

# Medical Assessment of the Elderly Surgical Patient

Gwyn Seymour

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# 1 THE ELDERLY SURGICAL PATIENT — INTRODUCTORY REMARKS

## 1.1 General Introduction

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## 1.1 General Introduction

It is sometimes claimed, only partly in jest, that hospitals still exist where the only way for a geriatrician to gain access to an acute surgical ward is for him or her to develop an acute abdomen. This has fortunately not been the experience of the author who has received wholehearted cooperation and encouragement from surgeons and anaesthetists while pursuing his interest in the risk assessment of elderly surgical patients. Indeed, the growing world literature on the elderly surgical patient suggests that, in their willingness to extend their special skills to older patients, surgeons and anaesthetists are probably ahead of many of their non-surgical colleagues.

As surgical and anaesthetic techniques continue to improve, the balance between success and failure in an aged surgical patient often depends on medical rather than surgical/anaesthetic factors. Unhappily, the observation that 'the operation was a great success but the patient died' is still apt in many older patients. This book is principally concerned with the influence of pre-operative *medical* factors on post-operative outcome in the elderly, drawing material mainly from surgical, anaesthetic and medical sources. It does not try to tell surgeons how to operate or anaesthetists how to anaesthetise.

At present, most elderly surgical patients are medically assessed, not by physicians, but by surgeons and anaesthetists. While this book suggests means by which these assessments might be refined, it assumes that the major part of such assessment work will continue to be borne by members of the surgical and anaesthetic team. It is neither necessary nor practicable to attempt to place a geriatrician at the bedside of every elderly surgical patient (Seymour 1983). Except in the most dire surgical emergencies, pre-operative medical assessment is likely to proceed

along traditional lines, using a system-by-system approach. This systematic approach is therefore the one adopted in Chapters 2 to 10 of this book. These chapters also discuss the major post-operative medical problems encountered in the older patient and identify these areas, extensive as it turns out, where more clinical research is required. However, a number of topics which have a direct bearing on the care of the elderly surgical patient fall outside the hospital-based model adopted in Chapters 2 to 10. It is topics of this type that are discussed in the remainder of this opening chapter.

### **1.2 Present and Future Surgical Needs of the Elderly**

#### *1.2.1 Sources of Data*

To make an accurate estimate of surgical need among the elderly in the general population it would be necessary to arrive at a universally acceptable definition of 'need', and then to send enough investigators out into the community to apply this definition in a large, randomly selected sample of elderly people. The author knows of no study which has come close to meeting either of these two requirements, and in the absence of such information has been compelled to fall back on hospital statistics about surgical admissions and operations. Even in countries with a well-developed National Health Service, where lack of personal wealth is not a major barrier intervening between a patient and elective surgery, it is recognised that hospital statistics are likely to underestimate the 'need' for surgery in the community. Such underestimation is likely to be at its maximum in older patients as they tend to be diffident about bringing their problems to the attention of a clinician (Seymour and Pringle 1983b). While they mirror need only imperfectly, hospital statistics still point to a heavy burden of surgical disease in the elderly, as will now be illustrated using data from Britain, North America and Eastern Europe.

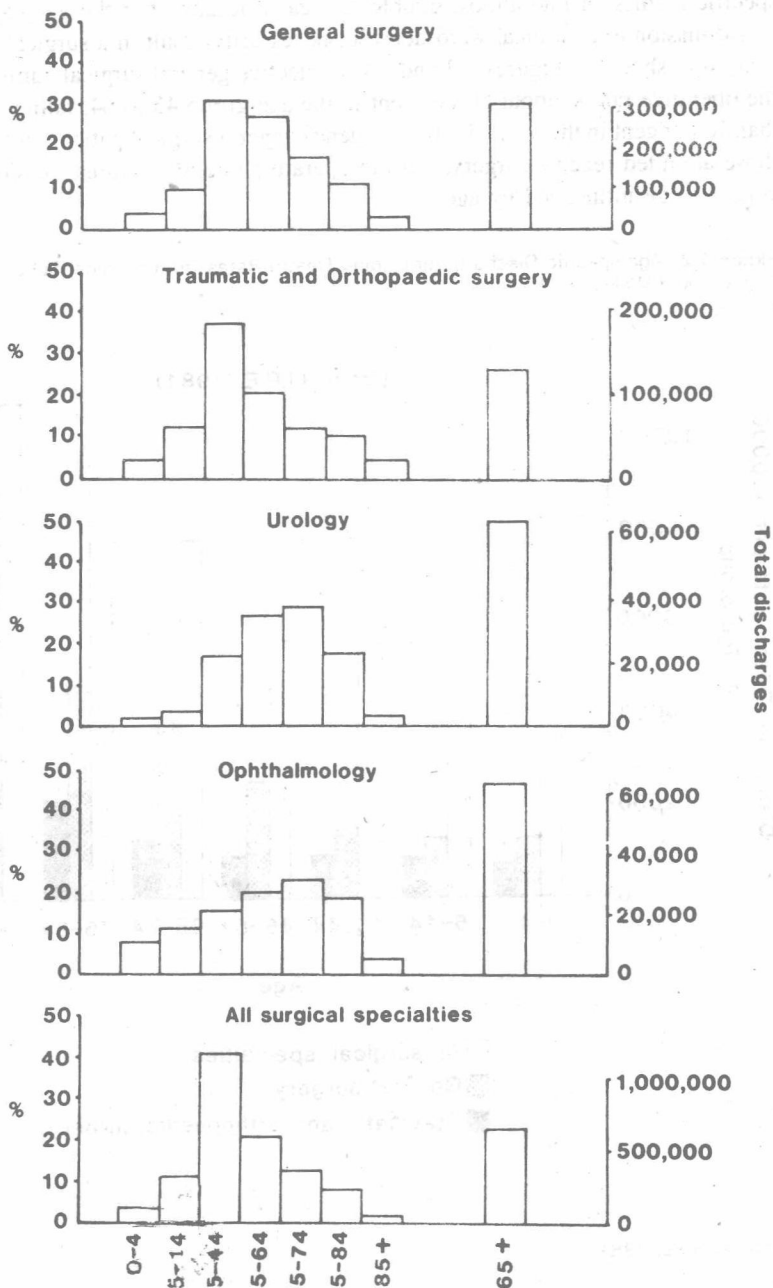
#### *1.2.2 Hospital Admission Rates for the Elderly in Britain*

