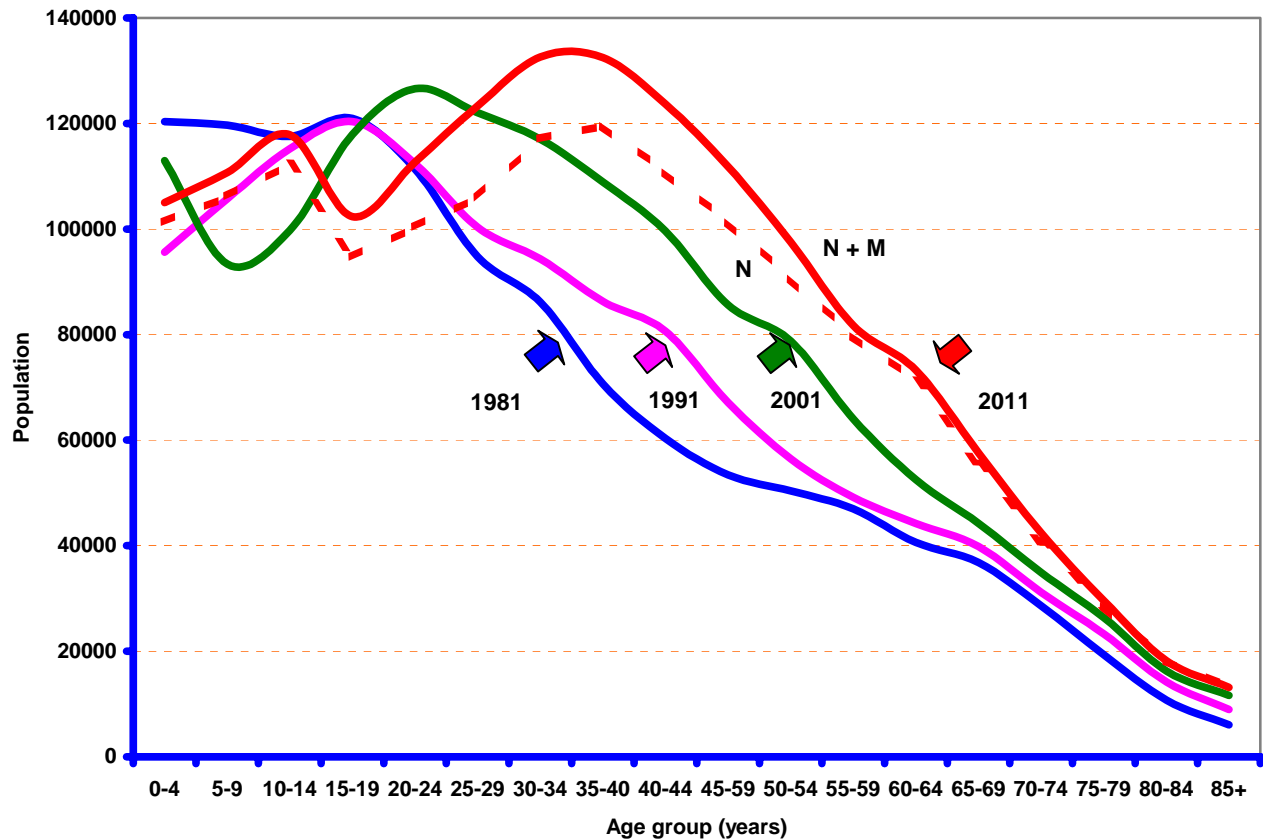
Population Structure Ireland & Eastern Region, 1981-2011



Summary

1981-2011	Ireland	Eastern Region
Population	3.44 - 4.20m	1.20-1.59 m
Overall Change	22% ↑	33% ↑
0-14 y	16% ↓	7% ↓
15-44 y	26% ↑	34% ↑
45-64 y	70% ↑	90% ↑
65+ y	37% ↑	59% ↑
75+ y	57% ↑	69% ↑

Figure 1.2 Population Structure ERHA, 1981-2011



Summary: Comparison between the Eastern Region and Ireland

- ◆ Shifts similar but more dramatic
- ◆ Eastern Region ~35% Ireland population in 1981
- Eastern Region ~38% Ireland population in 2011 (52% of Ireland increase)
- Migration adds ~7.5% to 2011 population (~118,000)
- 70-80% migrants are in 15-44 y group; this impacts on birth rates
- Over 65y – further 35,000 between 1996-2011
- Over 75y – further 10,000 between 1996-2011
- Marked bulge in 15-44 y group (~45% of total) cushioning the demand on hospitals (at present).

CHAPTER TWO

HOSPITAL ACTIVITY TRENDS

A. National

- (1). In 1980 there were 84 acute hospitals in Ireland with a total of 15,004 acute publicly funded beds. There was a steady decrease in bed availability up to 1998 though this was most noticeable in the mid-late 1980s. By 1998 there were 60 acute hospitals nationally with 11,788 acute publicly funded beds, representing a 21.4% reduction in bed availability since 1980, Appendix A, B&C (Information Management Return (IMR) data).
- (2). Hospital inpatient discharges increased from 1980 to 1998. In 1980 there were 519,901 inpatient discharges from acute hospitals and the average length of stay was 9.7 days. In the intervening 18 years there was a small but steady increase in the number of discharges and a decrease in the average length of stay. In 1998 there were 537,841 inpatient discharges (an increase of 3.5% on 1980). The average length of stay in 1998 was 6.8 days, Appendix D&E (IMR data).
- (3). In addition to the modest increase in inpatient discharges there has been a remarkable growth in day case activity over the past 18 years. Day cases began to be recorded in 1987. In that year there were 85,172 day cases treated in Irish hospitals compared with 270,240 in 1998, an increase of over 200%. It is likely that there may have been under recording of day cases in the early years. However, the growth in day case activity continues. In 1993 there were 186,842 day cases. The 1998 figure is 44.6% greater than that recorded in 1993. Nationally day cases account for 36.1% of all hospital discharges, Appendix D&E (IMR data).

B. Eastern Region

- (1). There were 7,066 acute beds in publicly funded hospitals in the Eastern Region in 1980. A steady decline in the number of available acute beds occurred throughout the 1980s with the biggest reductions occurring between 1986 and 1988. In the 1990s the number of beds available varied very little from year to year. In 1998 4,884 beds designated as 'acute' were available in the Eastern Region. The decline between 1980 and 1998 was 30.9%, Appendix A, B & C (IMR data).

There are 4,884 inpatient beds in the Eastern Region designated as 'acute'. This number includes obstetrics (376), psychiatric beds in acute hospitals (122) and 'special' beds

(310) i.e. National Medical Rehabilitation Centre (123), St. Mary's, Baldoyle (90) and Clontarf Orthopaedic (97). When these obstetrics, psychiatric beds and 'special' beds are excluded, the number of 5 and 7 day beds for acute medical, paediatric and surgical specialties is 4,076. The comparable figure nationally is 9,862 and for all other health boards it is 5,786. In addition in the Eastern Region there are 316 designated acute day beds. The equivalent figure in other health boards is 281.

- (2). In 1980 there were 220,932 inpatient discharges (all specialties) from acute hospitals in the Eastern Region compared with 188,130 in 1998, a reduction of 14.8%, (Appendix E1). The figure in 1998 for acute medical and surgical specialties was 151,879, (Appendix D). These data do not take into account the impact of day cases which were not recorded in 1980. In recent years there has been a big growth in day cases from 92,800 in 1992 to 142,498 in 1998, a 54% increase. In 1998, day cases represented 43.1% of all discharges from hospitals in the Eastern Region.
- (3). Total acute medical and surgical discharges in the Eastern Region during 1998 was 284,128. This is 41% of all national activity, Appendix D&E.

C. Hospital activity in the Eastern Region excluding obstetrics and psychiatry in acute hospitals

Using the 4,076 beds as baseline; 41.3% of national acute inpatient beds were in the Eastern Region, Appendix D&E.

1998 IMR* Data	Eastern Region**		Other Health Boards		National	
	Overnight	Day	Overnight	Day	Overnight	Day
Beds in Acute Hospitals (excluding obstetrics, psychiatry and 'special' beds)	4,076	316	5,786	281	9,862	597
All beds in Acute Hospitals	4,574 (excludes 310 'special beds')	348	6,904	288	11,478	636

*Information Management Return Data

D. Inpatient beds per 1,000 population

Comparative summary

Indicator	Eastern Region	Other Health Boards	National
Unadjusted data:			
Number of acute inpatient beds available	4,076	5,786	9,862
Bed days available	1,481,515	2,112,012	3,593,527
Available inpatient beds per 1,000 population	3.13	2.7	2.87
Bed days available per 1,000 population	1,139.6	986.9	1,044.62
Adjusted data to reflect residents of the Eastern Region use of acute beds in the Region:			
Available inpatient beds per 1,000 population	2.45	3.11	-
Bed days available (adjusted to 78.5%)	1,162,989	2,430,538	-
Bed days available per 1,000 population	894.6	1,135.8	-
Inpatient discharges per 1,000 population (unadjusted)	116.8	139.9	131.2
Inpatient discharges per 1,000 population (adjusted to reflect non-ERHA residents use)	93.1	154.4	-
Day case rates:			
Day cases 1,000 population (unadjusted)	101.7	57.72	74.35
Day cases per 1,000 population (adjusted as 79.2% of day cases are for non-ERHA residents)	80.6	70.6	

**** acute beds refers to acute medical and surgical specialities. It excludes obstetrics and psychiatric beds that are in acute hospitals.**

There are 3.13 beds in acute publicly funded hospitals in the Eastern Region per 1,000 population in this Region and 2.7 per 1,000 population in all other health board areas. However, approximately 20% of admissions and bed days in hospitals in the East are being used for patients who live in other health board areas. Consequently a correction factor has to be inserted to determine the proportion of beds in the Eastern Region that

are available to residents living in the Region. When the adjustment is made there are 2.45 acute beds being used by residents in the East per 1,000 population and 3.11 beds per 1,000 population in other health boards. There is a total of 2.87 beds per 1,000 of the national population.

E Day beds

There were 597 day beds available nationally of which 316 (52.9%) are in the Eastern Region, Appendix D.

- The total number of day discharges nationally was 255,772 of which 132,249 (51.7%) were in the Eastern Region, Appendix D.
- There was considerable variation between hospitals nationally and in the Eastern Region regarding the number of patients discharged per day bed per year. In the Eastern Region the number of discharges per day bed ranged from 200 to 1,412 during 1998. Individual hospital's interpretation of the definition of a day bed may explain these differences as much efficiencies within the hospital.
- Of all 284,128 acute medical and surgical discharges in the Eastern Region 132,249 (46.5%) were day cases.
- The day case rate per 1,000 population (adjusted) in the Eastern Region was 80.6; in other health boards it was 70.6 per 1,000; in the NHS is 57.7.

F. Bed Occupancy

- Average occupancy in the Eastern Region was 87.2%. In the 5 major Dublin hospitals (DATHs) the occupancy rate ranged from 87.9% to 94.5% The average occupancy for all other health boards combined was 83.8%, Appendix D.
- The total number of inpatients discharged nationally was 451,361 of which 151,879 (33.6%) were from hospitals in the Eastern Region, Appendix D&E
- The average length of stay for health boards outside the East was 5.9 days. For the Eastern Region it was 8.6 days.
- Within the Eastern Region it appears that some specialty hospitals have low occupancy rates, yet there is substantial waiting list for the relevant services e.g. Ophthalmology, ENT, Gynaecology and Orthopaedics. Other factors have to be taken into account when assessing the possible reasons for this e.g. theatre capacity, ICU capacity, staffing levels, financial resources and the level of co-operation in terms of sharing waiting lists between hospitals, Appendix D&E.

G. Use of Hospitals in the Eastern Region by Residents of other Health Boards accounts for: (HIPE data 1998):

- 9% of emergency admissions
- 35% of elective admissions
- 46% of transfer cases.

CHAPTER THREE: HOSPITAL ACTIVITY

A. SUMMARY HIPE ACTIVITY DATA FOR THE EASTERN REGION, 1994-1998

1. Aggregated HIPE data for the Eastern Region were examined for the years 1994 to 1998 inclusive. These data are presented in Appendix F, Tables 1.1 to 19.2 and Figures 1 to 4. Obstetric and psychiatric activity has been excluded. The main findings are:-

- (a) Between 1994 and 1998 the total annual number of hospital discharges increased from 227,081 to 252,505 (11.2%). This trend was not constant over the five-year period. Discharges increased between 1994 and 1997 and fell between 1997 and 1998 from 255,908 to 252,505 (1.3%), Table 1.1 and Figure 1. Increasing day case activity had a major impact on activity patterns - there were 75,307 day cases in 1994 compared with 108,963 in 1998 (45% increase). Discharges, including day cases, were most common in the 15-44 years age group, Figure 2.
- (b) **Inpatient Discharges:** The number of inpatient discharges dropped from 151,774 in 1994 to 143,542 in 1998 (5.4%) The reduction was noted for all age groups. It began in 1996 for the under 15 and 65 + age groups and in 1997 for other age groups, Table 2.1.

There was an 8.8% fall in bed days used in the Eastern Region between 1994 and 1998, Table 2.2. Of the 1,315,524 bed days used in 1998, 48.5% were in the over 65 age group. Links between inpatient discharges and bed days used by age group for 1998 show that:

- Children accounted for 18.6% of in-patient discharges and only 9.4% of bed days used.
 - The 15-44 age group accounted for 29% of inpatient discharges and 18.7% of bed days used.
 - The 45-64 age group accounted for 22.5% of inpatient discharges and 23.4% of bed days used.
 - The 65+ age group accounted for 29.9% of inpatient discharges and 48.5% of bed days used.
- (c) **Day Cases:** Of the 108,963 day cases in 1998 the greatest number (38,306, 35.2%) were in the 15-44 age group. The proportion of day case activity in the under 45 age groups increased steadily between 1994 and 1998 by 24.8%. For the older age groups the number of day cases increased by 62.9% in the 45-64 and 80.3% in the 65+ age group, Table 3.1.

Compared with other age groups, children (under 15 age group) had the lowest proportion of day case activity at 12.8% in 1998 and this declined from 17.4% in 1994. Considerably more day case work now occurs in older age groups, Table 3.1. Rates of day case activity per 1,000 (national) population also reflect these changes. The day case rate for the 65 + age group increased from 31.1 per 1000 in 1994 to 54.6 per 1,000 in 1998 (75.6% increase), Table 3.1.

The proportion of total activity conducted as a day case increased from 33.2% in 1994 to

43.2% in 1998 with the biggest percentage in the 45-64 age group (51.1%), Table 3.2.

(d) **LENGTH OF STAY**

The mean length of stay (Avlos) in the Eastern Region was 9.2 days in 1998. Although this represents a 3% decrease on the 1994 figure, increases for 1998 were observed for all age groups, Table 2.3 and Figure 3. Children had the lowest Avlos at 4.6 days while the 65+ age group had the highest at 14.9 days. The median los has remained constant since 1994 for all age groups.

(e) **SOURCE OF ADMISSION**

Of the 143,542 inpatient discharges in 1998, 59.7% were emergencies, 32.7% were electives and 7.5% were transfers from other hospitals. Since 1994, the number of electives decreased by 22.2%; emergencies increased by 6.9% and transfers dropped by 2.9%, Table 4.1.

Emergencies used 713,662 (54.2%) bed days compared with 366,908 (27.9%) for electives and 234,954 (17.9%) for transfers in 1998. The proportion of bed days for emergencies increased steadily since 1994 with a corresponding decrease in the elective proportion, Table 4.2 and Figure 4.

Transfers had the longest Avlos at 21.7 days compared with 8.3 days for emergencies and 7.8 days for electives in 1998. Transfers were the major contributor to the 5.7% increase in Avlos between 1997 and 1998, Table 4.3.

(f) **AREA OF RESIDENCE**

Inpatient Discharges: Of the 143,542 inpatient discharges in 1998, 79.7% were residents of the Eastern Region and 20.3% were from other health board regions. This trend changed very little between 1994 and 1998, Table 5.1. Residents of the Eastern Region used 78.5% of bed days in 1998 and this figure remained steady between 1994 and 1998, Table 5.2. The Avlos of residents of the Eastern Region was 9 days in 1998, an increase of 0.5 of day from the previous year, Table 5.3.

The Avlos for residents of other health boards admitted to hospitals in the East was 9.7 days in 1998, an increase of 0.2 of day on the previous year. The median los for residents of other health boards, while higher than that for residents of the East in 1994 and 1995, has since matched the East's level, Table 5.3.

Day Cases: In 1998, residents of other health boards accounted for 20.8% of all day case activity in hospitals in the Eastern Region with numbers rising from 14,504 in 1994 to 22,695 in 1998 (56.5% increase). The corresponding increase for residents in the Eastern Region was 41.9%. Rates per 1,000 population increased by a third for residents in the Eastern Region and by a half for residents of other health boards over the five-year period, Table 6.1.

2. PRINCIPAL REASON FOR CARE

The main categories of illness (as defined by ICD-9-CM and excluding obstetrics and psychiatry activity) for discharges from hospitals in the Eastern Region were:-

- (a) **Inpatient Discharges:** The top five categories of illness for the 143,542 inpatient discharges in 1998 were:

- Injury and poisoning	14.6%
- Circulatory	13.3%
- Respiratory	11.9%
- Digestive	10.1%
- Ill-defined	8.4%

The above categories accounted for nearly 60% of inpatient discharges, Table 7.1.

This pattern of illness was similar for each of the five years. Some changes of note between 1994 and 1998 were: musculoskeletal discharges dropped from 9,155 (6%) to 6,378 (4.4%) and nervous system/sensory organs discharges fell from 11,170 (7.4%) to 8,623 (6%).

The main uses of bed days (1,315,524) by category of illness in 1998 and their Avlos were:

		Avlos
- Circulatory	19.0%	13.1
- Neoplasms	14.8%	13.9
- Respiratory	12.5%	9.6
- Injury and poisoning	9.5%	5.9
- Digestive	8.2%	7.4

This distribution of bed days used and Avlos was similar for each of the five years, Tables 7.2 and 7.3. Numerical decreases were observed from 1994 to 1998 for all categories except respiratory and perinatal. A 9.3% increase in respiratory bed days used occurred over time. The greatest decline, 30% related to musculoskeletal bed days used, Tables 7.2.

Excluding the perinatal category, the highest average lengths of stay were for neoplasms (13.9), circulatory (13.1), nervous system/sensory organs (10.6), musculoskeletal (10.5) and endocrine (10.3) (table 8.3).

- (b) **Day Cases:** There were 108,963 day cases in 1998. The main categories of condition were:

- Neoplasms	14.0%
- Digestive	13.4%
- Nervous/sensory organs	8.6%
- Genitourinary	7.6%
- Skin	6.6%

Supplementary classifications accounted for the greatest proportion of day case activity for the years 1995 to 1998 (21% in 1998). Chemotherapy and orthopaedic aftercare (removal of pins/screws/plates etc) constitute the majority of such cases, Table 8.1.

Between 1994 and 1998, day cases increased numerically for all categories of illness except injury and poisoning and congenital anomalies.

In 1998 over 50% of all discharges in the following categories were day cases, Table 8.2:

-	Skin	69.6%
-	Endocrine	52.7%
-	Neoplasms	52.1%
-	Nervous/sensory organs	52.0%
-	Haematology	51.2%
-	Digestive	50.1%

3. **PRINCIPAL REASON FOR CARE AND CHILDREN (under 15 age group)**

(a) **Inpatient Discharges:**

There were 26,731 inpatient discharges for children in 1998, a drop of 10.4% since 1994, and 124,034 bed days were used, Tables 9.1 and 9.2. The main reasons for care were:

		Bed Days Used
-	Respiratory	21.3% 16.9%
-	Injury and poisoning	17.2% 10.0%
-	Infectious diseases	9.1% 8.4%
-	Ill-defined	8.7% 7.1%
-	Digestive	8.7% 7.8%
-	Congenital anomalies	8.2% 13.2%

The numbers of inpatient discharges and bed days used declined from 1994 to 1998 for most categories of principal diagnosis, except perinatal conditions and supplementary classifications. The decline in discharges was as high as 50% for neoplasms. Despite a 16% increase in the number of discharges from 1994 to 1998 for infectious diseases, a 57% decrease in bed days used occurred for the same category resulting in a fall in Avlos from 11.4 in 1994 to 4.3 in 1998, Table 9.3.

The Avlos for children for all diagnoses was 4.6 days but there was considerable variation by category of illness. Excluding perinatal conditions, circulatory disorders had the highest Avlos of 9.5 days while injury and poisoning had the shortest Avlos of 2.7 days, Table 9.3.

- (b) **Day Cases:** The main reasons for care for the 13,958 day cases aged under 15 years in 1998 were, Table 10.1:

- Genitourinary	16.8%
- Nervous/sensory organs	16.0%
- Congenital anomalies	11.5%
- Neoplasms	9.9%
- Digestive	7.1%

As a proportion of total activity, children's day case activity was highest for neoplasms at 72.2% in 1998, increasing from 56.5% in 1994. Over 60% of the total activity for genitourinary and nervous system/sensory organs categories was conducted as day cases in 1998, Table 10.2.

4. PRINCIPAL REASON FOR CARE AND OLDER PERSONS (65 years and older)

- (a) **Inpatient Discharges:** There were 42,879 inpatient discharges aged 65+ in 1998, a 5.6% decrease on the 1994 figure, and 637,973 bed days were used, Tables 11.1 and 11.2. The main reasons for care were:

		Bed days used
- Circulatory	24.7%	26.6%
- Neoplasms	13.9%	14.9%
- Respiratory	11.8%	16.2%
- Injury and poisoning	8.7%	7.4%
- Digestive	8.2%	6.2%
- Nervous/sensory organs	7.2%	5.0%

The numbers of bed days used declined for all categories of illnesses from 1994 to 1998, with the exception of respiratory and infectious diseases where increases of 18.6% and 11.7% occurred respectively. In 1998, 16.2% of bed days used related to respiratory illnesses compared with only 12.2% in 1994.

The Avlos for inpatient discharges aged 65+ was 14.9 days in 1998, down from 15.7 in 1994, Table 11.3. The highest Avlos was for infectious diseases with 21.8 days followed by respiratory diseases with 20.5 days. For these two categories and for skin diseases, the 65+ average lengths of stay were more than twice those recorded for all ages, table 7.3. Similarly, inpatient discharges for injury and poisoning for all ages incurred an Avlos of 5.9 days in 1998 whereas the corresponding figure for those aged 65+ was 12.7 days.

- (b) **Day Cases:** The main reasons for care for the 22,950 day cases in the 65+ age group in 1998 were, Table 12.1:

- Neoplasms	16.8%
- Nervous/sensory organs	15.7%
- Digestive	13.3%
- Circulatory	7.5%
- Skin	5.9%

Supplementary classifications accounted for 21% of day cases for this older age group.

Numerical increases occurred for all categories of illness between 1994 and 1998. Nearly 70% of the total activity for skin diseases was conducted as day cases for this age group, Table 12.2.

5. PRINCIPAL REASON FOR CARE AND SOURCE OF ADMISSION

- (a) **Elective:** Elective sources of admission accounted for 32.7% of inpatient discharges and 27.9% of bed days used in 1998. The main reasons for elective admissions were, Tables 13.1 and 13.2:

		Bed Days Used (BDU)
-	Neoplasms	17.6% 24.7%
-	Nervous/sensory organs	12.0% 11.4%
-	Genitourinary	10.6% 7.4%
-	Digestive	9.9% 6.9%
-	Circulatory	9.1% 12.8%
-	Musculoskeletal	9.0% 10.4%
-	Respiratory	8.3% 7.8%

The Avlos in 1998 for elective admissions was 7.8 days, Table 13.3. Los fluctuated between 7.5 in 1998 and 7.9 in 1994. The highest lengths of stay were for:

-	Neoplasms	11.0
-	Circulatory	11.0
-	Perinatal	10.6
-	Skin	9.7
-	Musculoskeletal	9.1

- (b) **Transfer:** Transferred inpatients accounted for 7.5% of inpatient discharges and 17.9% of bed days used in 1998, Tables 14.1 and 14.2. The main reasons for transferring inpatients in 1998 were:

		Bed Days Used
-	Circulatory	18.5% 13.4%
-	Injury and poisoning	17.9% 11.2%
-	Neoplasms	16.4% 16.6%
-	Infectious diseases	7.4% 4.9%
-	Respiratory	5.3% 11.7%
-	Nervous/sensory organs	4.4% 11.2%

The main differences between 1994 and 1998 were:

- circulatory conditions accounted for 27.3% of BDU in 1994 but only 13.4% in 1998; and
- respiratory transfer accounted for 7.8% of BDU in 1994 and 11.7% in 1998.

The Avlos for transfers (21.7 days) was significantly higher than that for discharges with elective or emergency sources of admission. The Avlos of transfers did not drop below 20 days for any of the five years, Table 14.3.

- (c) **Emergency:** Emergency sources of admission accounted for 59.7% of inpatient discharges in 1998 and 54.2% of bed days used, Tables 15.1 and 15.2. The main reasons for emergencies in 1998 were:

		Bed Days Used
- Injury and poisoning	21.4%	12.9%
- Circulatory	15.0%	24.0%
- Respiratory	14.7%	15.1%
- Ill-defined	11.2%	6.3%
- Digestive	10.9%	10.4%

Since 1994, bed days used for emergency neoplasms have increased by 17.8%.

The Avlos of emergency admissions in 1998 was 8.3 days, Table 15.3. Between 1994 and 1997 there was a steady decrease in the average length of stay from 8.7 to 8.2 days. The median los was 4 days and this did not alter over the five-year period.

6. **PRINCIPAL REASON FOR CARE AND AREA OF RESIDENCE**

- (a) **Inpatient Discharges:** In 1998, 20.3% of inpatient discharges and 21.5% of bed days used related to residents of the Eastern Region. The main categories of reason for care were, tables 16.1 and 18.1.

	East	Other Health Boards
- Injury and poisoning	15.7%	10.6%
- Circulatory	13.6%	12.3%
- Respiratory	13.6%	5.1%
- Digestive	10.7%	7.9%
- Ill-defined	9.1%	5.4%
- Neoplasms	7.7%	18.0%
- Genitourinary	6.6%	8.1%
- Nervous/sensory organs	5.0%	10.1%

Of particular note are the area of residence variations for neoplasms and nervous system/sense organs. For these categories, the proportions of discharges relating to residents of other health boards were 37% and 34% respectively.

Over a quarter (26.5%) of bed days used by residents of other health boards related to neoplasms in comparison with only 11.6% of the bed days used by residents of the Eastern Region. The main category of care for residents in the East was circulatory diseases with 20.6% of the bed days share, Tables 16.2 and 18.2.

The major length of stay disparity relates to supplementary classifications; for residents of the East the Avlos was 12.5 days compared with only 5 days for residents of other health boards, tables 16.3 and 18.3. Nervous system /sensory organs, which featured strongly for discharges of residents of other health boards, had an Avlos exceeding its Eastern residents equivalent by 2 days.

- (b) **Day Cases:** The top three categories of principal diagnosis, after supplementary classifications, were the same for both areas of residence although the order varied (tables 17.1 and 19.1):-

	East	Other Health Boards
- Neoplasms	13.7%	15.3%
- Digestive	14.7%	8.4%
- Nervous/sensory organs	8.3%	9.6%

The proportion of supplementary classifications for other health board residents was 37.4% higher than that for residents of the East (26.8% v. 19.5%).

While day cases for residents of other health boards constituted 20.8% of all day cases in 1998, the proportion was considerably higher for congenital anomalies (39%) and considerably lower for infectious diseases (8.2%).

For residents of the Eastern Region, day case activity as a percentage of total activity for respiratory diseases was 7.9% in 1998, compared with as much as 20.6% for residents of other health boards, Tables 17.2 and 19.2.

B. HIPE ACTIVITY DATA FOR INDIVIDUAL HOSPITALS IN THE EASTERN REGION, 1998

This section 1998 HIPE data for selected acute hospitals in the Eastern Region. Inpatient and day case activity by category of principal diagnosis and all procedures are documented. More complete data for these individual hospitals are given in Appendices G and H, Tables 1.1 to 5.7.

Before bed use can be meaningfully examined it is necessary to document HIPE coverage for each hospital as this may influence the conclusions that can be drawn regarding bed utilisation. Table B1 shows HIPE discharges as a proportion of IMR discharges for each hospital. Rates vary from 20.7% (Rotunda) to 113.3% (Cherry Orchard). The Rotunda's low rate may reflect its recent entry to the HIPE system. In other hospitals, HIPE coverage is generally over 90%. Cappagh hospital's rate as a proportion of its IMR is 28%. Consequently more activity may occur in Cappagh than is presented in these HIPE returns and conclusions regarding Cappagh's bed utilisation using HIPE data alone may be flawed. Logically the HIPE:IMR ratio cannot exceed 100%. Where this occurs it may reflect differing time scales for reporting data rather than real discrepancies.

Table B1: HIPE : IMR Ratio

Hospital	HIPE coverage as % of IMR
Mater	100.0
St. Vincent's	102.6
St. James's	98.5
Beaumont	101.3
Tallaght	82.6
Loughlinstown	99.3
Naas	90.7
JCM	86.4
Rotunda	20.7
Holles St.	102.4
Crumlin	99.9
Temple St.	89.8
Cappagh	28.0
Cherry Orchard	113.3
Eye & Ear	100.0
Hume St.	100.0
Peamount	97.8
St. Luke's	97.8
St. Michael's	93.7

This analysis takes account of::

- i) Total activity (inpatient discharges and day cases)
- ii) Day cases as a percentage of total activity
- iii) Mean and median lengths of stay for inpatient discharges

by category of principal diagnosis excluding obstetric and psychiatric diagnoses and by all procedures excluding obstetric procedures for the following groups of hospitals:-

1. The five Dublin Academic Teaching Hospitals i.e. the major acute hospitals overseen by the ERHA:- Mater, St. Vincent's, St. James's, Beaumont and Tallaght.
2. The three acute general hospitals managed by the Area Health Boards of the ERHA:- St Columcille's, Loughlinstown; Naas and James Connolly Memorial.
3. The three children's hospitals:- Our Lady's Hospital Crumlin, Temple Street and Tallaght (for admissions under 15 years).
4. Two of the three maternity hospitals: - Rotunda and National Maternity Hospital, Holles Street (The Coombe Women's Hospital did not participate in HIPE during 1998).
5. Other hospitals i.e. Cappagh, Cherry Orchard, Royal Victoria Eye and Ear, Hume Street, Peamount, St Luke's and St Michael's.

Table B2 shows the number of discharges including day cases from selected acute hospitals of the Eastern Region, the percentage of day cases, the number of all procedures undertaken, the percentage of day case procedures and beds available during 1998.

Table B2: Discharges, Procedures, Day Case Percentages and Beds Available by Hospital*

Hospital	All Discharges	Day case Discharges	Day case %	Procedures	% Day procedure	Beds available 5+7 Day	
Mater	34318	19379	56.5	46161	49.4	496	31
St. Vincent's	28236	11737	41.6	44607	27.9	429	16
St. James's	42353	21782	51.4	76493	31.3	590	45
Beaumont	36027	16421	45.6	62177	28.9	594	12
Tallaght 15+	19284	7620	39.5	35016	28.6	All	Beds
Tallaght <15	7323	3036	41.5	11094	40.4		
Loughlinstown	6535	1749	26.8	3431	62.6	129	12
Naas	5978	1035	17.3	1756	59.6	106	6
JCM	11540	4226	36.6	10039	58.7	217	22
Rotunda	562	68	12.1	687	17.9	26 gynae	2 est.
Holles St.	3273	937	28.6	4348	38	20 gynae	13 est.
Crumlin	17516	5949	34.0	30189	28.1	235	19
Temple St.	9356	2889	30.9	7881	40.8	115	14
Cappagh	1668	208	12.5	1605	13.1	112	13
Cherry Orchard	2398	0	0	0	0	97	0
Eye & Ear	6655	2631	39.5	9167	34.4	52	20
Hume St.	351	0	0	32	0	31	0
Peamount	752	0	0	234	0	60	0
St. Luke's	6826	4477	65.6	6993	61.6	130	20
St. Michael's	4940	1992	40.3	7086	32.9	92	10
TOTAL	245891	106136	43.2	358996	34.6	3941	310

* Discharges exclude obstetrics and psychiatry. Procedures exclude psychiatry only.

HIPE data indicate that there were a total of 245,891 discharges of which 106,136 (43.2%) were day cases. There were 358,996 procedures conducted. The day procedure rate ranged from 13.1% to 62.6%. Day cases and procedure rates varied by hospital size and type of hospital. For example, in the DATHs, the proportion of day cases ranged from 39.5% to 56.5% and day procedure rates ranged from 27.9% to 49.4%. Day procedure rates were high in the three Area Health Board managed hospitals (58.7% to 62.6%). As data for maternity hospitals are incomplete they should be interpreted with caution. Tallaght Hospital opened in June 1998 and data interpretation should take the transition into account.

1. THE FIVE DUBLIN ACADEMIC TEACHING HOSPITALS
(For complete data, see Appendices G and H, Tables 1.1 to 1.3)

St. James's Hospital had the greatest number of discharges (42,353) in 1998 followed, in descending order by, Beaumont (36,027), Mater (34,318), St. Vincent's (28,318) and Tallaght (19,284).

CATEGORY OF PRINCIPAL DIAGNOSIS

Table B3 shows the main diagnostic categories for discharges from the DATHs. The main reasons for care are neoplasms, circulatory, respiratory and digestive disorders and injury and poisoning.

Table B3: Percentage Distribution of Discharges by Hospital

Selected Category of Principal Diagnosis	Mater N=34318 %	St. Vincent's N=28236 %	St. James's N=42353 %	Beaumont N=36027 %	Tallaght N=19284 %
Neoplasms	11	13.8	22.9	8.5	8.6
Nervous/ Sensory Organs	11.3	9	1.5	6.7	2.5
Circulatory	14.5	10.7	12.7	12.8	10.8
Respiratory	4.6	5.7	5.4	7.1	5.2
Digestive	9.2	10.7	14.5	12.9	14.7
Genitourinary	5.9	9.4	4.1	7.4	12.5
Injury and Poisoning	6.5	8.5	8.3	6.9	11.3
Supplementary	14.8	12.0	3.7	12.9	8.8

Neoplasms accounted for 22,067 discharges from these hospitals of which the largest proportion 9,684 (43.9%) attended St. James's Hospital.

Circulatory disorders accounted for 20,058 discharges of which the largest proportion 5,374 (26.8%) attended St. James's hospital.

Digestive disorders accounted for 19,795 discharges of which the largest proportion 6,122 (30.9%) attended St. James's Hospital.

Injury and poisoning accounted for 12,793 discharges of which the largest proportion 3,505 (27.4%) attended St. James's Hospital.

Respiratory disorders accounted for 9,032 discharges of which the largest proportion, 2,558 (28.3%) attended Beaumont Hospital.

Table B4 shows day case activity as a percentage of total activity which ranged from 39.5% to 56.5% overall. There are obvious trends by category of principal diagnosis, for example, injury and poisoning percentages are low whereas the percentages for digestive disorders were as high as 60%. Over 70% of discharges for skin and subcutaneous conditions were day cases. Some variation exists between hospitals but any conclusions regarding this variation needs to take account of case complexity.

Table B4: Day Case Percentages by Hospital

Selected Category of Principal Diagnosis	Mater	St. Vincent's	St. James's	Beaumont	Tallaght
Neoplasms	54.4	47.4	67.8	39.4	43.0
Nervous/ Sensory Organs	69.5	66.6	28.4	48.3	26.7
Circulatory	28.5	8.0	34.0	24.7	19.1
Respiratory	17.2	4.8	16.8	15.4	6.0
Digestive	50.8	34.1	59.7	60.5	57.5
Injury and Poisoning	5.5	1.4	2.3	3.8	3.4
Infectious diseases	70.4	28.4	72.0	75.0	66.3
Skin	82.2	71.3	76.3	71.1	73.8
TOTAL	56.5	41.6	51.4	45.6	39.5

Table B5 shows that neoplasms and circulatory diseases account for the longest median lengths of stay with injury and poisoning accounting for the shortest length of stay. Though there are similarities between hospitals regarding the median length of stay, there are differences regarding the mean length of stay, see Appendix G, Table 1.3.

Table B5: Median Length of Stay in Days by Hospital

Selected Category of Principal Diagnosis	Mater	St Vincent's	St James's	Beaumont	Tallaght
Neoplasms	10	7	7	11	7
Nervous/Sensory Organs	4	4	4	6	5
Circulatory	10	6	6	9	8
Respiratory	6	7	5	4	5
Digestive	5	4	4	5	4
Injury and Poisoning	4	3	2	3	3
Total Median Los	6	4	4	6	5
Total Mean Los	10.7	8.3	8.4	10.1	8.5

ALL PROCEDURES

Table B6 shows the percentage distribution of procedures undertaken in each of the DATHs.

Table B6: Percentage Distribution of Procedures by Hospital

Selected Procedure (inpatient and day)	Mater N=46,161 %	St Vincent's N=44,607 %	St James's N=76,493 %	Beaumont N=62,177 %	Tallaght N=35,016 %
All eye operations	7.0	2.7	0.1	0.2	0
- Cataracts	2.1	0.7	0	0	0
Cardiovascular system (all operations)	18.8	4.8	11.1	5.2	2.8
- Operations on heart vessels	3.4	0.4	0.8	0.2	0.1
- PTCA	1.9	0.4	0.8	0.2	0.1
- CABG	1.4	0	0	0	~
- Cardiac catheterisation	4.3	1.7	0.2	0.9	0.9
Digestive system (all operations)	13.7	13.4	14.4	14.9	18.1
- Diagnostic procedures of stomach and intestines	7.7	6.8	9.1	9.6	10.9
- Endoscopy of small intestine	0.4	3.9	5.9	6.4	6.5
- Endoscopy of large intestine	2.5	2.9	3.1	3.2	4.4
All operations of musculoskeletal system	5.8	5.3	3.4	4.4	9.1
Skin and subcutaneous procedures	7.6	4.4	7.7	3.7	5.4
Operations on urinary system	2.9	6.6	1.2	3.7	6.7
All miscellaneous diagnostic & therapeutic procedures	31.9	50.1	54.3	54.1	47.0
- Diagnostic radiology	8.7	17.5	23.7	21.5	13.7
- Arteriography	7.6	3.0	5.2	0.9	1.4
- Diagnostic ultrasound	0.3	6.3	2.6	7.0	5.3
- Other non-operative procedures	7.7	14.2	16.4	10.6	12.6
-- Chemotherapy injection	4.2	6.6	2.9	2.1	0.9

~ 5 or less cases.

There was considerable variation between the five hospitals regarding the numbers and rates of procedures conducted. Some of the variation reflects actual practice but coding patterns and case complexity may also impact on these data:

- The Mater conducts over twice as many eye operations as the other four hospitals combined.
- Cardiovascular procedures most frequently occur in the Mater and St. James's hospitals (72.9% of all cardiovascular procedures).
- The most common procedures for all hospitals are on the digestive system (except Mater where cardiovascular system procedures are most common).
- Urinary procedures most commonly occur in St. Vincent's and Tallaght followed by Beaumont.
- More breast procedures were undertaken in St. Vincent's than in the four other hospitals combined (1678 v 1392).
- Diagnostic radiology accounts for considerable activity in all hospitals (8.7% - 23.7%).
- In each hospital a large proportion of procedures (31.9% – 54.1%) are coded as “all miscellaneous diagnostic and therapeutic”.

Table B7 shows the percentage of procedures conducted as a day case. This ranges from 27.9% to 49.4%. Though case complexity must influence day case rates there is considerable variation between these major hospitals in the rate of day case procedures, for example:

- Bronchoscopy day case rates range from 25.5% to 65.2%.
- Inguinal hernia day case rates range from 4.6% to 44.1%.
- Circumcision day case rates range from 0% to 77.1%.
- Breast biopsy day case rates range from 14.9% to 93.3%.
- Chemotherapy day case rates range from 55.1% to 89.3%.

Table B7: Day Case Percentages by Hospital

Selected Procedure	Mater N=46,161 %	St Vincent's N=44,607 %	St James's N=76,493 %	Beaumont N=62,177 %	Tallaght N=35,016 %
Inguinal hernia	12.5	~	4.6	18.6	44.1
Chemotherapy injection	78.5	84.8	55.1	89.3	85.3
Breast biopsy	39.2	93.3	14.9	85.4	62.2
Cystoscopy	61.6	41.1	52.9	65.3	38.7
Circumcision	77.1	~	0.0	59.1	72.6
Bronchoscopy	48.6	25.5	65.2	46.7	28.6
Cardiac catheterisation	61.4	7.8	78.3	20.3	0
Diagnostic procedures on stomach and intestines	67.1	56.0	78.7	74.9	73.5
Myringotomy	62.5	75.0	72.5	54.5	88.9
Total	49.4	27.9	31.3	28.9	28.6

~ 5 or less cases.

Reasons for the variation in day case procedure rates between hospitals deserve further examination. Additionally the level of day case activity for specific procedures requires review. High volume procedures which can be done as day cases should be regularly measured by the hospitals and the ERHA. Conclusions regarding the variation in day case rates should take account of case complexity.

Median length of stay also varies by hospital, Table B8. The median length of stay for total hip replacement in St. Vincent's hospital is 5.5 days compared with 15 days or more for the other hospitals. Case complexity and access to convalescent facilities may explain these differences but variations in individual high volume procedures should be reviewed with hospitals. The wide variation in length of stay for PTCA deserves further research as does the variation in cholecystectomy. A pilot in protocols for care and management of high volume procedures should be undertaken.

Table B8: Median Lengths of Stay in Days by Hospital

Selected Procedure	Mater	St Vincent's	St. James's	Beaumont	Tallaght
Total hip replacement	16	5.5	15	19	15
Inguinal hernia	2	3	2	3	3
PTCA	6	6	2	19	11
Ligation of veins	2	2	2	2	2
Cholecystectomy	7	5	4	8	4
Prostatectomy	9	7	9	8	7
Circumcision	2	2	2	2	2
Hysterectomy	10	7	7	7	7
Mastectomy	12	11	10	10	8

2. THE THREE ACUTE GENERAL HOSPITALS MANAGED BY THE AREA HEALTH BOARDS
(For complete data, see Appendices G and H, Tables 2.1 to 2.3)

CATEGORY OF PRINCIPAL DIAGNOSIS

The percentage distribution of total discharges for selected categories of principal diagnosis for each of these hospitals are set out in Table B9. Day cases as a percentage of total activity and median length of stays are also shown. During 1998, there were 6,535 discharges from Loughlinstown, 5,978 from Naas and 11,540 from JCM. These numbers are considerably less than DATHs' discharges.

Table B9: Percentage Distribution of Discharges, Median Lengths of Stay and Day Case Percentages by Hospital

Selected Category of Principal Diagnosis	<u>Loughlinstown</u> N=6535			<u>Naas</u> N=5978			<u>JCM</u> N=11540		
	% All Discharges	Los Median	% Day Cases	% All Discharges	Los median	% Day cases	% All Discharges	Los Median	% Day Cases
Neoplasms	5.8	11	62.8	3.4	10	24.0	6.9	11	55.3
Circulatory	14.3	8	8.6	18.6	8	8.5	14.7	8	25.3
Respiratory	9.3	8	0.0	10.4	7	~	9.1	7	12.8
Digestive	20.4	4	46.3	21.2	4	39.6	17.7	5	49.1
Skin & Subcutaneous	7.0	4	71.2	5.1	4	69.1	6.7	3	64.9
Injury & Poisoning	13.5	1	~	13.1	2	0.0	11.8	2	6.0
TOTAL	100.0	4	26.8	100.0	4	17.3	100	5	36.6

~ 5 or less cases.

In each hospital most discharges were for digestive and cardiovascular conditions and injuries (48.2%, 52.9% and 44.2% respectively). Median lengths of stay by category of principal diagnosis were similar in each of the three hospitals. There are variations in mean lengths of stay between the hospitals, Appendix G, Table 2.3. The proportion of day cases ranged from 17.3% (Naas) to 36.6% (JCM).

ALL PROCEDURES

The numbers and percentages of the most common procedures for these three hospitals are shown in Table B10. In each hospital, procedures on the digestive system were most common ranging from 43.3% in James Connolly to 80.3% in Naas.

Table B10: Numbers and Percentages of Procedures by Hospital

Selected Procedure	Loughlinstown N=3431 No. (%)	Naas N=1756 No. (%)	JCM N=10039 No. (%)
Operations on nose, mouth and pharynx	184 (5.4)	~	86 (0.9)
Tooth extraction	153 (4.5)	-	~
All operations on digestive system	1615 (47.1)	1410 (80.3)	4343 (43.3)
- Diagnostic procedures on stomach and small intestine	1016 (29.6)	921 (52.4)	2751 (27.4)
- Endoscopy of small intestine	~	~	1747 (17.4)
- Endoscopy of large intestine	341 (9.9)	387 (22.0)	997 (9.9)
- Inguinal hernia	73 (2.1)	46 (2.6)	81 (0.8)
Reduction of fracture	~	-	400 (4.0)
All breast surgery	69 (2.0)	21 (1.2)	246 (2.5)
All skin and subcutaneous tissue	946 (27.6)	256 (14.6)	1804 (18.0)

~ 5 or less cases.

Some variations are:

- **For breast surgery there were only 69 cases in Loughlinstown and 21 in Naas compared with 246 in JCM. Small numbers raises issues regarding minimum acceptable case loads**
- The category 'Miscellaneous' which featured so prominently in the DATHs is notably small for these three hospitals representing only 5.7%, 1% and 11.6% respectively of all activity. The 'miscellaneous' category probably reflects the wide range of facilities in the larger hospitals which are not available to the same degree in these three hospitals.

Table B11 shows the percentage of procedures conducted as a day case. This ranged from 58.7% to 62.6%. The day case rate is higher than in the DATHs.

Table B11: Day Case Percentages by Hospital

Selected Procedure	Loughlinstown N=3431 No. (%)	Naas N=1756 No. (%)	JCM N=10039 No. (%)
All operations on the ear	83.9	~	72.5
Bronchoscopy	~	~	80.6
Diagnostic procedures an stomach and intestines	72.9	73.8	71.6
- Inguinal hernia	~	15.2	~
All operations on musculoskeletal system	77.3	~	35.8
All breast surgery	72.5	~	74.4
All operations on skin and subcutaneous tissue	84.8	86.7	74.1
	62.6	59.6	58.7

~ 5 or less cases.

The median lengths of stay for selected procedures are shown in Table B12. The main variations are for mastectomy and cholecystectomy.

Table B12: Median Lengths of Stay in Days by Hospital

Selected Procedure	Loughlinstown N=3431 No. (%)	Naas N=1756 No. (%)	JCM N=10039 No. (%)
Inguinal hernia	2	2	3
Ligation of varicose veins	2	2	3
Cholecystectomy	3	4	6
Prostatectomy	-	-	5
Circumcision	2	~	1
Hysterectomy	-	-	8
Mastectomy	8	8	14

~ 5 or less cases.

3. THE THREE CHILDREN'S HOSPITALS

(For complete data, see Appendices G and H, Tables 3.1 to 3.3)

CATEGORY OF PRINCIPAL DIAGNOSIS

Table B13 gives the total number of discharges, the median lengths of stay and day case percentages for the main categories of principal diagnosis for these three hospitals. For the purpose of this analysis all discharges from Tallaght hospital under the age of 15 years were considered paediatric. Injury and poisoning account for a substantial proportion of bed usage in each of the hospitals. Children's length of stay in hospital is generally short with little variation between the hospitals. Between 30% and 42% of discharges are day cases.

Table B13: Percentage Distribution of Discharges, Day Case Percentages and Median Lengths of Stay in Days by Hospital

Selected Category of Principal Diagnosis	<u>Crumlin</u> N=17516			<u>Temple St</u> N=9356			<u>Tallaght</u> N=7323		
	All discharges	LOS (median)	% Day Cases	All discharges	LOS (median)	% Day Cases	All discharges	LOS (median)	% Day Cases
Infectious Diseases	986 (5.6)	3	4.7	480 (5.1)	3	7.1	186 (2.5)	2	5.9
Neoplasms	1155 (6.6)	4	73.5	180 (1.9)	2	66.1	396 (5.4)	3	78.5
Nervous/ Sensory Organs	936 (5.3)	2	54.3	1119 (12.0)	2	63.0	285 (3.9)	2	61.8
Respiratory	1778 (10.2)	3	2.2	1702 (18.2)	2	3.6	1343 (18.3)	2	3.6
Digestive	1349 (7.7)	3	36.4	957 (10.2)	3	20	718 (9.8)	2	26.8
Genitourinary	1542 (8.8)	5	64.9	632 (6.8)	3	47.6	1247 (17.0)	2	82.3
Congenital Anomalies	2065 (11.8)	3	29.7	1187 (12.7)	3	55.2	188 (2.6)	2	65.4
Injury and Poisoning	2071 (11.8)	1	4.1	1135 (12.1)	1	9.4	921 (12.6)	1	1.5
TOTAL		Median=2 Mean=5.3	34		Median=2 Mean=4.2	30.9		Median=2 Mean=2.8	41.5

Table B14 shows the numbers of procedures conducted in the Children's Hospitals – Crumlin conducted the most, 30,189, followed by Tallaght at 11,094 and Temple Street at 7,881. The majority are categorised as miscellaneous i.e. 67.7%, 34.5% and 71.1%. This category provides very little information in relation to hospital activity. For procedures with a more clinical code, the main procedures were operations on the digestive system, musculoskeletal system, skin and chemotherapy.

Table B14: Numbers and Percentages of Procedures by Hospital

Selected Procedure	Crumlin N=30189 No. (%)	Temple Street N=7881 No. (%)	Tallaght N=11094 No. (%)
Myringotomy	594 (2.0)	617 (7.8)	189 (1.7)
All operations on the cardiovascular system	662 (2.2)	166 (2.1)	269 (2.4)
All operations of the digestive system	1999 (6.6)	549 (7.0)	380 (3.4)
- Appendectomy	134 (0.4)	108 (1.4)	106 (1.0)
- Inguinal hernia	213 (0.7)	107 (1.4)	50 (0.5)
Orchidopexy	155 (0.5)	91 (1.2)	56 (0.5)
Circumcision	309 (1.0)	173 (2.2)	181 (1.6)
All operations on the musculoskeletal system	1359 (4.5)	926 (11.7)	234 (2.1)
Skin and subcutaneous tissue	1401 (4.6)	664 (8.4)	377 (3.4)
Miscellaneous (diagnostic and therapeutic)	20434 (67.7)	2719 (34.5)	7891 (71.1)
- Chemotherapy injection	1306 (4.3)	-	546 (4.9)

Table B15 shows the proportion of procedures conducted as a day case. This ranges from 28.1% to 40.8%. Direct comparisons may not be appropriate as an allowance has to be made for case complexity. There appears to be little variation between the hospitals for selected procedures.

Table B15 Day Case Percentages by Hospital

Selected Procedure	Crumlin N=30189 (%)	Temple Street N=7881 (%)	Tallaght N=11094 (%)
Myringotomy	79.0	76.0	80.1
Inguinal hernia	61.5	58.9	78.0
Orchidopexy	71.6	58.2	86.0
Circumcision	92.2	93.1	93.9
Skin and subcutaneous	31.3	42.3	51.6
Chemotherapy injection	53.4	-	84.6
Total	28.1	40.8	40.4

Table B16 shows that there is little variation between hospitals in the median lengths of stay for selected procedures. In general, children spend short times in hospital – most procedures involved a median length of stay of three days or less.

Table B16: Median Lengths of Stay in Days by Hospital

Selected Procedure	Crumlin N=30189	Temple Street N=7881	Tallaght N=11094
Myringotomy	2	2	1
Tonsillectomy	2	2	2
All cardiovascular procedures	8	3	2
Appendectomy	3	3	3
Inguinal hernia	2	2	2
Orchidopexy	2	2	1
Circumcision	1	2	1
Skin and subcutaneous procedures	1	1	1
Chemotherapy injection	4	-	6

4. TWO OF THE THREE MATERNITY HOSPITALS

(For complete data, see Appendix G and H, Tables 4.1 to 4.3)

With low HIPE coverage for the Rotunda (20.7%) and the lack of data for the Coombe, little comparison can be made between these hospitals. Given ERHA waiting list levels in gynaecology, the low occupancy in this speciality for these hospitals over a six-year period as recorded in IMR data requires examination of referral patterns.

CATEGORY OF PRINCIPAL DIAGNOSIS

Table B17 shows the total number of discharges, the median length of stay and the percentage of day case discharges for selected categories of principal diagnosis.

Table B17: Numbers and Percentages of Discharges, Median Lengths of Stay and Day Case Percentages by Hospital

Selected Category of Principal Diagnosis	<u>Rotunda</u>			<u>Holles St</u>		
	No (%) All Discharges	<u>Median</u> LOS	% Day Cases	No. (%) All Discharges	Median LOS	% Day Cases
Neoplasms	41 (7.3)	6	~	293 (9.0)	6	11.3
Genitourinary	279 (49.6)	1	18.6	1352 (41.3)	2	41.9
Congenital Anomalies	6 (1.1)	7	0	40 (1.2)	1	~
Ill-Defined	43 (7.7)	1	~	65 (2.0)	2	23.1
Perinatal	86 (15.3)	4	0	898 (27.4)	4	0
TOTAL	562	Median 2 Mean 4.8	12.1	3273	Median 2 Mean 6.5	28.6

~ 5 or less cases.

ALL PROCEDURES

Table B18 presents discharge, day case and length of stay details for selected procedures that were recorded during 1998 for the maternity hospitals.

Table B18: Numbers and Percentages of Procedures, Day Case Percentages and Median Lengths of Stay by Hospital

Selected Procedure	Rotunda No. (%) N= 687	Holles Street No. (%) N= 4348
No. (%) procedures		
All gynae operations	519 (75.5)	2558 (58.8)
- Hysterectomy	39 (5.7)	327 (7.5)
- D&C	109 (15.9)	640 (14.7)
Chemotherapy	-	99 (2.3)
% conducted as a day case		
D&C	35.8	58.4
Cystoscopy	~	30.0
All gynae operations	19.1	44.1
Median length of stay		
Hysterectomy	6	7
Cystoscopy	~	2
D&C	1	1
All Gynae operations	1	2

~ 5 or less cases.

5 **OTHER HOSPITALS**

(For complete data, see Appendices G and H, Tables 5.1 to 5.7)

Table B19 shows the total numbers of discharges and all procedures for each of these hospitals as well as their day case percentages. The overall mean and median lengths of stay for all procedures are also provided.

Table B19: Numbers of Discharges and Procedures, Day Case Percentages and Lengths of Stay by Hospital

Hospital	Total discharges	% day case discharges	Total procedures	% day case procedures	Median LOS	Mean LOS
Hume Street	351	0	32	0	11	13.3
Cappagh	1668	12.5	1605	13.2	12	12.6
St. Michael's	4940	40.3	7086	32.9	6	11.6
St. Luke's	6826	65.6	6993	61.6	12	18.5
Peamount	752	0	234	0	13	23.7
Eye & Ear	6655	39.5	9167	34.4	2	3.4
Cherry Orchard*	2398	0	0	0	3	5.2

* Mean and median lengths of stay refer to discharges as no procedures are conducted in this hospital.

**C. HOSPITAL ACTIVITY FOR RESIDENTS OF OTHER HEALTH
BOARDS OUTSIDE THE EAST**

1. For 1998, the total number of discharges for residents of other health boards from hospitals in the Eastern Region amounted to 51,054 and represented 21% of their total activity. 43% of these discharges were day cases.

- (a) For the 5 DATHs, discharges of residents of other health boards as a percentage of all discharges are presented below as are the day case proportions of these discharges:-

	All discharges: residents of other health boards	Day Cases
Mater	28%	57%
St. Vincent's	21%	43%
St. James's	23%	56%
Beaumont	16%	25%
Tallaght	13%	32%

- (b) For the 3 area health board hospitals the proportions were:

	All discharges: residents of other health boards	Day Cases
Loughlinstown	2%	21%
Naas	3%	5%
JCM	19%	47%

- (c) The following proportions apply to the children's hospitals:

	All discharges: residents of other health boards	Day Cases
Crumlin	31%	37%
Temple Street	17%	39%
Tallaght	10%	57%

- (d) The corresponding proportions for the 2 maternity hospitals were:-

	All discharges: residents of other health boards	Day Cases
Rotunda	17%	10%
Holles Street	13%	19%

- (e) For other hospitals the proportions were:-

	All discharges: residents of other health boards	Day Cases
Cappagh	41%	11%
Cherry Orchard	8%	0%
Eye & Ear	28%	27%
Hume Street	41%	0%
Peamount	23%	0%
St. Luke's	52%	47%
St. Michael's	4%	32%

2. SOURCE OF ADMISSION

The proportion of discharges of residents of other health boards with an emergency source of admission was only 21.5% and 50% of them were due to Injury and Poisoning (25%), Circulatory Disorders (15%) and Neoplasms (10%).

3. HOSPITAL OF TREATMENT

66% of discharges for residents of other health boards were from the 5 DATHs and another 11% were from Crumlin. The emergency proportions for these 6 hospitals were:

Mater	11%
St. Vincent's	20%
St. James's	22%
Beaumont	40%
Tallaght	28%
Crumlin	24%

4. CATEGORY OF PRINCIPAL DIAGNOSIS

For the 5 DATHs, neoplasms, circulatory disorders, supplementary classifications and digestive disorders were the main diagnostic categories observed for discharges for residents of other health boards. However, this was not consistent for all hospitals.

Mater	St. Vincent's	St. James's	Beaumont	Tallaght
Supplementary (20%)	Neoplasms (20%)	Neoplasms (28%)	GU (13%)	GU (27%)
Circulatory (17%)	Supplementary (20%)	Circulatory (17%)	(Circulatory (13%)	Supplementary (12%)
Nervous System (17%)	Digestive (10%)	Digestive (11%)	Nervous System (12%)	Neoplasms (10%)
Neoplasms (11%)	GU (10%)	Injury (10%)	Neoplasms (11%)	Digestive (10%)

(The main supplementary activities varied per hospital. For the Mater they were chemotherapy and dialysis; for St. Vincent's they were chemotherapy and follow-up examination).

5. CATEGORY OF PRINCIPAL DIAGNOSIS & HOSPITAL OF TREATMENT

Infectious Diseases	1081 discharges
Cherry Orchard	15%
St. James	15%
Mater	15%
Crumlin	13%
JCM	12%

Neoplasms	8692 discharges
St. James's	31%
St. Luke's	21%
St. Vincent's	14%
Mater	12%
Beaumont	8%

Endocrine Disorders	990 discharges
Mater	36%
Crumlin	14%
St. Vincent's	14%
Beaumont	8%

Blood Disorders	578 discharges
St. James's	50%
Crumlin	15%
Mater	12%

Nervous System	4664 discharges
Mater	34%
Eye & Ear	27%
Beaumont	16%
St. Vincent's	8%

Circulatory Disorders	5266 discharges
St. James	31%
Mater	31%
Beaumont	15%
St. Vincent's	10%

Respiratory Disorders	1878 discharges
Beaumont	16%
St. James's	13%
St. Vincent's	12%
JCM	11%
Mater	11%
Crumlin	11%
Eye & Ear	9%
Temple Street	9%

Digestive Disorders	4208 discharges
St. James's	25%
Mater	18%
St. Vincent's	15%
Crumlin	12%
Beaumont	10%
JCM	10%

Gentiourinary Disorders	3835 discharges
Beaumont	21%
Tallaght	17%
St. Vincent's	16%
Crumlin	14%
Mater	11%

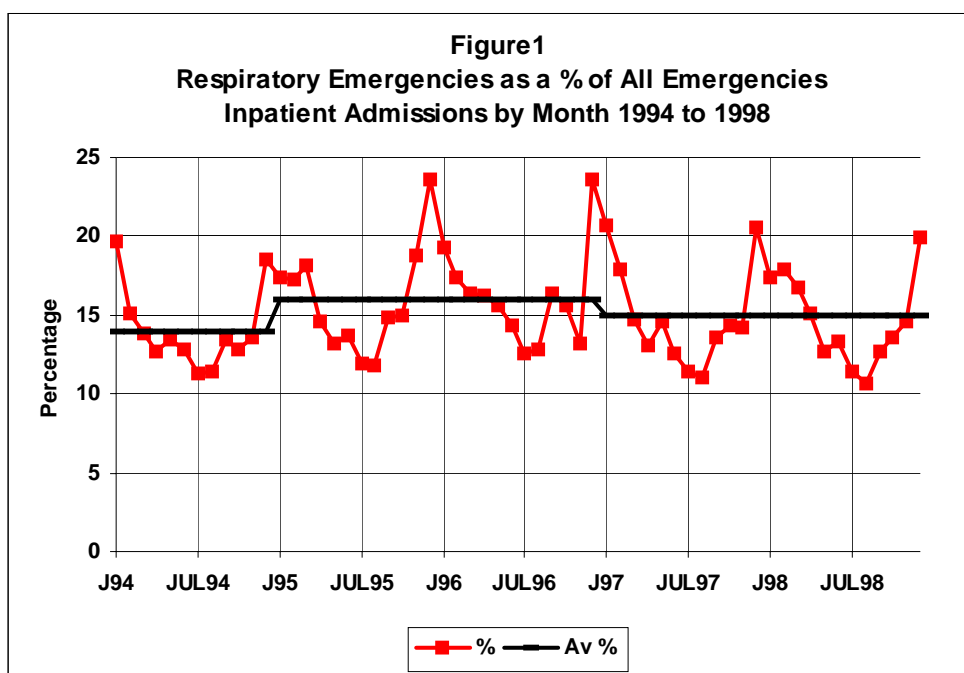
Skin Disorders	1412 discharges
St. James's	37%
Mater	17%
Hume Street	10%
JCM	9%

Musculoskeletal System	2528 discharges
Cappagh	21%
Beaumont	21%
Mater	15%
St. Vincent's	10%

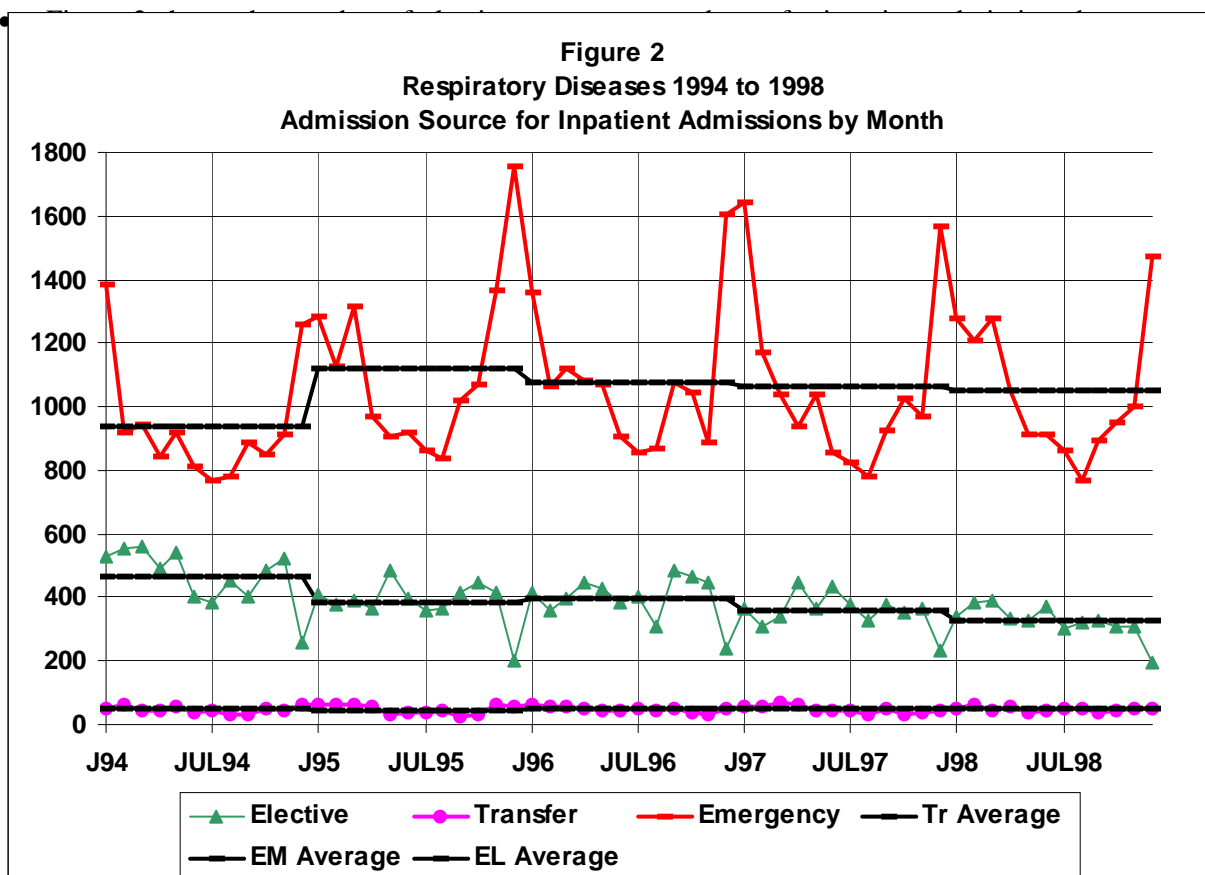
Congenital Anomalies	2433 discharges
Crumlin	44%
St. James's	29%
Temple Street	16%
Perinatal	146 discharges
Holles Street	75%
Crumlin	19%
Rotunda	3%
Ill-Defined	2724 discharges
St. James's	21%
Beaumont	19%
St. Vincent's	17%
Crumlin	12%
Mater	10%
JCM	7%
Injury & Poisoning	3273 discharges
St. James's	29%
Beaumont	17%
Mater	14%
Crumlin	8%
Supplementary	7346 discharges
Mater	25%
St. Luke's	22%
St. Vincent's	16%
Crumlin	15%

D. WINTER PRESSURES

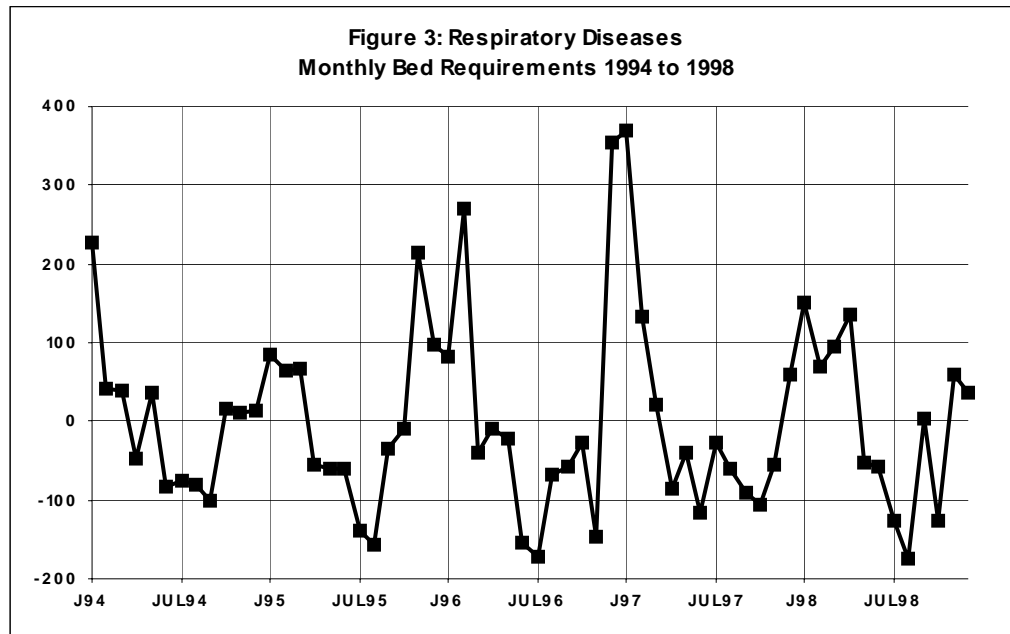
- In 1998, respiratory diseases were the third major diagnostic reason for emergency admission after Injury and poisoning (21%) and Circulatory Diseases (15%)
- Respiratory diseases accounted for 15% of Emergency, 8% of Elective and 5% of Transfer inpatient admissions.
- They accounted for 8% of all elective bed days used and 15% of all emergency bed days used.
- For elective admissions, the mean and median lengths of stay were 7.3 and 3 respectively. Transfers had an Avlos of 48 days while the median was 5 days and emergency admissions had a mean of 8.5 and a median of 5.
- The number of elective inpatient admissions dropped from 5,591 in 1994 to 3,904 in 1998, a decrease of 30% while emergency inpatient admissions increased by 12%. Transferred admissions were fairly steady with an average of 574 admissions annually.
- Of all 17,066 inpatient admissions for respiratory disease in 1998, elective admissions accounted for 23%, transfers 3% and emergencies 74%.
- Of all the 163,792 bed days used for respiratory diseases in 1998, 66% were for emergency admissions, and 18% and 17% for elective and transfer admissions respectively.
- Residents of other health boards accounted for 5% of emergency respiratory in 1998 and this percentage has been consistent since 1994.
- In 1998, children (aged less than 15 years) accounted for 31% of emergency respiratory admissions and older persons (those aged 65+) made up another 36% of such admissions which marks a decrease from 37% for children in 1994 and an increase from 34% for older persons in 1994.
- Figure 1 shows the monthly variations in respiratory inpatient admissions as a percentage of all emergencies for all years 1994 to 1998. In 1994, the monthly average for the year was 14%, rising to 16% for both 1995 and 1996 and dropping to 15% for the other two years.



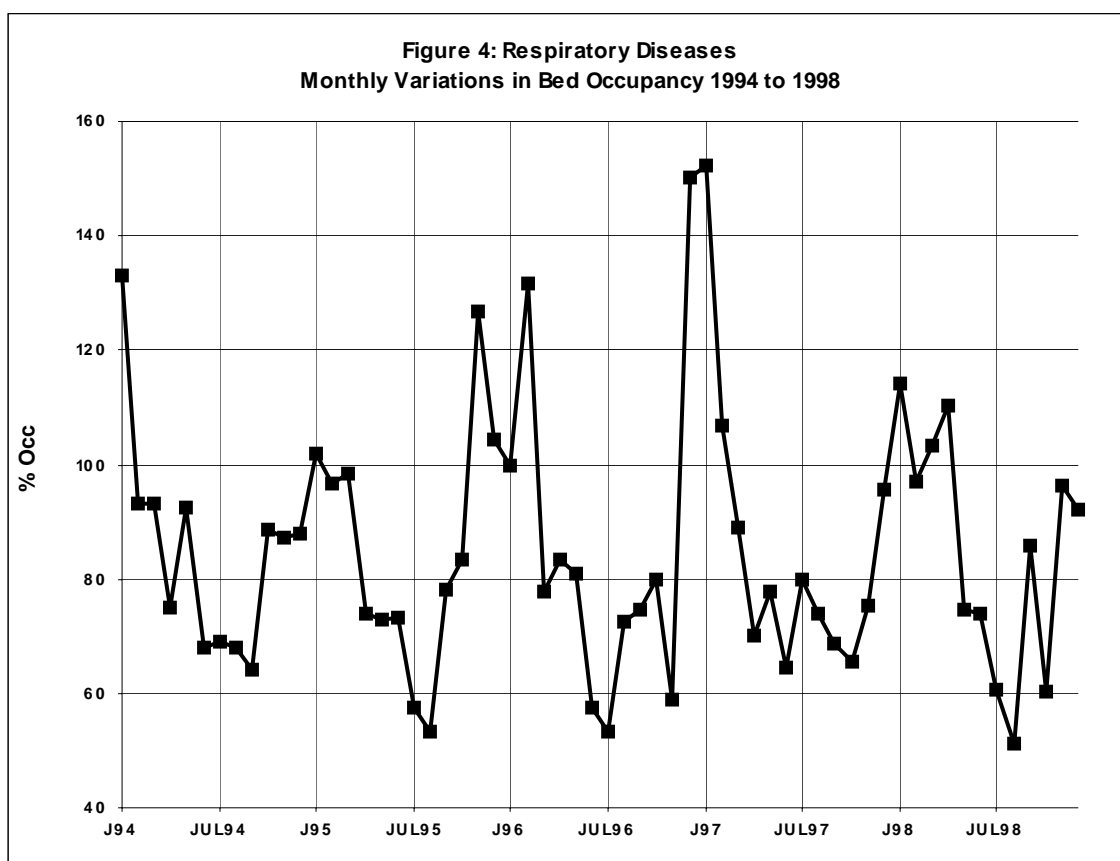
- Monthly peaks can be observed for Jan 94, Dec 94, to Mar 95, Nov 95 to Feb 96, Dec 96 to Feb 97, Dec 97 to Mar 98 and Dec 98. July and August are consistent trough months. Nov 96 also saw a decline in emergency admissions.



- Monthly bed requirements for each of the 60 months are illustrated in Figure 3. Bed days used above or below the monthly average for each year were converted into beds by dividing by the number of days in the month. In Jan 97 an extra 369 beds were required in contrast with Aug 1998 when 174 were not required.



Monthly variations in % occupancy are shown in Figure 4 and they are based on the assumption that the monthly bed days used average for each year represented 85% occupancy. In Jan 97 the extra 369 beds represented a % occupancy of 152% and in August 1998 the occupancy rate had dropped to 51%.



- The IMR data show that there were 162 respiratory beds available during 1998 in four hospitals — the Mater (17), Peamount (60), James's (31) and Vincent's (54) with 134%, 66% 114% and 95% occupancies respectively.
- One can only conclude from this that respiratory patients are going into beds specified as available for other specialties e.g. general medicine and geriatric medicine. (Even though a respiratory consultant attends JCMH no beds are assigned to his specialty).
- From calculations for figure 4 the number of beds required for this specialty to meet an annual 85% occupancy level in 1998 was 528 (483 in 94, 508 in 95, 551 in 96 and 558 in 97) which is over three times that of the IMR specifications.

INDIVIDUAL HOSPITALS

For the 5 DATHs, emergency admissions as a percentage of all admissions, emergency respiratory admissions as a percentage of all emergency admissions and the proportion of all respiratory emergencies admitted to each hospital are set out below:

	Emergency as % of Total	Respiratory as % of Emergency	% Distribution of All Emergency Respiratory
Mater	53%	11%	7%
St. Vincent's	64%	12%	10%
St. James's	65%	12%	12%
Beaumont	67%	10%	11%
Tallaght	65%	10%	6%

- (a) Altogether these hospitals dealt with 46% of emergency respiratory admissions which were due mainly to Pneumonia, Chronic Bronchitis and Asthma. The median length of stay varied from 6 days in St. James's and Tallaght to 8 days in St. Vincent's.

Emergency respiratory admissions accounted for 6% - 8% of these hospitals' inpatient activity respectively.

- (b) The three area health board hospitals dealt with over 16% of emergency respiratory admissions:

	Emergency as % of Total	Respiratory as % of Emergency	% Distribution of All Emergency Respiratory
Naas	95%	13%	5%
Loughlinstown	89%	14%	5%
JCM	80%	14%	7%

Respiratory failure, Pneumonia and Chronic Bronchitis accounted for over two thirds of these admissions. The median length of stay was 7 days in Naas and JCM and one day longer in Loughlinstown.

Emergency respiratory admissions represented 12%-13% of these hospitals' inpatient activity respectively.

- (c) The corresponding proportions for the children's hospitals were:

	Emergency as % of Total	Respiratory as % of Emergency	% Distribution of All Emergency Respiratory
Crumlin	62%	19%	11%
Temple St	69%	26%	9%
Tallaght	85%	29%	9%

Pneumonia, asthma and acute bronchitis accounted for the majority of these admissions. The median length of stay was 2 days in Tallaght and 3 days in the other hospitals.

Emergency respiratory admissions represented 12%, 18% and 25% of Crumlin's, Temple Street's and Tallaght's inpatient activity respectively (which is inversely related to their bed numbers).

The proportions for the remaining hospitals are set out below:

	Emergency as % of Total	Respiratory as % of Emergency	% Distribution of All Emergency Respiratory
Peamount	72%	63%	3%
St. Michael's	68%	12%	2%
Eye & Ear	22%	7%	0.5%
Cherry Orchard	89%	23%	4%

Chronic Bronchitis was the main reason for this type of admission to Peamount. The Eye and Ear dealt with acute upper respiratory tract infections and with acute sinusitis in particular. The majority treated in Cherry Orchard had acute tonsillitis as a principal diagnosis.

CHAPTER FOUR

INFLUENCES ON HOSPITAL BED USE

4.1. Waiting Lists

4.1.1. There are approximately 19,000 people on the inpatient waiting list in the Eastern Region (March 2000 data). The list is dominated by large numbers waiting for procedures within a handful of specialties. The 'top ten' specialties account for 87% of waiting list. The top two specialties (ENT and Orthopaedics) account for 32%. Though detailed data on the procedures within specialties is not readily available, it appears that the specialties that dominate the waiting list are themselves dominated by common procedures. For example the orthopaedic list is dominated by joint replacements (approximately 63%) while a significant part of the ENT list (approximately 27%) are children waiting for common procedures e.g. myringotomy, adenoidectomy and tonsillectomy.

Table 4.1 12 Largest Waiting Lists by Specialities

<u>Speciality</u>	<u>Numbers</u>	<u>% of Total</u>	<u>Cumulative %</u>
ENT	3442	18.27%	18.27%
Orthopaedics	2545	13.51%	31.78%
Ophthalmology	1821	9.67%	41.45%
Vascular	1673	8.88%	50.33%
Plastic Surgery	1631	8.66%	58.99%
Surgery	1555	8.26%	67.25%
Cardiology	1068	5.67%	72.92%
Urology	969	5.14%	78.06%
Gynaecology	902	4.79%	82.85%
Cardiac Surgery	893	4.74%	87.59%
Neurosurgery	490	2.60%	90.19%
Pain control	453	2.40%	92.59%

The inpatient waiting list is also dominantly for the larger acute hospitals. The 'big five' hospitals, the DATHs (Mater, St. James's, Vincent's, Tallaght and Beaumont) account for 74% of the waiting list in the region. One would expect that larger hospitals would have larger waiting lists and this is supported by the data. But within this small group of larger hospitals which have similar bed capacity and services there is high variation in waiting lists.

4.1.2. Waiting lists by hospital

Table 4.2 Waiting Lists by Hospital

<u>Hospital</u>	<u>Numbers</u>	<u>% of Total</u>	<u>Cumulative %</u>
Mater	4113	21.83%	21.83%
St. Vincent's	3460	18.37%	40.20%
Beaumont	3261	17.31%	57.51%
Tallaght	1649	8.75%	66.27%
St. James's	1416	7.52%	73.79%
St. Mary's, Cappagh	1300	6.90%	80.69%
Temple Street	1290	6.85%	87.54%
Royal Victoria Eye & Ear	783	4.16%	91.69%
Our Lady's, Crumlin	487	2.59%	94.28%
JCM	378	2.01%	96.28%
Rotunda	275	1.46%	97.74%
St. Michael's	224	1.19%	98.93%
Coombe	116	0.62%	99.55%
Naas	85	0.45%	100.00%
National Maternity	0	0.00%	100.00%
Total	18837	100.00%	

Table 2 shows that there is a variation in the numbers on the waiting list by hospital. Of the 'big five' hospitals (DATH's) Tallaght and St. James's have relatively lower waiting lists than the Mater, St. Vincent's and Beaumont. National speciality services can explain some of the differences. For example, the Mater has 1,600 waiting for ophthalmology and cardiac surgery alone. In Beaumont nearly 500 on the list are waiting for neurosurgery. However, there remains some unexplained variation between these hospitals. The ENT waiting list for Beaumont and St. Vincent's are similar with approximately 720 on the list but Beaumont has three times the number of ENT consultants than St. Vincent's. The orthopaedic waiting list in Tallaght is the highest among the DATH's, even accounting for the fact that Tallaght has a relatively high number of orthopaedic consultants. The National Maternity Hospital has no gynaecological waiting list, while St. Vincent's has 240. There are a number of tentative conclusions which may be drawn:

- Hospitals with large services in one speciality can attract disproportionately large waiting lists.
- There appears to be little migration from hospitals with high waiting lists in one speciality to hospitals with a small waiting list in the same speciality.
- There may be a geographical tendency for patients to be referred to their 'local' hospital rather than to a hospital which could offer a quicker service. (e.g. The Children's Hospital, Temple St. has an ENT waiting list of 645 but in Our Lady' Hospital, Crumlin it is only 241).
- Case complexity may mean that cases are referred to larger acute centres, for example, The National Maternity Hospitals refers complex gynaecology cases to St Vincent's; and the Rotunda refers such cases to the Mater hospital.

4.1.3. Day Cases

Day case rates should have an impact on waiting lists. Increasing the proportion of suitable procedures conducted as a day cases should reduce the pressure on inpatient beds. In the Eastern Region there is a high variability in the rates of day cases per day bed available.

Beaumont appears to have a high day case rate of 1,400 patients per day bed per year, compared to Tallaght with a rate of 275. HIPE data analysed by hospital assist in forming conclusions on these differences especially in relation to the type of case treated as a day case.

Beaumont, the Mater and St Vincent's have high waiting lists and high rates of day care; while Tallaght, St. James's and The Royal Victoria, Eye and Ear have lower rates of day care and lower waiting lists.

4.1.4. Occupancy Levels & Length of Stay

The 'big five' hospitals (DATHs) also tend to have high occupancy levels. All five have percent occupancy rates of between 90% - 95%. There is a particular cause for concern at these rates. The Department of Health in the UK found in their own national beds enquiry in 1999, that the optimal occupancy rate for an acute hospital is in the region of 85%.

Occupancy levels above this rate were associated with a lack of available resources to maintain services and deal with periodic high demand pressures (i.e. seasonal variations - in particular winter pressures). The pressures on these hospitals from both the Eastern Region and from the country at large (with regard to national specialities) are creating a situation within our large acute hospitals of high waiting lists for a small number of specialities and high occupancy rates which results in little or no extra flexibility to tackle exceptional periods of demand. When such pressures occur it is the elective procedures on the waiting lists that inevitably suffer.

On the other hand the specialist hospitals (children's, women's) appear to have relatively low occupancy rates despite large waiting lists - e.g. the Coombe and the Rotunda have significant gynaecology waiting lists but occupancy rates for gynaecology of 51% and 62% respectively. SchARR in the UK have modelled occupancy rates on average length of stay. The plot below shows that there is a reasonable trend between the two. SchARR found that this relationship can be explained by operational features within the service providers.

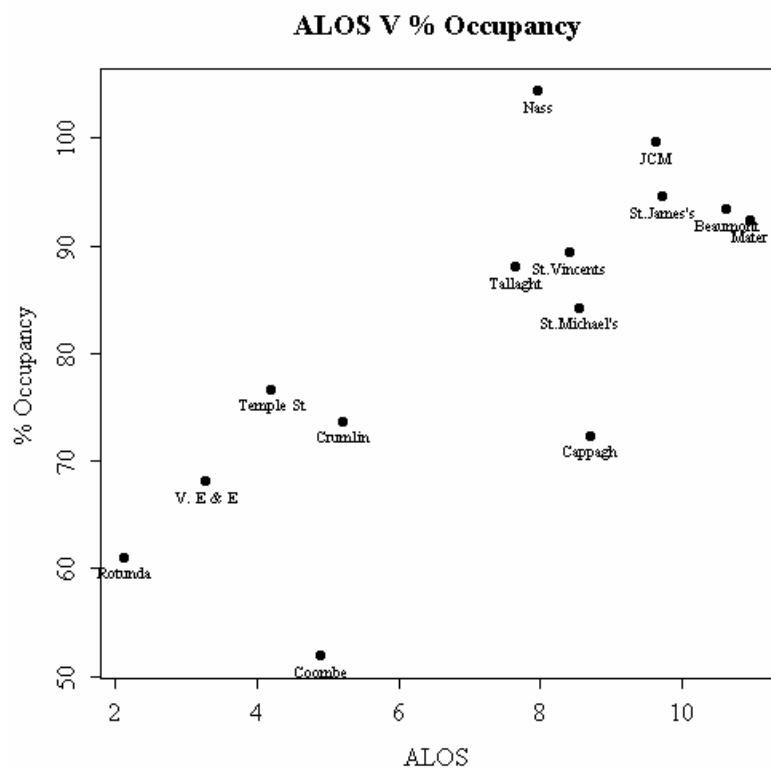


Figure 4.1 Plot of average length of stay by % occupancy

4.2 Specialty and Hospital Analysis.

An index of activity for selected specialties was derived by analysing procedures within major specialty for individual hospitals. The specialties examined were ENT, orthopaedics, ophthalmology, vascular, cardiology, urology, cardiac surgery and gynaecology.

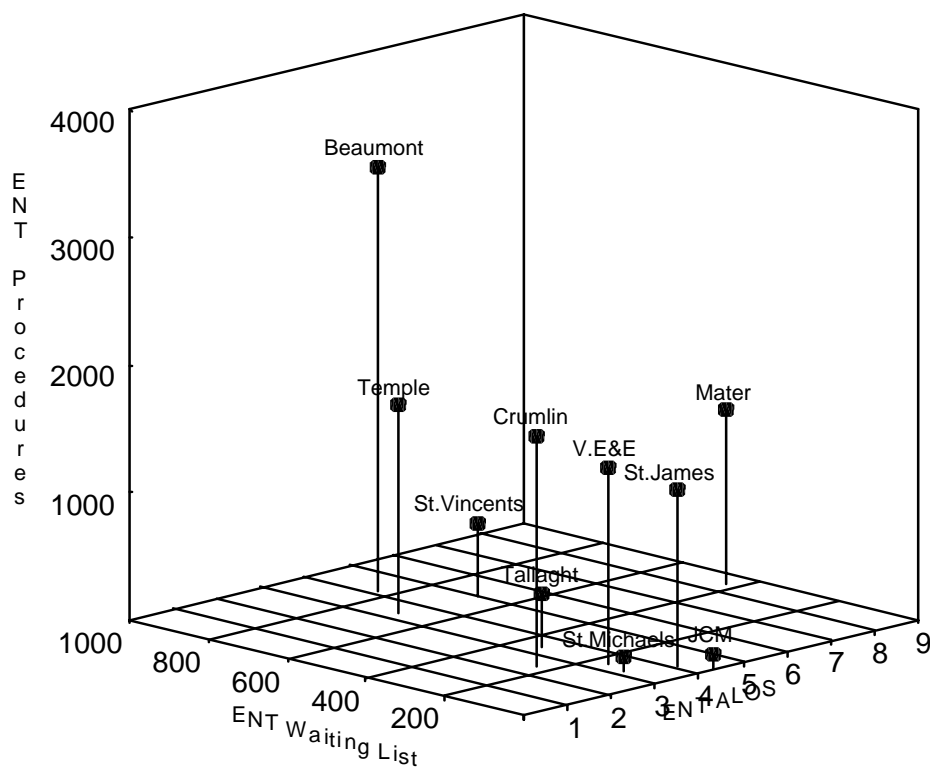
These target specialties represent 70% of the waiting list. General surgery and plastic surgery are excluded as they do not lend themselves to matching with procedures.

What follows is a series of 3-d charts of waiting list, number of procedures performed and ALOS for those procedures by specialty. A narrative accompanies each chart.

4.2.1 ENT

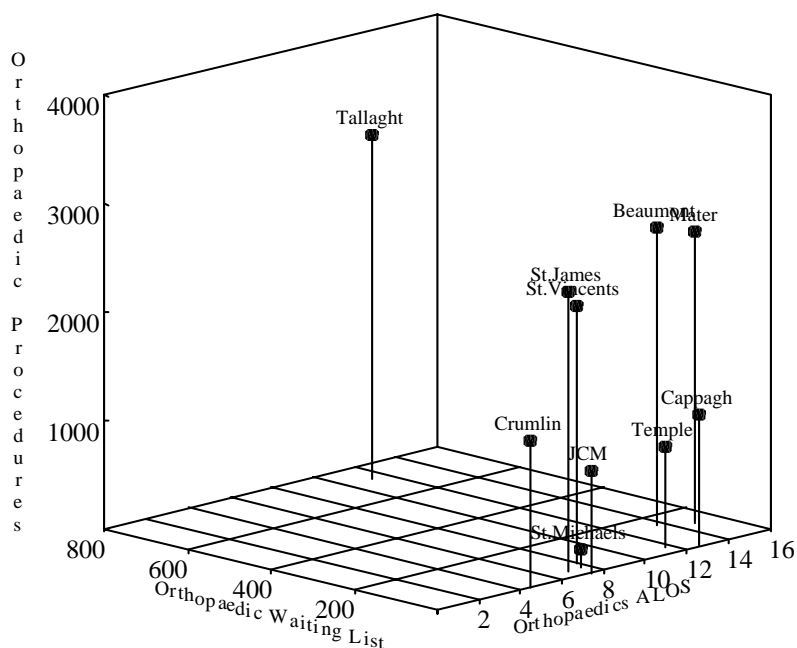
The total waiting list 3551. Beaumont has 24% of the waiting list and performs more than twice the number of ENT procedures than any other hospital. Most hospitals are clustered around the 3-5 day AVLOS, with the Mater having a considerably higher AVLOS at over 8 days. (This is likely to be due to the case mix of ENT at the Mater.) Considering the number of procedures performed in Beaumont the high waiting list is to be expected, but the large difference between St James's, Mater and Vincent's is harder to explain. It is possible that the long AVLOS in the Mater and the relatively low number of ENT procedures in Vincent's explain their lists compared to St James's.

The difference between Our Lady's Hospital, Crumlin and Temple St. is harder to explain. It is possible that it may reflect referral preference to the local agency. Crumlin report four days of dedicated ENT surgery to Temple Streets two and a half days.



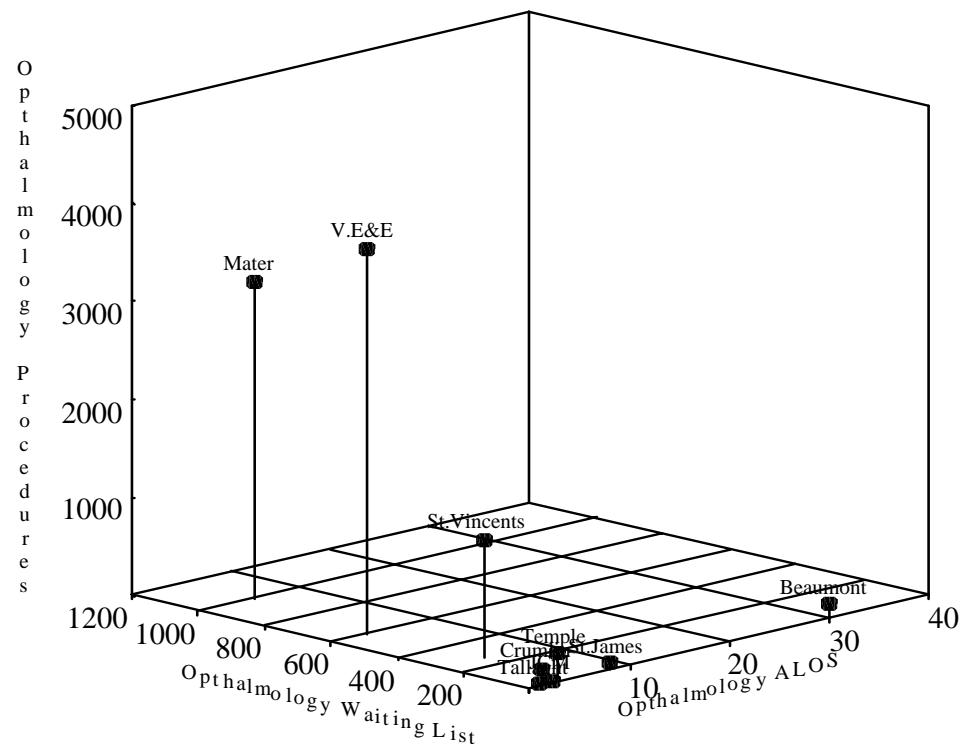
4.2.2 Orthopaedics

Tallaght dominates the orthopaedics waiting list with a 37% share of the list. As is the case for ENT, a large number of procedures seems to co-exist with a large waiting list; this may be due to the level of tertiary procedures being carried out or it may simple reflect the hospitals' attempts to deal with demand. Tallaght report 13 days theatre dedicated to orthopaedics, more than twice that of any of the other major hospitals. Within the DATHs, there appears to be a trend towards a longer AVLOS



and long waiting lists, which may reflect case complexity and/or the increasing likelihood of acute beds being used unnecessarily by lack of discharge facilities for the elderly. There is a very pronounced difference in the AVLOS between Temple Street and Our Lady's Hospital, Crumlin. There are five theatre days of orthopaedics surgery in Crumlin compared with one and half for Temple Street.

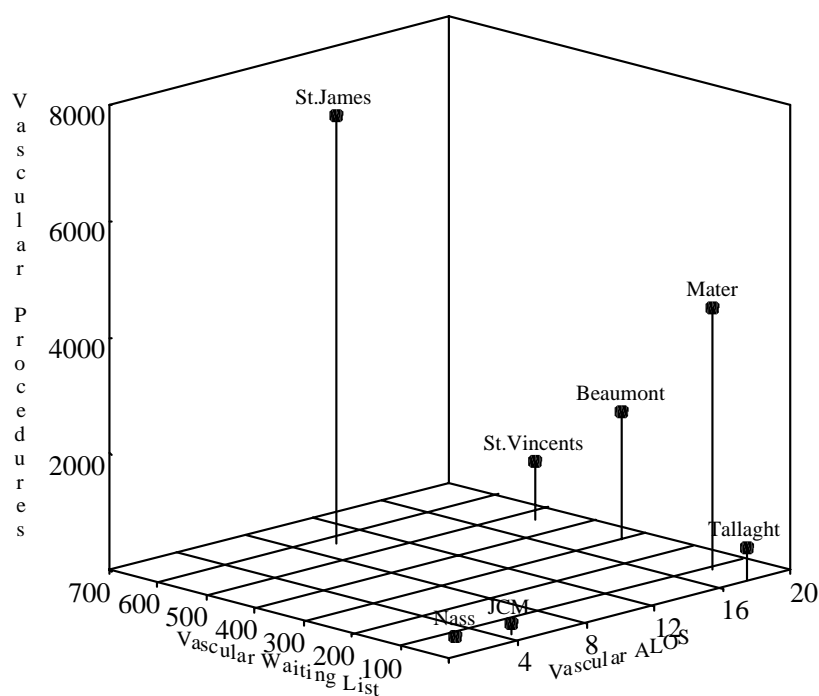
4.2.3 Ophthalmology



Three hospitals carry the majority of the workload in ophthalmology (Mater, Eye & Ear and St. Vincent's). The difference in the workload and waiting list between these hospitals may be reflected in their theatre time: Mater 5 days, Eye & Ear 7 days, St. Vincent's 2 ½ days. It is noted again that one of the major hospitals stands out from all the others in this speciality. This is a pattern that seems to repeat itself in the various key specialities across the DATHs. There are also many hospitals where a low number of procedures are performed.

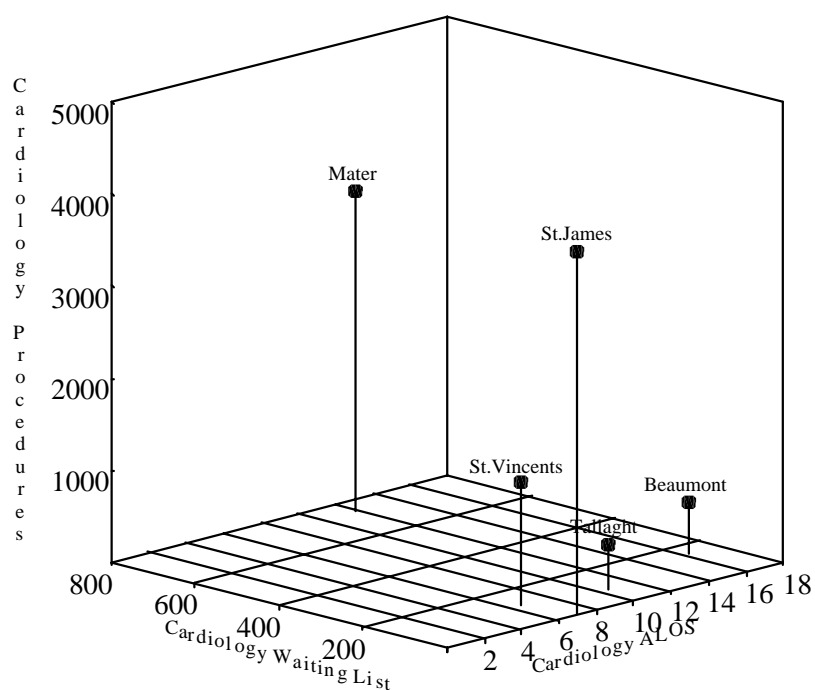
4.2.4 Vascular

St James's accounts for 37% of the vascular waiting list. As before it is notable that a major hospital has a high waiting list and high activity which shadows all the other DATHs. The relatively larger waiting lists in St. Vincent's and Beaumont (given their activity in this speciality) may reflect the fact that the three days of vascular surgery theatre that are lost in the region are from these hospitals. The very low AVLOS for St. James's is notable – case complexity may play a role in this.

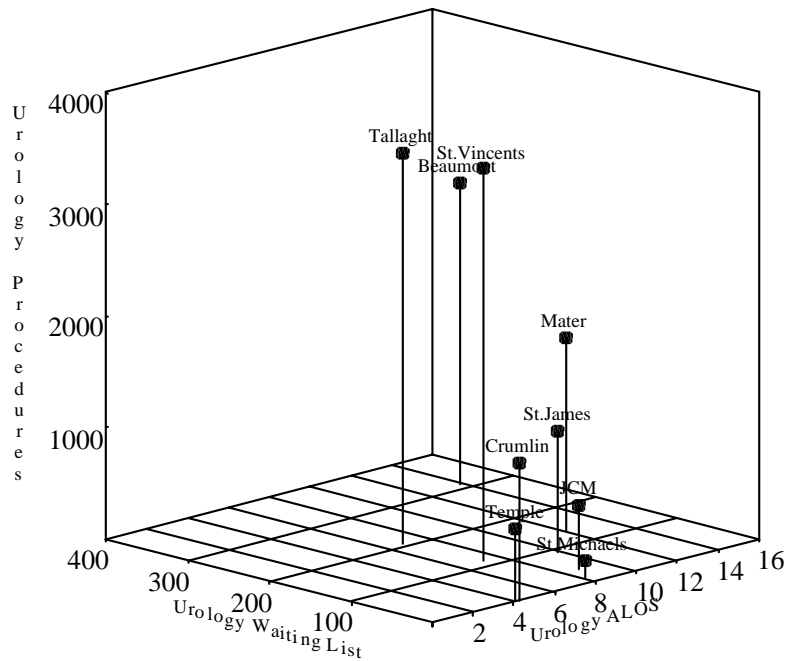


4.2.5 Cardiology

Most of the cardiology procedures are conducted at the Mater and St. James's. However waiting lists between these hospitals vary considerably.



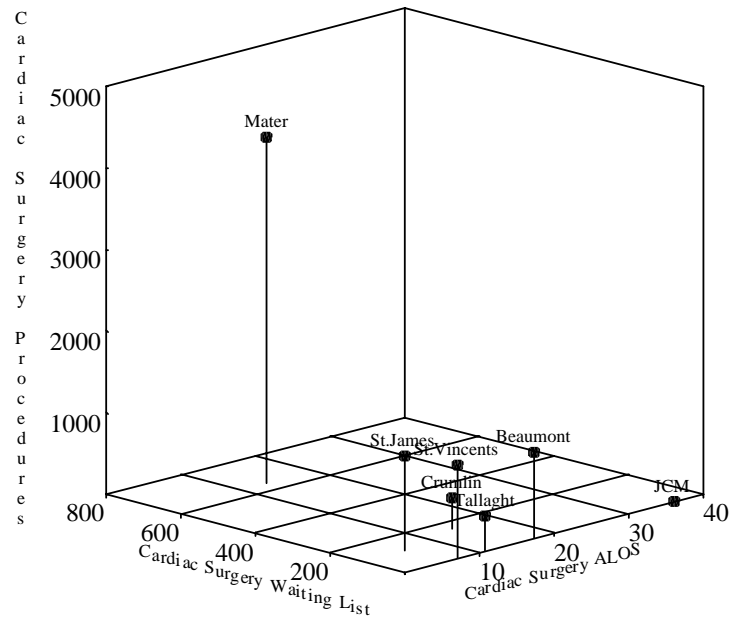
4.2.6 Urology



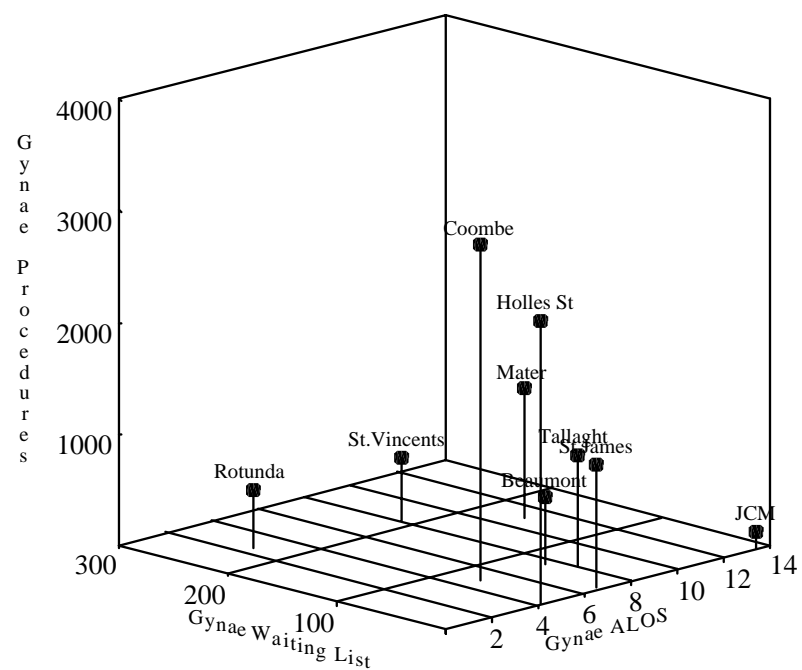
There is a more equitable share of the workload among the DATHs for urology. The difference in AVLOS between the DATHs however stands out. Beaumont which has a significantly higher AVLOS than either St. Vincent's and Tallaght has the largest waiting list.

4.2.7 Cardiac Surgery

The Mater conducts the vast majority of cardiac surgery procedures in the area and its long waiting list is notable.



4.2.8 Gynaecology



Since the Rotunda had only 20% HIPE coverage in 1998 and the Coombe* did not participate at all in HIPE during 1998, it is difficult to compare the activity of the maternity hospitals in this speciality. The higher AVLOS in the DATHs compared to the maternity hospitals may reflect case complexity, with the desirability of doing more complex procedures in a major acute as opposed to a specialist hospital.

Evidence of localisation of waiting list referral can be seen in this speciality. It is significant that Holles Street has no gynaecology waiting list. One must conclude that the distribution of the waiting list across the whole region is not sufficiently correlated with the availability of capacity.

* Data for the Coombe comes from the IMR returns for 1998.

Summary

- In most of the specialities discussed above there is evidence of a major hospital dominating the rest, with high activity and high waiting lists. In some specialities this is associated with a reasonable AVLOS. The desirability of such a concentration of resources for a major speciality in one hospital may be a point for discussion. If any one of these dominating agencies were to be operationally compromised the effect on regional activity and waiting list for that particular speciality would be significant. Distribution of such specialities warrants review.
- In addition, for some major specialities, some hospitals do relatively few volumes. This warrants further examination in terms of quality of care, effectiveness and potential for achieving 'added value'.
- Variation in lengths of stay need to be addressed – perhaps with reference to case complexity or to the operational efficiency within the hospitals.

4.3. Modern Medical Procedures

The introduction of modern medical procedures has also impacted on the waiting list in two ways.

- (a) The development of services for what are now routine and common procedures (e.g. joint replacement in orthopaedics, modern ophthalmology procedures) has placed a large demand on the acute hospitals. The orthopaedic/ophthalmology waiting lists reflect this, as does the high dependency of the elderly on acute hospital services.
 - in 1998, 47.2% of bed days were used by the over 65s despite this age group being approximately 10% of the population
 - in the same year 28.5% of bed days were used by the over 75s despite them being approximately 4% of the population.
- (b) The development of services for life threatening conditions such as cardiac services, transplants and oncology has resulted in the increase in the number of people with chronic illness, who frequently require multiple high demand admissions to the acute hospitals.

4.4. THEATRE USAGE

The Region has 97 surgical theatres. If all theatres were utilised on the basis of 5 full-days per week, the region has potentially 485 sessions per week. Currently the region uses approximately 380 (78%) of this total potential capacity. It is known one of the most important reasons for loss of theatre capacity within the region is a lack of theatre nursing staff. The specialities being effected most by this are those with the largest waiting lists e.g. ENT, orthopaedics and gynaecology which all lose approximately one theatre session per week, figure 4.4.

Figure 4.4 Waiting lists and lost theatre time

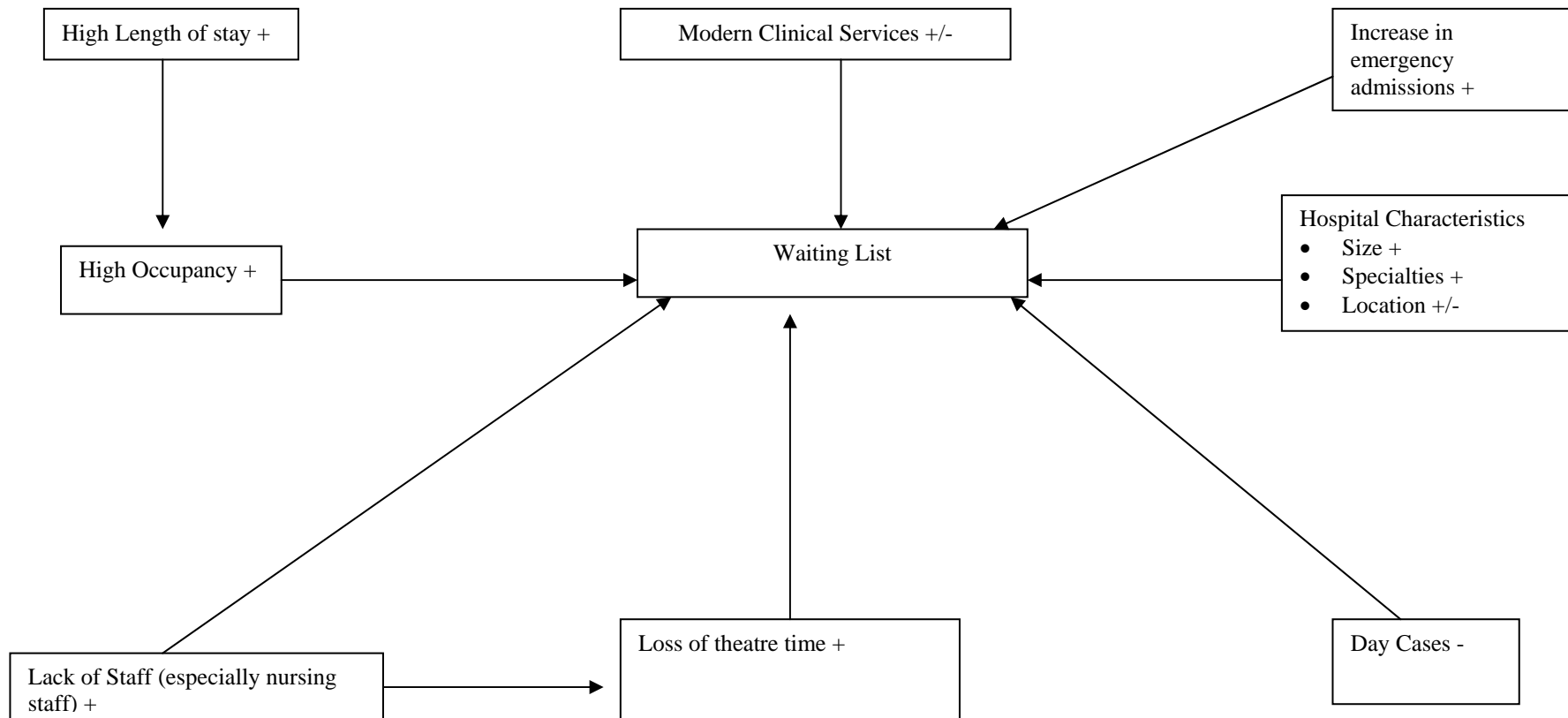
<u>Speciality</u>	<u>Waiting List</u>	<u>% of Total Waiting List</u>	<u>Theatre Days lost as % available in the speciality</u>	<u>% Under Utilisation of Theatre Time By Speciality</u>
ENT	3442	18.27%	5.17	17.72%
Orthopaedics	2545	13.51%	6	9.56%
Ophthalmology	1821	9.67%	3.17	16.54%
Vascular	1673	8.88%	3	19.16%
Plastic surgery	1631	8.66%	2.4	12.53%
Surgery	1555	8.26%	33.5	22.19%
Urology	969	5.14%	5.5	31.43%
Gynaecology	902	4.79%	7.5	20.27%
Cardiac Surgery	893	4.74%	2	8.00%
Neurosurgery	490	2.60%	5	33.33%

There is high variability in theatre time lost among the hospitals. Within the DATHs, St. Vincent's loses 50% of its theatre time per week, whereas the Mater only loses 14%, figure 4.5.

Figure 4.5 Theatre Usage & Share of Waiting List

	<u>% Theatre Usage</u>	<u>% waiting list</u>
Coombe	43%	0.62%
St. Vincent's	50%	18.37%
Beaumont	65%	17.31%
St. Michael's	65%	1.19%
V.E&E	70%	4.16%
Tallaght	71%	8.75%
Mater	86%	21.83%
Naas	90%	0.45%
Crumlin	90%	2.59%
St. James's	96%	7.52%
Temple	96%	6.85%
JCM	100%	2.01%
Rotunda	100%	1.46%
Cappagh	100%	6.90%

Influences on Waiting Lists



4.5. MANPOWER

(1). Consultant Posts:

- 48% of consultant posts are in the Eastern Region
- No major specialty on the waiting list is under-represented in terms of unfilled consultant posts.
- Consultant vacancies, at 20 nationally do not seem material although this review does not address if the overall and specialty allocation is adequate.

Accident and Emergency:

- There are 10 A&E posts in the Eastern Region, and 11 acute hospitals with A&E departments
 - There were 542,000 A&E attendances in 1998
 - The British Medical Association recommends a ratio of 1 A&E Consultant per 30,000 attendances. If applied to the Eastern Region, this would suggest 18 posts are needed.
2. **Nurses:** There are 11,000 posts in the Eastern Region, 41% of national posts. There is a vacancy rate currently of 8-10% in the Eastern Region.

4.6. IMPACT OF PRIVATE HOSPITAL ACTIVITY

1. Private Hospital Acute Beds:

	<i>Inpatient</i>	<i>Day Cases</i>	<i>Total</i>
Dublin	703	83	*786
Ex-Dublin	<u>630</u>	<u>40</u>	<u>670</u>
	1333	123	1456

(*874 in Dublin Public Hospitals/total in Dublin 1660 private beds)

2. All private claims: Public and Private Hospitals

- Approximately 362,000 claims in 1999 55-60% of claims are in public hospitals
- Approximately 35% of all claims are in Dublin public and private hospitals
Approximately 55% of private hospitals claims are in Dublin private hospitals
Approximately 30% of public hospital claims are in Dublin public hospitals
- 45-50% of claims are for day cases.

3. Ranking of Private Hospital procedures (by volume)

Inpatient	Day Care.
1. Dilatation and Curettage	1. Colonoscopy
2. Adult tonsils	2. Endoscopy
3. Varicose Veins	3. Excision of naevi
4. Caesarian Section	4. Impacted teeth
5. Hernia	5. Cystoscopy
6. Child tonsillectomy	6. Arthroscopy
7. Hysterectomy	7. Cardiac Angiography
8. Cataract surgery	8. Myringotomy
9. Circumcision	9. Echocardiogram
10. Laparoscopic cholecystectomy	10. Basal cell carcinoma
11. Nasal Septum surgery	11. Vein sclerosing
12. Hip replacement	12. Plantar warts
13. Appendicectomy	13. Sebaceous cysts
14. Disc removal	14. Proctoscopy
15. CABG	15. Laryngoscopy

4. Approximately, 25,000 inpatient claims are in Dublin private hospitals i.e. 1 in 6 of all cases in the Eastern Region area and 1 in 7 inpatient beds.
3. Approximately 26,000 day case claims are in Dublin private hospitals. Day cases also account for 1 in 6 day cases in the Eastern Region and 1 in 7 day care beds.

4.7. CARE FOR OLDER PEOPLE

1. Life expectancy has improved. At the turn of the century life expectancy was 50 years compared with 71-76 years today. From 1950 to 1995, life expectancy at birth for men increased by 8.5% years and for women by 11.5 years. Population projections by the CSO which deals with the period 1991-2011, indicate that by the year 2011 men age 60 expect to live another 19 years and women 23.5 years (Fahey, 1995).
2. The elderly require a special focus because of their much higher rate of growth of admissions, especially emergency admissions (emergency admissions over 75 years increased by 28.8% between 1994 and 1997).

Table 4.6: *Number of day cases elective and emergency admissions in over 65s 1994-1997*

65-74	1994	1995	1996	1997	%change
Day Care	151134	20709	24432	17825	83.86
Elective	25368	25777	25032	24691	-2.67
Emergency	39034	40103	39881	39861	2.12
Total	81530	88584	91341	94374	16.14
75+	1994	1995	1996	1997	%change
Day Care	8790	12590	15524	17499	99.08
Elective	22113	21790	21524	20888	-5.54
Emergency	46510	50027	51207	52108	12.04
Total	77413	84407	88255	90495	16.9

The tables above show that there has been a decrease in the number of elective admissions and an increase in the number of emergency admissions and a substantial increase in the number of day case patients.

3. The length of stay of elderly patients is declining but is longer than other age groups at 9.8 days for (65-74 years) and 11.6 days for persons 75 years.
4. The relationship between hospital and community health and social services is especially important for this group. In general, there has been an increase in the provision of nursing home beds, and other community services in recent years. However, further analysis is needed of the adequacy of that supply.
5. The Home Help Service is designed to help individuals and their dependants to cope in their own homes. There has been an increase in the number of elderly people in receipt of Home Help services in the region. In 1997, there were 6,235 elderly people in receipt of home help services, compared with 4,200 in 1996 (Eastern Health Board, 1998).
6. Meals on Wheels- there are 140 voluntary organisations involved in delivering meals to elderly people in the Eastern Region. During 1997 1.2 million meals were delivered by these organisations, this is an increase from 997,388 meals provided in 1996 (Eastern Health Board, 1998).
7. Community Ward Teams (CWTs) became established in the Eastern Region in 1990. A snapshot questionnaire survey of elderly clients with CWT support was carried out during a seven day period in March 1999. Some key results are as follows: the CWT staff visited approximately 3,337 clients in the Board's region in the study week: 34% of all referrals were from hospitals (step-down) and 56% from the community (step up). Overall 63% of the clients who received care were over 75 years old and 25% were over 85 years old (Eastern Health Board 1999).
8. A systematic review of the literature of factors associated with acute use of hospital beds by the elderly suggests that immunisation against influenza can halve their risk of admission to hospital (Lambert, Arblaster 1999).
9. In addition, there is an increasing body of high quality original research, which suggests that:
 - Best practice guidelines for care can reduce length of stay among people with common conditions who do not need extended inpatient care, where these guidelines are appropriately supported by information and encouragement to comply.
 - Short-stay facilities (observation and assessment units) can reduce the length of stay for patients with conditions such as asthma or chest pain.
 - Maximizing opportunities for rehabilitation (especially by specialists for the elderly rather than on a general ward) can minimise length of stay for patients with acute health problems and unplanned readmission's.
 - The use of nurses to support telephone triage of people requesting out of hours services has no effect on the number of hospital admissions compared to GP telephone triage.

- Clinical decision support, including computer-aided diagnosis, can improve diagnostic certainty and reduce the number of hospital admissions (Lambert, Arblaster 1999).

4.8. CARE FOR CHILDREN

1. Almost one quarter, 24%, of the Irish population is under 15 years, the corresponding figure for the Eastern Region is 22.7% (Central Statistics Office, 1996). This is by far the highest in the European Union countries, where the average population 0 to 14 years is 18%.

The birth rate in Ireland had declined rapidly from the early 1980s. Within the Eastern Region, however, the number of births has increased every year since 1994. In 1998, there were 20,601 births in the region, giving a birth rate of 15.8 compared with the national rate of 14.5 (Eastern Health Board 1999).

2. Much paediatric inpatient care consists of the evaluation of sudden illness often provoked by infection. In a minority of cases such illnesses quickly become life threatening. This risk can be reduced through rapid assessment and early intervention by treatment at primary or secondary level. New vaccines may further reduce this risk e.g. vaccine available against type C meningitis (Department of Health 1998).
3. Key Trends for inpatient admission for 0-14 age group
 - Elective hospital admissions decreased by 14.6% between 1994-97.
 - Day case admissions increased by 17.7%
 - Emergency admissions increased nationally by 1.5%
 - Average length of stay for children 0-14 years decreased by 8.7% between 1994-1997
 - Average lengths of stay for children are lower than for adults, at 3.7 days.
 - There has been a decline in the share of hospital beds taken by children relative to other user groups.
4. As with adults, acute paediatric medicine shows a steadily declining length of stay profile. Admissions are often measured in hours rather than days (Department of Health 1998).
 - (a) Social causes can impact heavily on children's emergency admissions. Smaller families, changing patterns of child care and the dispersal of populations away from grandparents can create expectations for hospital observation in children with acute and self-limiting but worrying conditions.
 - (b) Increasing levels of day-case surgery and a reduction in the number of unnecessary operations e.g. grommet insertion will lead to further reductions in inpatient work. Length of stay as inpatients is reducing and this can be further assisted by the development of services in community settings.
5. Some reduction in demand for inpatient services could result from an emphasis on preventive measures all of which can be effective in reducing incidence of severity of illness which lead to admission. These include initiatives to (a) increase the rate of breast

feeding (b) decrease teenage pregnancy rates (the number of births to teenagers in the Eastern Region in 1998 was 1,001 representing 4.35% of all births) and (c) decreasing accidents (almost 1,000 children are admitted to hospital annually with actual or suspected poisoning).

- (a) Vaccination is considered to be among the most cost beneficial interventions in modern medicine. However to achieve the full benefit, high coverage of vaccines at the appropriate ages is needed. In this region MMR uptake in 1998 was 73.3%, which is considerably below the target rate of 95%. In excess of one hundred admissions due to measles infection have been recorded this year to date in the Eastern Region.
- (b) An extensive literature review on avoidable use of beds (Goddard, McDonagh and Smith) reported inappropriate bed use among paediatric patients in the range 19-20%. These rates vary depending on the case-mix of the hospitals reviewed, with tertiary centres reporting lower rates due to admitting sicker patients.

6. New Technologies

- (a) A vaccine against type C meningococcal disease (40-50% of all cases) is now available. A phased immunisation programme to immunise the entire population under 22 years is due to begin in Autumn 2000. Although meningitis represents a very small proportion of paediatric admissions, the fear of the disease leads to substantial referral to acute services and thus the impact of vaccines could be on a greater scale in terms of reduction in admission.
- (b) Rotavirus: admissions for gastro-enteritis are common in childhood and about half of these are due to rotavirus. A new vaccine could achieve a significant reduction in admissions for gastro-enteritis and is an area of much interest to vaccine developers. In the longer term, future candidate vaccines that protect against hepatitis C, herpes simplex, respiratory syncytial virus and HIV may become available (Department of Health, 1998).

CHAPTER FIVE: LITERATURE REVIEW AND INTERNATIONAL COMPARISONS

5.1. POPULATION AGEING

“In nearly all parts of the world, the number of older people is growing rapidly while the population of younger adults and children is becoming smaller, in either relative or absolute terms. It is often assumed that this trend towards population ageing will give rise to serious challenges for the health services, perhaps even to the extent of straining the capacity of health systems in the more severely affected countries to cope. On the other hand, many argue that the impact of changing age structures has been greatly exaggerated and that demographically induced pressures are slight when compared with other pressures, such as medical price inflation, changing in medical technology and rising expectation of health care consumers”(Fahey 1998).

International data show that health expenditure is not consistently related to any aspect of population structure. An OECD study of the correlation of health expenditure across developed countries showed that none of the demographic variables examined had a significant effect, either on the overall expenditure on health or on any of the three major sub-areas of health expenditure - hospital, inpatient care, ambulatory care or pharmaceuticals (OECD 1994). Thus, for example, the US and Canada are among those countries in the OECD with the youngest population, yet they have the highest expenditure on health. Though the populations of Germany and Japan have been ageing with exceptionally rapidity in recent years, their level of health expenditure remains quite normal by international standards. Greece and Portugal have, in relative terms, higher elderly populations than Ireland, yet they spend a smaller share of national income on health than does Ireland (OECD 1993).

Across western countries in the last thirty years, growth in health expenditure has been tightly linked to economic growth –the richer the country is, the more it spends on health, irrespective of its demographic structure or of the health status of the population. In the early 1990s, if one knew the per capita spending in a developed country, one could predict its level of spending on health with 98% accuracy (OECD 1993).

5.2. MOST FREQUENT CAUSES OF MORBIDITY

The major causes of inpatient admissions in the Eastern Region and Ireland are diseases of the circulatory system, diseases of the respiratory system, cancer and accidents.

1. Coronary Heart Disease

Coronary Heart Disease (CHD) rates in Ireland are substantially higher than the European Union (EU) average. As in many developed countries, there has been a substantial decline in mortality rates from CHD and stroke in Ireland in recent years. A decline in mortality rates does not necessarily mean that the population burden of disease has decreased. Reduced case fatality and improved survival results in lower death rates, but also an increased prevalence of disease (Department of Health and Children 1999).

CHD places a very considerable burden on acute hospital system. In the Eastern Region in 1998, there were over 20,000 discharges where CHD was the primary diagnosis on discharge. It is estimated that patients with a principal diagnosis of CHD occupy 435 beds on a continuous basis in our acute hospital system. In bed numbers, this is equivalent to a fully occupied major regional

hospital on a year round basis (Department of Health and Children 1999).

The effect of adopting the recommendations of the Cardiovascular Health Strategy on acute bed requirements are difficult to predict. Increased access to preventive services and both drug and lifestyle changes seem likely. More people will come to understand their CHD risk, and as much CHD risk is currently undetected and unknown to patients, this is likely to increase both demand for investigations, emergency admissions with suspected myocardial infarction and revascularisation procedures.

The improved management of acute myocardial infarction seems likely to lead to more hospital admissions and greater numbers of survivors as thrombolytic therapy is delivered faster. An increased requirement for coronary care beds seems inevitable. A greater number of survivors from myocardial infarction will lead to a need for more rehabilitation and secondary prevention services. This in turn will increase uptake of drug therapy and surgical revascularisation (Department of Health 1998).

Overall the setting of standards for the management of CHD in the Cardiovascular Strategy seems very likely to lead to increased admissions for diagnosis, monitoring, and acute coronary syndromes. Whilst the number of true coronary events may be predicted to fall over time as preventive strategies work, the short term likelihood must be of increased bed requirements. The number of coronary care beds will rise, perhaps offset by a reduction in the length of stay. There will be an increased need for surgical intervention and procedures. The overall impact on beds seems likely to be upward at least in the short to medium term (Department of Health 1998).

2. Diseases of the Respiratory System

The rates of hospital admissions for respiratory illness including asthma and bronchiolitis continue to increase in many countries including Ireland, the UK and US (Anderson 1989). In the US hospitalisation for lower respiratory tract infections constituted 37% of all infectious disease hospitalisations in 1994 (Shay *et al* 1999).

The number of admissions due to respiratory diseases is increasing in the Eastern Region from 13,386 in 1994 to in excess of 16,000 admissions in 1998. In Ireland and the Eastern Region, the number of in-patient hospital admissions and the number of bed days due to respiratory illnesses (ICD 460-519) are shown in the table below:

Table 5.1: Inpatient admissions and bed days due to respiratory illness 1994-97 in Eastern Region and Ireland

	Cases '94	Bed Days '94	Cases '95	Bed Days '95	Cases '96	Bed Days '96	Cases '97	Bed Days '97
East	13,486	101,037	14,635	106,222	14,145	107,302	13,726	106,787
IRL	44,431	279,614	50,009	301,344	49,126	297,465	48,840	297,511

The over 65 age group represents the largest and increasing cause of admission and emergency admissions for respiratory illness; this trend is likely to continue as the population over 65 increases.

3. Cancer

Cancer is the second most common cause of death, after cardiovascular disease in the Eastern Region. A reduction in both cancer mortality and morbidity is a principal objective of the health services.

There were 12,276 new cases of cancer diagnosed among residents in the Eastern Region for the three years 1994 to 1996 combined (approximately 4,095 per year). The incidence of cancer is higher in the East than for the country as a whole, both for males and females. Lung, colorectal, breast and prostate are the main types of cancer affecting the Eastern population. This difference is mainly due to the incidence of lung cancer which is significantly higher than the national average (ERHA Health 2000).

In future, prevention and treatment of cancer can be expected to improve further, including the development of effective cancer vaccines, e.g. for colon cancer and malignant melanoma. Genetic screening may enable the development of more accurate screening programmes, which in turn would have a major impact on cancer prevention strategies. More sophisticated radiotherapy and radiosurgery techniques are being developed. In particular, conformal stereotactic radiosurgery is a promising technique for more effective and precise radiation delivery to tumours. The likely impact on the demand for hospital beds is not clear, as much chemotherapy and radiotherapy is given in the out-patient or day-care setting, but could be downwards (Department of Health 1998).

5.3. HEALTH SPENDING

1. Using OECD figures:

- In terms of health expenditure as a percentage of GDP, Ireland is in the bottom 6 of 29 OECD countries at 6.4%.
- Ireland has fewer hospital beds per head of population than 62% of OECD countries.
- Ireland has a relatively low average length of stay (in the best 5) compared with other OECD countries: in 1995 it was 7.7 days and in 1997 it was 6.5 days.
- Using Purchasing Power Parity as another indicator Ireland again ranks in the bottom 19 of OECD countries.
- Ireland has fewer doctors per 10,000 population than the majority of OECD countries (17.2).
- Ireland has more nurses than the European average.
- Ireland also has fewer hospital beds and acute hospital beds than the majority of WHO and OECD countries (SchARR 1998).

2. Health Spending Per Head of Population (£)

	Resident Population	Served Population
East	£381.13	£306.18
National Average	£468.99	£468.99

The Eastern Region is a net importer of patients. Health Boards are not funded on a capitation basis and therefore they are expected to meet the costs incurred by service provider in treating their patients regardless of where they live (SchARR 1998).

3. International Comparisons

At 8.7% in 1980, Ireland ranked third relative to other EU member states in terms of the share of GDP devoted to health. Only Sweden and Germany had a higher percent GDP devoted to health. While Sweden and Germany ranked as the highest spenders on health throughout the 1980s, the Irish estimates show that the rank occupied by Ireland was progressively declining, as the proportion of GDP devoted to health ranked joint fifth relative to other member states in 1985 and eleventh in 1990. Since 1993, the only EU member states to spend a smaller proportion of GDP on health care the UK, Luxembourg and Greece (Wiley 1998).

4. Future Developments for Irish Health Expenditure

Pressure for expansion of the health services comes from a number of sources: changes in levels of employment in the health service, advances in medical technology, changes in health service consumption patterns, demographic developments, etc. Between 1990 and 1996, there was an increase of 9.9% in total health personnel employment compared with an increase of 5.1% in the numbers employed in the health services between 1980 and 1996 (Wiley 1998).

Expenditure trends in recent decades show that public investment in the health services is generally reflective of the wellbeing of the Irish economy as a whole. This is not particularly unusual and supports the view that expenditure on health is closely related to the level of investment, which can be supported economically and politically. The ESRI's medium term projections for 1997 - 2003 suggest that the current exceptional rate of growth in the Irish economy is likely to continue into the next decade, assuming the continuation of current prudent fiscal policy, wage moderation and the absence of domestic and international shocks. In such circumstances, it is likely that health expenditure levels will continue to rise into the new millennium (Wiley 1998).

5.4. INAPPROPRIATE BED UTILISATION

Studies in many countries have consistently identified inefficiencies in the management of hospital admissions and days of care of around 20%. There have been several such studies in the Irish health care system.

1. Hynes (1986) in a study of inappropriate bed days in one Dublin hospital reported the level of inappropriate bed use at 19.5%. Of barriers to appropriate care responsibility lay with the physician in 17.4% and with the hospital in 15.3%. These included factors such as problems with scheduling of tests/procedures, waiting for test results, lack of weekend services, waiting for physician consultations and delays in ordering the transfer of the patient.
2. Hayes (1990) estimated inappropriate bed days in a large teaching hospital for patients over 65 year at 29.1%. Of inappropriate days, patients for whom care would have been more appropriately provided outside the acute hospital setting accounted for 39.6%.
3. As part of an A&E study in 1989, the appropriateness of A&E admissions was assessed for one week in six Dublin hospitals. The appropriateness of A&E admissions ranged from 85% to 93% in the six hospitals (Hynes *et al* 1990).

4. A utilisation study in six large hospitals found that 21% of admissions were inappropriate. Appropriateness of days of care varied with the type of ward, with medical and geriatric ward being significantly less appropriate than days of care in surgical wards (Igoe *et al* 1995).
5. In a review of studies on inappropriate bed use for the NHS national bed enquiry (Goddard, *et al* 1999) concluded : “The elderly appear to have rates of inappropriate bed use higher than those found in the general population. While wide variation in inappropriate days of stay were found, it may be safe to assume that inappropriate use is greater than 20% across a wide variety of settings”.

5.5 TECHNOLOGICAL ADVANCE

2. The development of health care technologies continues on many fronts. Some will introduce and increase the use of highly specialised and costly treatments; others involve less invasive techniques, shift specialised care into community settings, increase the number of patients eligible for screening and treatment, or provide for those with chronic disability (Department of Health 1998).

It might be assumed that technological advance lies at the heart of the reduction in the time spent in hospital. But there is evidence that technological advance may have conflicting effects. One study compared medical admissions in 1961-1962 with admissions in 1981-1982. They found that the length of stay declined considerably over that time. They considered that some of the decrease might be due to new techniques, for example, brief admissions for a diagnostic test, e.g. cardiac catheterisation. But in a similar study comparing admissions between 1972 and 1982, length of stay increased for two conditions in which authors found that the use of technological intervention had increased (infant respiratory distress syndrome and renal transplantation) (Clarke 1996).

3. In the future, technology will not only change processes, but on another level, will alter the structure of the health services. The major advance in the 1990s was minimal access surgery. Future developments that will alter medical care include advances in medical imaging, electronic and telecommunications devices, together with robotic technology and innovative concepts related to highly accomplished operative venues (Department of Health 1998).

4. Health Care Technologies may:

- Increase the use of highly costly and specialised treatments.
- Involve less invasive techniques.
- Shift specialised care into community settings.
- Increase the number of patients eligible for screening and treatment.
- Provide for those with chronic disability.
- The use of minimally invasive techniques and the provision of pre and post surgical care outside the acute setting may continue to reduce the length of hospital inpatient stay for surgical patients (Department of Health 1998).

5.6 LENGTH OF STAY

1. Length of stay in hospital has decreased systematically over the past 20 years, both overall and for most conditions. The time patients with exactly similar conditions are likely to spend in hospital after any given treatment depends on the country, the region, the hospital and the specialty. A sample of nationally collected routine data indicates that in 1988 a person admitted for cholecystectomy in Italy was likely to spend twice as long in hospital as a person admitted for the same procedure in Norway (Clarke 1996).
2. What determines the length of stay? Clarke (1996) in a review of the costs and benefits of reducing time in hospital suggested that the causes of variation in length of stay were due to both supply and demand factors:

Supply Factors:

- Bed supply, hospital competition, and the quality and availability of primary, community and convalescent care.
- Individual practice style.
- Discharge policies.
- Level of illness at which hospital care is considered desirable.
- Method of payment.

Demand Factors:

- Socio-economic status.
- Disease severity.
- Co-morbidity.
- Direct or indirect costs to the patient or their carers.

The importance of analysing and distinguishing between supply and demand factors lies in the implementation for action within the hospital. If demand factors predominate in determining length of stay, then probably little could be done to try to reduce variation between institutions. On the other hand, if supply factors are found to predominate, then this may point to a need to look at methods of practice with a view to diminishing the variation in time spent in hospital.

5.7 Bed Supply

1. The effect of local availability of beds on length of stay has been studied extensively. One large study on regional variations in the Netherlands suggested that the strongest determinant of length of stay was bed supply (Clarke 1996). In the UK, a similar finding was reported (Beech 1995). Griffiths *et al* (1979) reported the additional finding that patients who had been on waiting lists had shorter stays because of increased pressures on beds. Both the UK studies found that hospitals able to send patients to convalescent homes or community hospitals did not keep their patients for a shorter time.
2. In the US, in one study found differences between length of stay between areas for several procedures. In the areas with the highest numbers of local hospitals – the larger bed supply – longer length of stay for all diagnoses than in the areas with the smaller bed supply when adjustment for population density, age and case-mix had been made (Clarke 1996).

3. Convalescent facilities increase supply, so if the above findings hold, would be expected to be associated with an increased length of stay. Two studies in the UK, one on medical and surgical patients, and another on patients with stroke have documented a longer stay for individual patients awaiting a place in either a convalescent home or a rehabilitation facility (Robbins and Donaldson 1984, Wade *et al* 1985).
4. In Europe and the US the supply of beds is the factor with the strongest association with length of stay: increased supply leads to a longer length of stay (Clarke 1996).

5.8 Long Stay beds for older people

Table 5.1 Long Stay beds for older people

Health Board / Health Authority	No. Public Beds	No. Private Beds	Total No. beds	Population per '96 Census (over 65)	No. Beds per 1,000 population (over 65s)	Public share	Private share
EAST	3,090	4,454	7,544	125,271	60.22	41%	59%
MHB	901	625	1,526	25,019	60.99	59%	41%
MWHB	990	1,552	2,542	37,480	67.82	39%	61%
NEHB	928	709	1,637	34,812	47.02	57%	43%
NWHB	946	661	1,607	29,395	54.67	59%	41%
SEHB	1,495	1,181	2,676	46,590	57.44	56%	44%
SHB	1,678	1,840	3,518	66,127	53.2	48%	52%
WHB	1,393	1,615	3,008	49,188	61.15	46%	54%
Total	11,421	12,637	24,058	414,043	58	47.5%	52.5%

Table 5.1 shows the relatively low ratio of long stay beds for older people in the ERHA region and its high dependence on the private sector for such beds.

CHAPTER 6

FORECAST OF ACUTE INPATIENT BEDS REQUIRED IN THE ERHA (Undertaken by ScHARR)

6.1. Introduction

This chapter aims to provide an estimate of the future number of inpatient beds required for the major specialties in the Eastern Region. The future-planning year is 2011.

The methodology, “Standard Methodology” uses the simple equation that the number of inpatient beds required equals the number of inpatient admissions divided by the throughput. The methodology looks at each of the factors that affect activity and throughput to derive a planning scenario. For each specialty two main planning scenarios have been developed to forecast bed needs to 2011. The methodology together with the derivation of the scenarios is explained in more detail in the following section.

The results of the analysis are presented in section 6.4 of this report.

6.2 Data

The data sources used in this analysis have come from both Ireland and for comparative purposes the United Kingdom. The Irish data are:

- i) The IMR, which shows for each hospital the average number of inpatient beds available in the year, the available bed days, bed days used, percentage occupancy level, number of inpatient discharges and deaths, average length of stay and the number of day cases treated. This information is provided by specialty where available. The IMR is very similar to the old SH3 NHS return used in the United Kingdom pre-Korner.
- ii) The second data set is the Hospital In-Patient Enquiry (HIPE) data set. This contains more detailed information about the admission and the type of care that the patient receives in hospital. The HIPE dataset contains fields such as the date of admission and discharge, the type of admission (whether elective or non-elective), area of residence (whether Eastern Region or elsewhere), diagnosis and procedure codes, specialty as well as main diagnostic category (MDC) and Diagnostic Related Group (DRG).

The HIPE and IMR are separate datasets, and because of this data numbers of patients treated in each specialty at each hospital do not match. The general consensus is that the IMR may be more accurate in terms of the number of cases treated in each specialty at each hospital concerned. Overall in the last five years of HIPE datasets, (the years examined for this project), the number of patients recorded as being treated using the HIPE software is lower than that using the IMR data. Where HIPE data has been used in this analysis the activity level has been uplifted to represent this shortfall. Table B1 in Chapter 3 shows these discrepancies. However, the HIPE data do have the advantage of containing more detailed information. The future bed planning analysis described in this report as the “Standard Methodology” primarily uses the IMR data with

inputs from the HIPE where needed. This is explained in more detail in the “Standard Methodology” section of the report.

The National Casemix Office at the NHS Executive, Leeds has kindly provided the comparative data from the United Kingdom. These data contain for each specialty the UK national average length of stay and the UK national average percentage day case treatment rate together with 25th percentile figures for both average length of stay and day case rates. A comparison of the UK performance data with the level of performance of the ERHA hospitals shows that the UK has a lower length of stay than the ERHA. It also has higher day case rates for some specialties but lower rates for other specialties. Current high UK performance measures have been used as possible future ERHA performance levels in the scenarios developed in the “Standard Methodology” analysis.

6.3 Standard Methodology

The diagram illustrated below shows the simple equation used in this methodology.

Figure 6.1. The number of inpatient beds required in a hospital expressed as a simple equation:

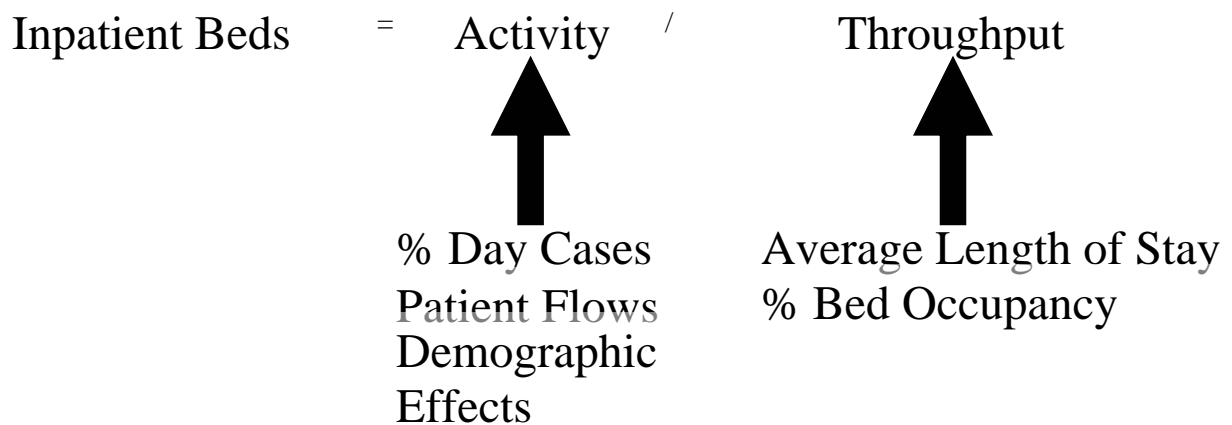


Figure 6.1 shows that the activity level is influenced by factors such as the percentage of activity that can be treated as day cases, changes in patient flows from health board areas to each hospital and general increases in demand through demographic factors such as an increasing ageing population. The factors that effect throughput are the average length of stay and the percentage bed occupancy level.

The standard methodology derives future estimates for each of the factors that effect bed numbers to construct future average bed estimates for each specialty.

Each of the factors that effect future bed numbers is listed below together with the possible data sources and methods used in deriving the future estimates.

6.3.1 Other sources of data used for the forecasting exercise

Day Surgery Rates: These are particularly important for the largest surgical specialties e.g. General Surgery, Orthopaedics, Gynaecology and ENT.

In this research comparisons are made between:

- day case rates in the ERHA and other health boards and with
- UK National performance levels.

Patient Flows: The likely future flows of patients to ERHA hospitals from other health boards.

- An examination was made of current patient flows from health boards in general for each specialty to hospitals in the ERHA – HIPE dataset
- An assessment of expert opinion from ERHA on any likely future changes (availability of long-stay facilities etc.)– ERHA

Demographic Effects: An estimate of the future effect of an ageing and increasing population is assessed. This analysis uses the 1998 number of ERHA residents in each specialty treated at any hospital in Ireland, from HIPE, and applies it to the current population of the Eastern Region to derive a caseload per population figure.

To fully assess the effect of an ageing population, the treatment rates need to be age and sex specific. Therefore, the 1998 activity levels have been broken down into age and sex groups. These age/sex treatment rates have then been applied to a future population estimate to derive the future activity levels. The population in question is an estimate of the resident ERHA population in 2011 (1.6 m) which takes migration into account. The age groups used in the analysis are 0-14, 15- 39, 40 - 64, 65 - 74, 75 - 84 and 85+.

6.3.2 Throughput

Patient throughput i.e. the number of inpatients per bed per year is a key statistic to examine and is calculated from the following factors:

Average Length of Stay: Length of stay is likely to be the single biggest key factor in the assessment of the robustness of future bed estimates. Future estimates have been ascertained from:

- examining recent trends in length of stay by specialty – IMR data
- comparison with UK national performance indicators - NHS Information Office
- undertaking a casemix analysis to ascertain whether different hospitals within the Eastern Region are treating the same type of patients or if certain hospitals are treating a more complex casemix of patients – HIPE dataset.

Percentage Bed Occupancy: Planning a level for the bed occupancy can be difficult as the actual number of available beds for each specialty varies throughout the year. Future estimates can be assessed by:

- comparative analysis of bed occupancy levels for all hospitals within the Eastern Region - IMR data
- adapting ScHARR's previously developed regression equation that relates LOS with percentage bed occupancy
- work undertaken by the UK Department of Health (DOH, UK) suggests that a bed occupancy level over 85% is associated with bed problems in handling emergency admissions².

6.3.3 Scenario Approach

In order to introduce some sensitivity analysis into this bed modelling approach two main scenarios have been developed to cover the range of future possible outcomes.

Scenario 1a

This scenario could be called the “stand still scenario” as it shows the future estimated bed requirements for each specialty following demographic activity changes but with no changes to patient flows and no changes with the 1998 individual hospital performance levels for average length of stay and day case rates.

The only performance measure to alter is the average percentage bed occupancy. The UK DOH suggests that an average bed occupancy in excess of 85% leads to bed borrowing and problems in handling emergency admissions. Therefore, it was felt that the average percentage bed occupancy would remain the same as the 1998 level if it did not exceed 85% else it would be reduced to 85%. This scenario does not take account of the demands on beds from either inpatient or outpatient waiting lists.

Scenario 1b

This scenario adopts precisely the same assumptions as Scenario 1a i.e. hospital performance remains the same as 1998, demographic changes to 2011 are included and occupancy is set at 85%. However the inpatient and outpatient demand for beds are included in the calculations.

Scenario 2

Recent trends show that the average length of stay has been reducing while day case activity has been increasing in all specialties. This scenario introduces an additional 10% reduction in average length of stay together with an additional 10% increase in the overall day case rate. That is to say that a 1998 hospital length of stay of 10 days would become a planning figure in 2011 of 9 days and a 1998 day case rate of 40% would become a 2011 planning figure of 44%. The average occupancy level is set at 85% whether the 1998 rate was above or below this figure.

² The Government's Emergency Services Action Team (ESAT) 1997.

An additional increase in activity levels of an extra ½% per annum on top of that suggested by demographic changes alone is included. This extra increase in activity is to model the possibility of an increase in overall demand. This Scenario also includes an extra 10% increase in elective activity to reflect the extra activity that would be needed to reduce the inpatient waiting lists and to take account of the impact of outpatient waiting lists on demand for inpatient care.

6.4 Standard Methodology Results

6.4.1 Demographic Effects

Table 6.1 shows the likely increase in activity in the ERHA hospitals due to demographic effects of the population ageing and increasing in size in the Eastern Region. This table takes account of natural growth only and does not include migration.

Table 6.1. Demographic Effects

Specialty	Admissions in ERHA Hospitals		Implied annual increase
	1998	2011 (projected)	
Cardio-thoracic surgery	1,885	2,322	1.62%
Cardiology	8,629	15,211	1.71%
General Medicine Group	69,944	81,649	1.21%
General Surgery	50,600	57,792	1.03%
Gynaecology	13,012	14,769	0.98%
Neurology	2,387	2,691	0.92%
Neurosurgery	2,044	2,348	1.07%
Obstetrics	42,647	41,356	-0.24%
Oncology	19,704	24,067	1.55%
Ophthalmology	11,609	13,512	1.34%
Orthopaedics	25,368	29,037	0.90%
Otolaryngology (ENT)	11,927	13,286	0.83%
Paediatrics	16,981	19,064	0.89%
Plastic Surgery	9,505	10,485	0.76%
Urology	14,509	17,317	1.37%
Vascular Surgery	2,580	3,071	1.35%

The main observation is that only in the specialty of obstetrics would one expect the number of admission to ERHA hospitals to have decreased by 2011. All the other specialties have an implied annual increase of between 0.76% for Plastic Surgery to 1.71% for Cardiology.

6.4.1.2 Demographic Effects taking account of migration patterns

Table 6.1.1 shows population growth when migration is considered.

Table 6.1.1: Population Comparisons

2011 Population Estimate Natural Growth				2011 Population Estimate including impact of migration			
Age Group	Male	Female	Total	Male	Female	Total	% Diff
0 – 14	163,796	156,096	319,892	171,653	161,958	333,611	4.3%
15 – 19	263,844	273,930	537,774	304,781	298,700	603,481	12.2%
40 – 64	218,228	235,522	453,750	241,529	246,441	487,970	7.5%
65 – 74	43,965	52,126	96,091	47,857	52,106	99,963	4.0%
75 – 84	18,072	28,374	46,446	19,404	28,407	47,811	2.9%
85+	3,518	9,515	13,033	3,799	9,380	13,179	1.1%
Total	711,423	755,563	1,466,986	789,023	796,992	1,586,015	8.1%

The population comparisons shown in Table 6.1.1 show the variation between the age groups of the effect of including the increased migration estimates. This population estimate for 2011 show that the largest increase in population will occur in the 15 – 19 age band (12.2%) and the lowest in the 85+'s (1.1%).

Table 6.1.2 below shows how this increase in population will affect the number of admissions and the resultant estimated bed numbers within each specialty. The degree in which the estimated bed numbers are altered depends which age groups the patients of each specialty are derived from.

Table 6.1.2: Demographic Effects

	Population Estimate Natural Growth	Population Estimate including migration factors	
	Admissions in ERHA Hospitals		
Specialty	Implied annual increase in to 2011	Implied annual increase to 2011	Effect on Bed Numbers
Cardio Thor. Surgery	1.62%	2.24%	+8.2%
Cardiology	1.71%	2.26%	+7.3%
General Med. Group	1.21%	1.72%	+6.7%
General Surgery	1.03%	1.60%	+7.5%
Gynaecology	0.98%	1.44%	+6.0%
Neurology	0.92%	1.54%	+8.2%
Neurosurgery	1.07%	1.67%	+8.0%
Obstetrics	-0.24%	0.41%	+8.8%
Oncology	1.55%	2.04%	+6.5%
Ophthalmology	1.34%	1.74%	+5.2%
Orthopaedics	0.90%	1.45%	+7.3%
Otolaryngology (ENT)	0.83%	1.41%	+7.7%
Paediatrics	0.89%	1.23%	+4.4%
Plastic Surgery	0.76%	1.35%	+7.9%
Urology	1.37%	2.02%	+8.7%
Vascular Surgery	1.35%	1.88%	+7.0%

This table shows the difference in implied annual increases from 1998 in ERHA hospital admissions for each specialty between the two 2011 population estimates. The far right column also shows the effect on bed numbers for each specialty of using the higher population estimate. The percentage increase in bed numbers is roughly the same for each scenario. For example the implied annual increase in ERHA admissions in general surgery from 1998 to 2011 was 1.03% using the lower population estimate. The higher 2011 population estimate changes this annual increase to 1.60%. This has the effect of increasing the resulting general surgical bed estimates at each hospital for each scenario by roughly 7.5%.

6.4.2 Current Activity & Performance Levels

This section shows the 1998 activity levels for each specialty. Each table shows the number of admissions, split by inpatient and day cases, treated at each hospital together with the number of available beds, average length of stay, percentage bed occupancy and overall day case rate. These data have been extracted from the IMR returns. Also shown is the number of ERHA and non-ERHA residents treated at each hospital. This information has been extracted from the HIPE dataset and applied to the IMR data. As the HIPE and IMR do not fully match the percentage of ERHA and non-ERHA residents treated at each hospital from the HIPE dataset have been applied to the known total number of admissions for each hospital from the IMR dataset. This then gives the number of ERHA and Non ERHA admissions treated at each hospital. Each Table also shows the percentage of non-ERHA residents treated at each hospital that are elective admissions.

6.4.2.1 General Surgery

Current Activity & Performance Levels

Table 6.2 below, shows the 1998 activity levels in ERHA hospitals for General Surgery.

The General Surgery results also include the specialty of Paediatric Surgery and Gastro-Intestinal Surgery. It is important to note that some hospitals do not designate their beds by specialty.

However, those specialites are treated in the hospital e.g. Tallaght shows that there are no general surgery beds available but yet it had 5,131 admissions during 1998.

Table 6.2: General Surgery 1998 Activity in ERHA Hospitals

General Surgery 1998										
Hospital	Avail Beds	% Occ'cy	Disch & Deaths	AvLOS	Day Cases	Total Activity	ERHA	non - ERHA	% Elect	% Day cases
Tallaght (Adult)**	0	0.0	2,210	8.2	2,921	5,131	4,370	761	72.1%	56.9%
Tallaght (Paeds)**	0	0.0	1,099	2.7	2,087	3,186	2,714	472	83.9%	65.5%
Beaumont Hospital	106	96.2	3,608	10.4	4,987	8,595	7,649	946	72.8%	58.0%
JCM Hospital	60	101.5	3,584	6.2	3,235	6,819	5,474	1,345	65.1%	47.4%
Mater Misericordiae	48	72.2	1,350	9.3	677	2,027	1,553	474	85.0%	33.4%
Naas	38	73.8	1,844	5.6	861	2,705	2,621	84	13.1%	31.8%
Crumlin	0	0.0	2,016	5.6	1,846	3,862	2,335	1,527	75.9%	47.8%
Loughlinstown	33	103.6	1,901	6.6	1,134	3,035	2,987	48	40.0%	37.4%
St. James's Hospital	94	59.8	2,419	8.5	3,357	5,776	4,870	906	88.2%	58.1%
St. Michael's Hospital*	0	0.0	1,042	9.1	1,209	2,251	2,212	38	47.1%	53.7%
St. Vincent's Hospital	71	90.3	2,786	8.4	2,690	5,476	4,257	1,219	79.3%	49.1%
Outside ERHA						1,312				
Total	450		23,859		25,004	50,175	42,354	7,821		49.8%

* Uplifted HIPE data used. ** HIPE data used to split Adult & Paeds (Aged 0-14 Paediatric)

- 1997/8 Average length of stay - UK average 3.47 days, UK top 25th % tile 3.37 days
- 1997/8 Day Case treatment rates - UK average 68.8%, UK top 25th % tile 68.8%

Main Points:

- 48,863 patients were treated in ERHA hospitals of which 7,821 (16.0%) came from outside the ERHA. The majority of these cases were elective admissions. There was a 2.6% flow of ERHA residents to non-ERHA hospitals.
- Average length of stay is generally a lot higher in ERHA hospitals than that being achieved in the UK.
- No ERHA hospital is achieving the UK National day case rate. ERHA average day case rate was 49.8%.
- All ERHA hospitals, with a recorded figure, had a high occupancy level with the exception of St. James's, which was only achieving an occupancy rate of 59.8%. However, this may due to the 'bed borrowing' phenomenon, previously described.

6.4.3.2 Orthopaedics

Current Activity & Performance Levels

Table 6.3: Orthopaedics 1998 Activity in ERHA Hospitals

Orthopaedics 1998										
Hospital	Avail Beds	% Occ'cy	Disch & Deaths	AvLOS	Day Cases	Total Activity	ERHA	Non – ERHA	% Elect	% Day cases
Tallaght (Adult)**	0	0.0	2,431	9.5	1,221	3,652	3,291	361	65.8%	33.4%
Tallaght (Paeds)**	0	0.0	278	3.3	158	436	417	19	23.5%	36.2%
Beaumont Hospital	47	81.4	1,519	9.1	2,112	3,631	3,319	312	60.4%	58.2%
JCM Hospital *	0	0	701	6.0	453	1,154	943	211	67.0%	39.2%
Mater Misericordiae	30	126.4	1,370	10.1	425	1,795	1,416	379	53.7%	23.7%
Crumlin	0	0.0	1,632	3.6	598	2,230	1,719	511	78.9%	26.8%
St. Columcille's	23	93.4	155	50.6	66	221	219	2	100.0%	29.9%
St. James's Hospital	28	132.3	1,491	9.2	227	1,718	1,613	105	34.3%	13.2%
St. Mary's, Cappagh	112	72.3	3,384	8.7	2,582	5,966	3,515	2,451	98.7%	43.3%
St. Michael's Hospital*	0	0.0	446	5.9	117	564	448	116	96.5%	20.8%
St. Vincent's Hospital	29	96.6	1,696	6.0	323	2,019	1,820	199	47.2%	16.0%
Outside ERHA						465	465			
Total	269		15103		8282	23850	19213	4589		34.7%

* Uplifted HIPE data used. ** HIPE data used to split Adult & Paeds (Aged 0-14 Paediatric)

- 1997/8 Average length of stay - UK average 5.36 days, UK top 25th % tile 4.87 days
- 1997/8 Day Case treatment rates - UK average 25.7%, UK top 25th % tile 27.8%

Main Points:

- 23,850 patients were treated in ERHA hospitals of which 4,800 (20.1%) came from outside the ERHA. The majority of these were elective admissions. Less than 2% of ERHA residents were treated outside the ERHA.
- Average length of stay is slightly higher in ERHA hospitals than that being achieved in the UK. The obvious exception to this is the children's hospitals. Of the main teaching hospitals only St. Vincent's has a relatively low average length of stay.
- Most of the ERHA hospitals are achieving beyond the UK National day case rate. The two exceptions to this are the teaching hospitals of St. James's and St. Vincent's.
- All ERHA hospitals, with a recorded figure, had a high occupancy level with the exception of Cappagh, which was achieving an occupancy rate of 72.3%.

6.4.2.3 Ophthalmology

Current Activity & Performance Levels

Table 6. 4: Ophthalmology 1998 Activity in ERHA Hospitals

Ophthalmology 1998										
Hospital	Avail Beds	% Occ'cy	Disch & Deaths	AvLOS	Day Cases	Total Activity	ERHA	Non - ERHA	% Elect	% Day cases
Beaumont Hospital	0	0.0	5	16.2	237	242	193	49	94.3%	97.9%
Mater Misericordiae	21	69.9	1,076	5.1	3,000	4,076	2,261	1,815	93.1%	73.6%
Crumlin	0	0.0	87	1.1	35	122	112	10	100.0%	28.7%
Eye & Ear Hospital	35	69.2	2,756	3.2	1,746	4,502	3,049	1,453	85.0%	38.8%
St. Vincent's Hospital	8	52.3	490	3.1	1,708	2,198	1,888	310	98.1%	77.7%
Outside ERHA						64	64			
Total	64		4,414		6,726	11,204	7,568	3,636		60.0%

- 1997/8 Average length of stay - UK average 1.37 days, UK top 25th % tile 1.08 days
- 1997/8 Day Case treatment rates - UK average 67.6%, UK top 25th % tile 72.4%

Main Points:

- 11,140 patients were treated in ERHA hospitals of which 3,636 (32.6%) came from outside the ERHA. Over 90% of these admissions were elective. Less than 1% of ERHA residents were treated outside the ERHA.
- Average length of stay is higher in ERHA hospitals than that being achieved in the UK. The obvious exception to this is Crumlin children's hospital. Beaumont has an exceptional long length of stay although it does treat relatively few cases. This may reflect case complexity. St. Vincent's has the lowest average length of stay of the main teaching hospitals. This figure is similar to that of the Royal Victoria, Eye & Ear hospital.
- The three teaching hospitals were achieving a higher day case rate than both the UK national average and the 25th percentile rates. The ERHA average hospital day case rate was 60.0%.
- None of the ERHA hospitals, with a recorded figure, achieved an occupancy level above 70%. This is not uncommon with short stay specialties. This lower occupancy figure of 70% has been used in the 2011 planning scenarios instead of 85%.

6.4.2.4 Otolaryngology (ENT)

Current Activity & Performance Levels

Table 6.5: Otolaryngology (ENT) 1998 Activity in ERHA Hospitals

Otolaryngology (ENT) 1998										
Hospital	Avail Beds	% Occ'cy	Disch & Deaths	AvLOS	Day Cases	Total Activity	ERHA	Non - ERHA	% Elect	% Day cases
Tallaght (Adult)**	0	0.0	325	3.5	109	434	404	30	72.2%	25.0%
Tallaght (Paeds)**	0	0.0	213	2.8	198	411	381	30	91.2%	48.2%
Beaumont Hospital	27	66.9	1,634	4.0	1,501	3,135	2,640	495	87.9%	47.9%
Mater Misericordiae	16	122.0	887	7.9	565	1,452	1,075	377	87.3%	38.9%
Crumlin	0	0.0	438	2.3	467	905	905	0	0.0%	51.6%
Eye & Ear Hospital	17	65.9	1,190	3.5	970	2,160	1,760	400	92.5%	44.9%
St. James's Hospital	18	83.2	839	6.4	263	1,102	858	244	81.8%	23.9%
St. Michael's Hospital*	0	0.0	127	3.0	60	187	175	12	100.0%	32.0%
St. Vincent's Hospital	7	83.3	428	4.8	65	493	432	61	78.3%	13.2%
Outside ERHA						101	101			
Total	85		6,081		4,198	10,380	8,732	1,648		40.4%

* Uplifted HIPE data used. ** HIPE data used to split Adult & Paeds (Aged 0-14 Paediatric)

- 1997/8 Average length of stay - UK average 1.40 days, UK top 25th % tile 1.28 days
- 1997/8 Day Case treatment rates - UK average 29.0%, UK top 25th % tile 36.4%

Main Points:

- 10,279 patients were treated in ERHA hospitals of which 1,648 (16.0%) came from outside the ERHA. Around 90% of these admissions were elective. Less than 1% of ERHA residents were treated outside the ERHA.
- The average length of stay of all ERHA hospitals is at least double that of the UK average figure. Mater has the highest average length of stay of all the hospitals in the ERHA. This may reflect case complexity of inpatients.
- Excluding the children's hospitals, Beaumont, Mater, St. Michael's and the Eye & Ear hospital exceeded both the UK National average and the 25th percentile rates. The ERHA average hospital day case rate of 40.4% exceeded both the UK National average and the 25th percentile rates.
- Otolaryngology is a short stay specialty. The two main providers of this specialty Beaumont and the Eye & Ear hospital had an average occupancy level of around 66%. Although Mater achieved an occupancy level of 122%! it was felt that the 2011 planning scenarios 3,4 and 5 would use 75% as the future occupancy level. Therefore, a lower occupancy figure of 75% has been used in the 2011 planning scenarios 3,4 & 5 with scenario 2 using 85%.

6.4.2.5 Urology

Current Activity & Performance Levels

Table 6.6: Urology 1998 Activity in ERHA Hospitals

Urology 1998										
Hospital	Avail Beds	% Occ'cy	Disch & Deaths	AvLOS	Day Cases	Total Activity	ERHA	Non - ERHA	% Elect	% DC's
Tallaght (Adult)**	0	0.0	2,095	5.4	3,395	5,490	3,621	1,869	73.6%	61.8%
Tallaght (Paeds)**		0.0	9	3.4	330	339	224	115	83.3%	97.3%
Beaumont Hospital	27	86.9	1,073	8.1	1,781	2,854	2,139	715	77.5%	62.4%
JCM Hospital *	0	0.0	218	4.1	296	514	370	144	85.5%	57.7%
Mater Misericordiae	8	126.8	546	7.1	886	1,432	1,010	422	94.5%	61.9%
Crumlin	0	0.0	45	4.8	251	296	209	87	97.7%	84.8%
St. James's Hospital	8	111.2	518	6.3	415	933	861	72	87.5%	44.5%
St. Michael's Hospital*	0	0.0	91	4.6	134	225	218	7	100.0%	59.7%
St. Vincent's Hospital	27	79.9	1,527	5.1	899	2,426	1,618	808	85.9%	37.1%
Outside ERHA						11	11			
Total			6,121		8,388	14,520	10,281	4,239		57.8%

* Uplifted HIPE data used. ** HIPE data used to split Adult & Paeds (Aged 0-14 Paediatric)

- 1997/8 Average length of stay - UK average 2.69 days, UK top 25th % tile 2.64 days
- 1997/8 Day Case treatment rates - UK average 68.8%, UK top 25th % tile 68.8%

Main Points:

- 14,509 patients were treated in ERHA hospitals of which 4,239 (29.2%) came from outside the ERHA. Around 80% of these admissions were elective. Less than 1% of ERHA residents were treated outside the ERHA.
- The average length of stay of all ERHA hospitals is at least 1.5 days higher than that of the UK average figure. Beaumont, who treated the second highest number of admissions, had the highest average length of stay of all the hospitals in the ERHA.
- Excluding the children's hospitals, Tallaght, Beaumont, Mater, JCM and St. Michael's achieved a day case rate of around 60% which is close to the UK National average of 68.8%. The two hospitals with the lowest day case rate are the two teaching hospitals of St. James's and St. Vincent's. The ERHA average hospital day case rate was 57.8%.
- All ERHA hospitals, with a recorded figure, had a high occupancy level.

6.4.2.6 Gynaecology

Current Activity & Performance Levels

Table 6.7: Gynaecology 1998 Activity in ERHA Hospitals

Gynaecology 1998										
Hospital	Avail Beds	% Occ'cy	Disch & Deaths	AvLOS	Day Cases	Total Activity	ERHA	Non-ERHA	% Elect	% DC's
Tallaght (Adult)	0	0.0	336	5.8	584	920	772	148	97.7%	63.5%
Beaumont Hospital	7	46.7	226	4.9	182	408	377	31	94.6%	44.6%
Coombe Women's+	34	51.9	1,303	4.9	1,882	3,185	3,185	N/A	94.5%	59.1%
Mater Misericordiae	12	84.6	407	9.1	744	1,151	986	165	94.5%	64.6%
National Maternity	20	59.7	1,338	3.3	808	2,146	1,880	266	94.5%	37.7%
Rotunda Hospital	26	61.0	2,707	2.1	1,059	3,766	3,228	538	100.0%	28.1%
St. James's Hospital	15	83.0	760	5.8	287	1,047	926	121	80.2%	27.4%
St. Vincent's Hospital	7	79.7	388	5.6	1	389	331	58	88.9%	0.3%
Outside ERHA						216	216			
Total	121		7,465		5,547	13,228	11,900	1,327		41.9%

+ For Scenario 5 Coombe's % elective non –ERHA rate is assumed to be the same as the National Maternity Hospital

- 1997/8 Average length of stay - UK average 1.82 days, UK top 25th % tile 1.63 days
- 1997/8 Day Case treatment rates - UK average 59.8%, UK top 25th % tile 61.6%

Main Points:

- 13,021 patients were treated in ERHA hospitals of which 1,327 (10.2%) came from outside the ERHA. Around 95% of these admissions were elective. There was a 1.6% flow of ERHA residents to non-ERHA hospitals.
- The average length of stay of all ERHA hospitals was very high when compared to the UK average figure. The exceptions to this were the National Maternity hospital and the Rotunda hospital.
- The Tallaght, Coombe Women's Hospital and Mater all achieved a day case rate around 60%, which exceeds the UK National average of 59.8%. The two hospitals, with any significant activity, that had the lowest day case rate are the two hospitals of Rotunda and St. James's. The ERHA average hospital day case rate was 41.9%.
- The three main women's hospitals all achieved an occupancy rate lower than 65%. For the 2011 planning scenarios 3,4 & 5, Coombe's Women's Hospital, National Maternity Hospital and the Rotunda use an average occupancy figure of 65%. The other hospitals use 85% as a future occupancy level.

6.4.2.7 Plastic Surgery

Current Activity & Performance Levels

Table 6.8: Plastic Surgery 1998 Activity in ERHA Hospitals

Plastic Surgery 1998										
Hospital	Avail Beds	% Occ'cy	Disch & Deaths	AvLOS	Day Cases	Total Activity	ERHA	Non - ERHA	% Elect	% DC's
Mater Misericordiae	7	111.6	349	7.8	975	1,324	1,046	278	95.3%	73.6%
Crumlin	0	0.0	700	4.1	573	1,273	901	372	62.9%	45.0%
St. James's Hospital	33	92.2	2,380	4.7	3,323	5,703	3,530	2,173	65.5%	58.3%
St. Vincent's Hospital	6	70.2	378	4.3	532	910	739	171	87.8%	58.5%
JCM Hospital *	0	0.0	63	5.9	233	295	228	67	93.1%	78.8%
Outside ERHA						24	24			
Total	46		3,870		5,636	9,529	6,469	3,060		59.3%

* Uplifted HIPE data used.

- 1997/8 Average length of stay - UK average 2.28 days, UK top 25th % tile 2.24 days
- 1997/8 Day Case treatment rates - UK average 57.1%, UK top 25th % tile 57.3%

Main Points:

- 9,505 patients were treated in ERHA hospitals of which 3,060 (32.2%) came from outside the ERHA. Around 65% of these admissions were elective. Less than 1% of ERHA residents were treated outside the ERHA.
- The average length of stay of all ERHA hospitals is at least 1.8 days higher than that of the UK average figure. The Mater, had the highest average length of stay of all the hospitals in the ERHA at 7.8 days.
- The day case rate in all the ERHA hospitals was very high. The ERHA average hospital day case rate of 59.3% exceeded the comparative UK figures.
- All ERHA hospitals, with a recorded figure, had a high occupancy level with the exception of St. Vincent's who achieved an occupancy level of 70%.

6.4.2.8 Vascular Surgery

Current Activity & Performance Levels

Table 9: Vascular Surgery 1998 Activity in ERHA Hospitals

Vascular Surgery 1998										
Hospital	Avail Beds	% Occ'cy	Disch & Deaths	AvLOS	Day Cases	Total Activity	ERHA	Non - ERHA	% Elect	% DC's
Mater Misericordiae+	31	92.5	1,040	10.1	364	1,404	1,404	N/A		25.9%
St. James's Hospital	16	133.5	652	12.0	7	659	431	228	56.5%	1.1%
St. Vincent's Hospital	16	86.4	470	10.6	47	517	375	142	65.8%	9.1%
Outside ERHA						0	0	0		
Total	63		2,162		418	2,580	2,210	370		16.2%

+No HIPE data

- *There are no comparative UK figures for this specialty.*

Main Points:

- 2,580 patients were treated in ERHA hospitals of which 370 (14.3%) came from outside the ERHA. Around 60% of these admissions were elective. No ERHA residents were treated outside the ERHA.
- The average length of stay of all ERHA hospitals was between 10 and 12 days
- The ERHA average hospital day case rate was 16.2%. This varied between the high 25.9% achieved by Mater to 1.1% achieved by St. James's.
- All ERHA hospitals had a high occupancy level, i.e. exceeding 85%.

6.4.2.9 Cardio Thoracic Surgery

Current Activity & Performance Levels

Table 6.10: Cardio Thoracic Surgery 1998 Activity in ERHA Hospitals

Cardio Thoracic Surgery 1998										
Hospital	Avail Beds	% Occ'cy	Disch & Deaths	AvLOS	Day Cases	Total Activity	ERHA	Non - ERHA	% Elect	% DC's
Mater Misericordiae	42	104.8	1,114	14.5	117	1,231	601	630	79.0%	9.5%
Crumlin	0	0.0	161	8.5	6	167	167	0	0.0%	3.6%
St. James's Hospital	9	99.2	340	9.8	2	342	195	147	55.1%	0.6%
St. Vincent's Hospital	7	76.8	137	14.5	8	145	94	51	50.0%	5.5%
Outside ERHA						0	0			
Total	58		1,752		133	1,885	1,057	828		7.1%

- 1997/8 Average length of stay - UK average 7.43 days, UK top 25th % tile 5.99 days
- 1997/8 Day Case treatment rates - UK average 2.4%, UK top 25th % tile 5.8%

Main Points:

- 1,885 patients were treated in ERHA hospitals of which 828 (43.9%) came from outside the ERHA. Around 70% of these admissions were elective. No ERHA residents were treated outside the ERHA.
- The average length of stay of all ERHA hospitals is at least 2.5 days higher than that of the UK average figure. Mater, who treated the vast majority of patients had the highest average length of stay of 14.5 days, the same as St. Vincent's.
- The overall ERHA hospital day case rate of 7.1% exceeds both the comparative UK figures. This is mainly due to Mater treating 9.5% of its admissions as day cases.
- All ERHA hospitals, with a recorded figure, had a high occupancy level with the exception of St. Vincent's who achieved an occupancy level of 76.8%.

6.4.2.10 Neurosurgery

Current Activity & Performance Levels

Table 11: Neurosurgery 1998 Activity in ERHA Hospitals

Neurosurgery 1998										
Hospital	Avail Beds	% Occ'cy	Disch & Deaths	AvLOS	Day Cases	Total Activity	ERHA	Non - ERHA	% Elect	% DC's
Beaumont Hospital	89	83.8	1,990	13.7	54	2,044	995	1,049	30.0%	2.6%
Outside ERHA						5	5			
Total	89		1,990		54	2,049	1,000	1,049		2.6%

- 1997/8 Average length of stay - UK average 6.20 days, UK top 25th % tile 5.34 days
- 1997/8 Day Case treatment rates - UK average 4.7%, UK top 25th % tile 6.2%

Main Points:

- 2,044 patients were treated in the Beaumont Hospital of which 1,049 (51.3%) came from outside the ERHA. 30% of these admissions were elective. Less than 1% of ERHA residents were treated outside the ERHA.
- The average length of stay at the Beaumont Hospital was 13.7 days. This compares with a UK average figure of 6.2 days.
- The day case rate of 2.6% is also lower than the comparative UK figures.
- The average occupancy level at the Beaumont Hospital was 83.8%

6.4.2.11 General Medical Group

Current Activity & Performance Levels

Table 6. 12: General Medical Group 1998 Activity in ERHA Hospitals

General Medical group 1998										
Hospital	Avail Beds	% Occ'cy	Disch & Deaths	AvLOS	Day Cases	Total Activity	ERHA	Non - ERHA	% Elect	% DC's
Tallaght (Adult)	0	0.0	4,180	12.2	2,292	6,472	6,052	420	60.2%	35.4%
Beaumont Hospital	220	101.3	7,417	11.0	4,957	12,374	11,725	649	56.5%	40.1%
Cherry Orchard	97	28.1	2,117	4.7	0	2,117	1,942	175	0.0%	0.0%
JCM Hospital	144	108.6	4,577	12.5	1,654	6,231	5,376	855	17.3%	26.5%
Mater Misericordiae	128	130.3	4,457	13.5	7,699	12,156	10,105	2,051	91.6%	63.3%
Crumlin	0	0.0	3,787	5.8	630	4,417	3,803	614	47.5%	14.3%
Naas	62	124.9	2,791	10.1	197	2,988	2,909	79	3.4%	6.6%
St. Columcille's	52	106.5	2,732	7.3	203	2,935	2,906	29	3.5%	6.9%
St. James's Hospital	288	102.6	7,033	15.3	8,620	15,653	12,705	2,948	83.9%	55.1%
St. Michael's Hospital*	0	0.0	1,289	9.9	605	1,894	1,829	65	37.8%	31.9%
St. Vincent's Hospital	171	93.9	5,022	11.7	1,347	6,369	5,252	1,117	69.6%	21.1%
Outside ERHA						1,224	1,224			
Total	1,162		45,402		28,204	74,830	65,830	9,001		37.7%

* Uplifted HIPE data used.

- 1997/8 Average length of stay - UK average 5.38 days, UK top 25th % tile 4.27 days
- 1997/8 Day Case treatment rates - UK average 44.0%, UK top 25th % tile 44.5%

Main Points:

- 73,606 patients were treated in ERHA hospitals of which 9,001 (12.2%) came from outside the ERHA. The majority of these cases were elective admissions. There was a 1.6% flow of ERHA residents to non-ERHA hospitals.
- Average length of stay is generally a lot higher in ERHA hospitals than that being achieved in the UK. The exception to this was the Crumlin Children's Hospital, which achieved an average length of stay of 5.8 days and the Cherry Orchard Hospital which only treats infectious diseases and achieved an average length of stay of 4.7 days.
- The three main hospitals that treated in excess of 12,000 patients each all achieved a day case rate around or in excess of both the comparative UK National day case rates. The ERHA average day case rate was 37.7%.
- All ERHA hospitals, with a recorded figure, had a high occupancy level in excess of 93%! The exception to this was the Cherry Orchard Hospital, which was only achieving an occupancy rate of 28.1%. This is remarkably low and suggests an excess of beds.

6.4.2.12 Cardiology

Current Activity & Performance Levels

Table 13: Cardiology 1998 Activity in ERHA Hospitals

Cardiology 1998										
Hospital	Avail Beds	% Occ'cy	Disch & Deaths	AvLOS	Day Cases	Total Activity	ERHA	Non - ERHA	% Elect	% DC's
Tallaght (Adult)	0	0.0	704	9.0	196	900	795	105	59.0%	21.8%
Tallaght (Paeds)	0	0.0	53	4.1	6	59	53	6	50.0%	10.2%
Beaumont Hospital	34	114.2	1,211	11.7	619	1,830	1,657	173	53.8%	33.8%
JCM Hospital	5	74.0	114	11.8	0	114	97	17	23.2%	0.0%
Mater Misericordiae	27	174.5	1,451	11.7	1,291	2,742	1,745	997	84.4%	47.1%
Naas	4	82.5	383	3.1	0	383	383	0	0.0%	0.0%
Crumlin	0	0.0	802	10.2	21	823	396	427	66.0%	2.6%
St. James's Hospital	28	124.0	2,113	6.1	1,673	3,786	2,292	1,494	82.3%	44.2%
St. Vincent's Hospital	30	83.8	1,501	6.1	59	1,560	1,210	350	61.1%	3.8%
Outside ERHA						26	26			
Total	128		8,332		3,865	12,223	8,655	3,568		31.6%

- 1997/8 Average length of stay - UK average 2.43 days, UK top 25th % tile 2.49 days
- 1997/8 Day Case treatment rates - UK average 41.1%, UK top 25th % tile 45.7%

Main Points:

- 12,197 patients were treated in ERHA hospitals of which 3,568 (29.3%) came from outside the ERHA. Around 80% of these admissions were elective. Less than 1% of ERHA residents were treated outside the ERHA.
- The average length of stay of all ERHA hospitals is at double that of the UK average figure with the exception of Tallaght (Paeds) and Naas. Naas has the lowest average length of stay of only 3.1 but only treated 383 inpatients in 1998, all ERHA residents.
- Three hospitals Beaumont, JCM, and Mater had the highest average length of stay of all the hospitals in the ERHA at 11.7 days.
- The day case rate throughout the ERHA hospitals varies considerably. Both Mater and St. James's achieved a day case rate in excess of both the comparative UK figures. Of the 5 teaching hospitals, (DATHs) St. Vincent's achieved the lowest day case rate of 3.8%. The ERHA average hospital day case rate was 31.6%.
- All ERHA hospitals, with a recorded figure, had a high occupancy level with the exception of JCM who achieved an occupancy level of 74%.

6.4.2.13 Paediatrics

Current Activity & Performance Levels

Table 6. 14: Paediatrics 1998 Activity in ERHA Hospitals

Paediatrics 1998										
Hospital	Avail Beds	% Occ'cy	Disch & Deaths	AvLOS	Day Cases	Total Activity	ERHA	Non - ERHA	% Elect	% DC's
Tallaght (Paeds)	0	0.0	2,353	3.4	434	2,787	2,693	94	25.0%	15.6%
Coombe Women's	33	95.1	1,397	8.2	0	1,397	1,397	N/A	0.0%	0.0%
National Maternity	30	72.1	1,012	7.9	0	1,012	1,012	0	0.0%	0.0%
Rotunda Hospital	38	75.3	1,088	9.6	0	1,088	1,029	60	57.1%	0.0%
St. Columcille's	15	46.5	171	14.9	54	225	225	0	0.0%	24.0%
Temple Street	115	76.6	7,612	4.2	2,860	10,472	9,687	785	25.6%	27.3%
Outside ERHA						591	591			
Total	231		13,633		3,348	17,572	16,634	938		19.1%

* data for Our Lady's Hospital Crumlin are included by specialty e.g. cardiology, general surgery.

- 1997/8 Average length of stay - UK average 2.05 days, UK top 25th % tile 1.80 days
- 1997/8 Day Case treatment rates - UK average 5.5%, UK top 25th % tile 6.4%

Main Points:

- 16,981 patients were treated in ERHA hospitals of which only 938 (5.5%) came from outside the ERHA. The majority of these cases were not elective admissions. There was a 3.4% flow of ERHA residents to non-ERHA hospitals.
- Average length of stay is generally a lot higher in ERHA hospitals than that being achieved in the UK.
- The day case rate varied considerably between the hospitals. The Tallaght (Paeds), St. Columcille's and Temple Street achieved a day case rate in excess of 15%, which is triple the UK average. The overall ERHA average day case rate was 19.1%.
- All ERHA hospitals, with a recorded figure, had an occupancy level in excess of 70%. The exception to this was the St. Columcille's Hospital, which was only achieving an occupancy rate of 46.5%.

6.4.2.14 Obstetrics

Current Activity & Performance Levels

Table 6.15: Obstetrics 1998 Activity in ERHA Hospitals

Obstetrics 1998										
Hospital	Avail Beds	% Occ'cy	Disch & Deaths	AvLOS	Day Cases	Total Activity	ERHA	Non - ERHA	% Elect	% DC's
Coombe Women's	132	97.1	10,878	4.3	6,761	17,639	17639	N/A	0.0%	38.3%
National Maternity	127	74.5	11,720	2.9	45	11,765	10901	864	0.7%	0.4%
Rotunda Hospital	120	77.4	9,854	3.4	3,389	13,243	12069	1,174	90.3%	25.6%
Outside ERHA						64	64			
Total	379		32,452		10,195	42,711	40673	2,038		23.9%

- 1997/8 Average length of stay - UK average 1.59 days, UK top 25th % tile 1.59 days
- 1997/8 Day Case treatment rates - UK average Not available

Main Points:

- 42,647 patients were treated in ERHA hospitals of which only 2,038 (4.8%) came from outside the ERHA. The proportion of patients who were elective varied, with 90% of Rotunda's non-ERHA admissions elective while only 0.7% of the National Maternity Hospital had elective non- ERHA admissions. The Coombe's Women's Hospital figures are unavailable. Less than 1% of ERHA residents were treated in non-ERHA hospitals.
- Average length of stay is slightly higher in ERHA hospitals than that being achieved in the UK.
- The day case rate varied considerably between the hospitals. The Coombe's Women's Hospital and the Rotunda Hospital had a high proportion of day cases while the National Maternity Hospital treated very few admissions as day cases. The overall ERHA average day case rate was 23.9%.
- The small proportion of Non ERHA elective admissions and hence a low day case rate would suggest that the National Maternity Hospital primarily treats emergency admissions while the other hospitals treat more elective.
- Two of the ERHA hospitals had an average occupancy level of around 75%.

6.4.2.15 Neurology

Current Activity & Performance Levels

Table 6.16: Neurology 1998 Activity in ERHA Hospitals

Neurology 1998										
Hospital	Avail Beds	% Occ'cy	Disch & Deaths	AvLOS	Day Cases	Total Activity	ERHA	Non - ERHA	% Elect	% DC's
Tallaght (Adult)	0	0.0	316	9.6	79	395	311	84	75.3%	20.0%
Beaumont Hospital	26	89.0	692	12.3	265	957	540	417	75.2%	27.7%
Mater Misericordiae	2	160.5	82	14.3	0	82	70	12	75.0%	0.0%
Crumlin	0	0.0	202	7.5	75	277	136	141	72.1%	27.1%
St. James's Hospital	3	158.5	220	7.2	0	220	150	70	85.5%	0.0%
St. Vincent's Hospital	8	70.2	176	12.1	52	228	181	47	72.3%	22.8%
Outside ERHA						5				
Total	39		1,865		522	2,392	1,512	875		21.8%

- 1997/8 Average length of stay - UK average 5.6 days, UK top 25th % tile 4.22 days
- 1997/8 Day Case treatment rates - UK average 19.9%, UK top 25th % tile 24.5%

Main Points:

- 2,387 patients were treated in ERHA hospitals of which 875 (36.7%) came from outside the ERHA. The majority of these cases were elective admissions. Less than 1% of ERHA residents were treated in non-ERHA hospitals.
- Average length of stay is generally a lot higher in ERHA hospitals than that being achieved in the UK.
- The day case rate of all the hospitals that treated a significant amount of patients was high and was around or exceeded the comparative UK figures. The exception to this was St. James's which achieved a zero day case rate. The overall ERHA average day case rate was 21.8%.
- All ERHA hospitals, with a recorded figure, had an occupancy level in excess of 85%. The exception to this was the St. Vincent's Hospital, which was only achieving an occupancy rate of 70.2%.

6.4.2.16 Oncology

Current Activity & Performance Levels

Table 6.17: Oncology 1998 Activity in ERHA Hospitals

Oncology 1998										
Hospital	Avail Beds	% Occ'cy	Disch & Deaths	AvLOS	Day Cases	Total Activity	ERHA	Non - ERHA	% Elect	% DC's
Mater Misericordiae	13	136.3	700	9.0	2,081	2,781	1,342	1,439	97.6%	74.8%
Crumlin	0	0.0	1,411	3.8	720	2,131	1,075	1,056	91.3%	33.8%
St. James's Hospital	16	108.9	795	8.0	2,954	3,749	2,949	800	92.6%	78.8%
St. Luke's & St. Anne's	130	88.4	2,403	17.5	4,577	6,980	3,937	3,043	99.9%	65.6%
St. Vincent's Hospital	31	98.7	1,117	9.9	2,946	4,063	2,665	1,398	89.9%	72.5%
Outside ERHA						28	28			
Total	190		6,426		13,278	19,732	11,995	7,737		67.3%

- 1997/8 Average length of stay - UK average 3.39 days, UK top 25th % tile 2.86 days
- 1997/8 Day Case treatment rates - UK average 65.6%, UK top 25th % tile 69.6%

Main Points:

- 19,704 patients were treated in ERHA hospitals of which 7,737 (39.3%) came from outside the ERHA. Over 90% of these cases were elective admissions. Less than 1% of ERHA residents were treated in non-ERHA hospitals.
- Average length of stay is generally a lot higher in ERHA hospitals than that being achieved in the UK. The exception to this was the Crumlin Children's Hospital.
- The day case rate of all the hospitals was higher and was around or exceeded the comparative UK figures. The exception to this was Crumlin Children's Hospital, which achieved a day case rate of only 33.8%. The overall ERHA average day case rate was 67.3%.
- All ERHA hospitals, with a recorded figure, had an occupancy level in excess of 85%.

6.5 Bed requirements to 2011

This section shows the results of the two main scenarios for each specialty. Table 6.18 shows the overall number of ERHA beds per specialty following the results of the two main scenarios. Bed numbers for some specialties are not included i.e. Dental Surgery, Pain Relief, Psychiatry, Substance Abuse, GU Medicine, Intensive Care, A&E Medicine.

6.5.1 Overall ERHA Results

Table 6.18: Scenario Implications for Overall ERHA In-Patient Bed Numbers¹

	Inpatient beds needed in 2011			
Specialty	1998	Scenario 1a	Scenario 1b	Scenario 2
Cardio-thoracic Surgery	58	98	113	104
Cardiology	146	306	354	318
General Med. Group	1397	2041	2336	2013
General Surgery	542	762	1024	836
Gynaecology	129	161	182	140
Neurology	48	72	82	74
Neurosurgery	89	110	127	115
Oncology	190	299	341	291
Ophthalmology	64	81	93	79
Orthopaedics	342	509	554	489
Otolaryngology (ENT)	92	124	145	130
Paediatrics (excl. OLHC)	231	298	342	289
Paediatrics OLHC*	235	Included in specialty forecasts		
Plastic Surgery	46	72	82	73
Urology	105	154	174	138
Vascular Surgery	63	95	110	100
Other**	136	-	-	0
Total	3913	5182	6059	5189
Additional beds	-	1269	2146	1276

** acute medical and surgical beds not designated by specialty

Table 6.18 above, shows that if no improvement in performance is made in the intervening years then with the demographic effect of the population increasing and getting older, by 2011 the ERHA will require an additional 2,146 in these specialties (Scenario 1 b). Scenario 2 shows that if the performance of ERHA hospitals in 2011 increases by approximately 10% an additional 1,276 beds would be required by 2011.

¹Scenario 1a - Demographic effects only

Scenario 1b- Demographic effects and waiting lists factored in

Scenario 2 - Demographic effects + increased growth in demand and extra activity to tackle waiting lists

6.6 Conclusions

The main conclusions from the “Standard Bed Methodology” approach are:

- On the whole the average length of stay in the UK is a lot shorter than in the ERHA.
- The day case rates in the ERHA compare well to their UK counterparts.
- Currently the ERHA hospitals operate at a high percentage bed occupancy.
- The ERHA would need in excess of 1,200 beds to account for the demographic effects alone. (Scenario 1a)
- Improvement in performance with the demographic effects and extra increases in activity to would result in a need for an extra 1,276 beds. (Scenario 2)
- The General Medical Group account for over one-third of the total number of beds reviewed in this analysis based on 1998 bed numbers. The forecast, results in a minimum increase in General Medical Group beds in excess of 600. Understanding what the future holds for this specialty is crucial. In the UK the comparative length of stay and day case rates relate to what is termed acute medicine. In the UK the larger acute/general hospitals only provide acute medical care and transfer patients who may need a longer time to recover to appropriate long-stay/rehabilitation or nursing homes centres. If this is a pathway in which Ireland may follow then the effect on the number of future “acute” medical beds required will be huge.

7. RECOMMENDATIONS

1. Against a ceiling of 2,146 (scenario 1b) additional acute beds to accommodate a standstill situation to 2011, **the ERHA target should be 1,276 (representing scenario 2) additional acute beds for management and planning purposes.**

This will provide impetus for reducing length of stay (by 10%) where appropriate, including significantly, through the planned development of discharge resources for the care of older persons. It provides impetus for reducing admissions through planned expansion of relevant preventive health programmes and hospital day care use (by 10%).

This projection also incorporates capacity for the current waiting lists and provides some flexibility for unanticipated demand.

2. **The above recommendation depends upon developments in non-acute services for care of older persons.** Such an expansion is essential to allow sufficient capacity in acute hospitals in the Eastern Region in the future.
3. **Developments in acute day facilities is needed** particularly as many patients on long waiting lists could be managed as a day case. Dedicated acute day care facilities or unit should be considered.

Acute day beds account for only 7% of all beds in hospitals in the Eastern Region; while their use has increased rapidly to 43% of all discharges. Day care is used for 35% of all procedures, however there are unexplained variations among hospitals for routine procedures.

4. Inpatient length of stay shows unexplained and material variances among hospitals in the Eastern Region for some high volume procedures:
 - (i) **length of stay (and the variation therein) require further analysis** and likely improvement.
 - (ii) **Discharge planning, based on care planning upon admission, should be developed** as a hospital function.
5. Strategies are needed **to protect elective admissions** from deferral due to the increasing level of A&E admissions and winter pressures. These could include planning higher levels of elective work in the “trough” periods instead of year round and / or by developing a discrete elective hospital or units.

6. The **distribution of specialities requires review** and possible re-organisation, on two levels:

- (i) In some specialities with long waiting lists for selected procedures, it was found that one of the main hospitals appeared to be the predominant provider as it had the highest activity and highest waiting list. This was the case with ENT and orthopaedics which together account for 32% of the waiting list.
- (ii) In some specialities with high volume procedures, some hospitals have a significantly low level of activity. Issues of quality of care, maintenance of expertise, efficiency, and the possibility of low volume contributing to higher lengths of stay need to be considered in these cases.

7. Two aspects of **patient referral management** and the waiting list require review:-

- (iii) There is little migration from hospitals with high waiting lists in a particular speciality to hospitals with a small waiting list in the same speciality.
- (iv) Specialist hospitals for gynaecological, orthopaedics, ophthalmology all have lower occupancy and smaller waiting lists than the larger acute hospitals for the same procedures.

Waiting list management at regional level, rather than at hospital - specific level as present, should be addressed.

8. The loss of **theatre time** is a major contributor to the waiting list and length of stay variances. While nursing shortages are a key factor, other factors emerged as requiring attention.

- (v) **The planning and allocation of theatre time should be a core management task** and should be managed in association with consultants. This should include provision for flexibility and adjustment in allocation to specific specialities and procedures.
- (vi) **Discrete day care theatres** should be established.

9. The **inflow of residents from other health boards for routine elective procedures** requires particular examination and the development of strategies to achieve appropriate in-flow to hospitals in the East.