In England and Wales in 1981, patients aged 65 and over accounted for almost one-quarter of all hospital admissions to surgical specialties, and patients over 75 made up one-tenth of such admissions\* (Figure 1.1). In some of the surgical sub-specialties, the proportion of elderly patients was higher still. For example, half of the patients admitted to ophthalmology and urology wards were over 65 years of age (Figure 1.1). As the proportion of over-65s in the general population of England and Wales is 15 per cent, this suggests that the chances of being admitted to a surgical bed tend to increase with age. This tendency is demonstrated more formally in Figure 1.2 which shows that the age-specific admission rate to all surgical units of patients aged 85 and over is twice that of patients aged

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\* Strictly speaking, it is discharge and deaths rather than admissions which are measured in the official British statistics (HIPE 1981) but the term 'admissions' is used in the text for convenience.

**Figure 1.1:** Age and Pattern of Discharges and Deaths from Surgical Units in England and Wales for 1981

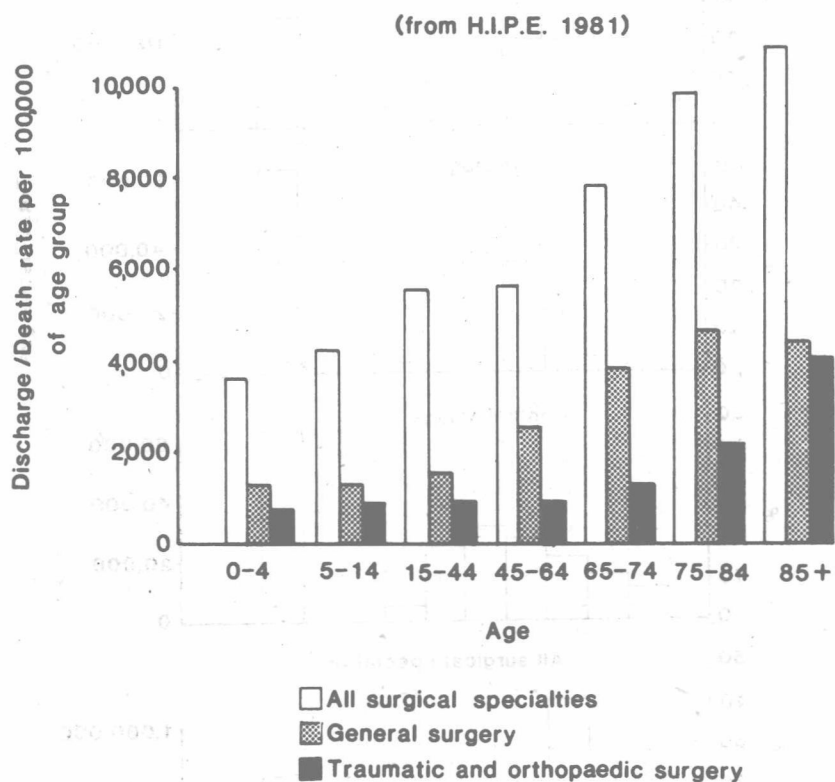


Source: HIPE, 1981.

aged between 45 and 64. Indeed, in trauma and orthopaedic departments, the age-specific admission rate almost doubles for each decade after the age of 65.

Admission to a surgical ward does not necessarily result in a surgical operation, as is shown in Figures 1.3 and 1.4. In elective general surgical admissions, the operative rate is about 80 per cent in the age-group 45 to 64, falling to less than 70 per cent in the over 75s. In emergency general surgical patients about half those admitted receive surgery, but the operative rate after admission does not appear to be influenced by age.

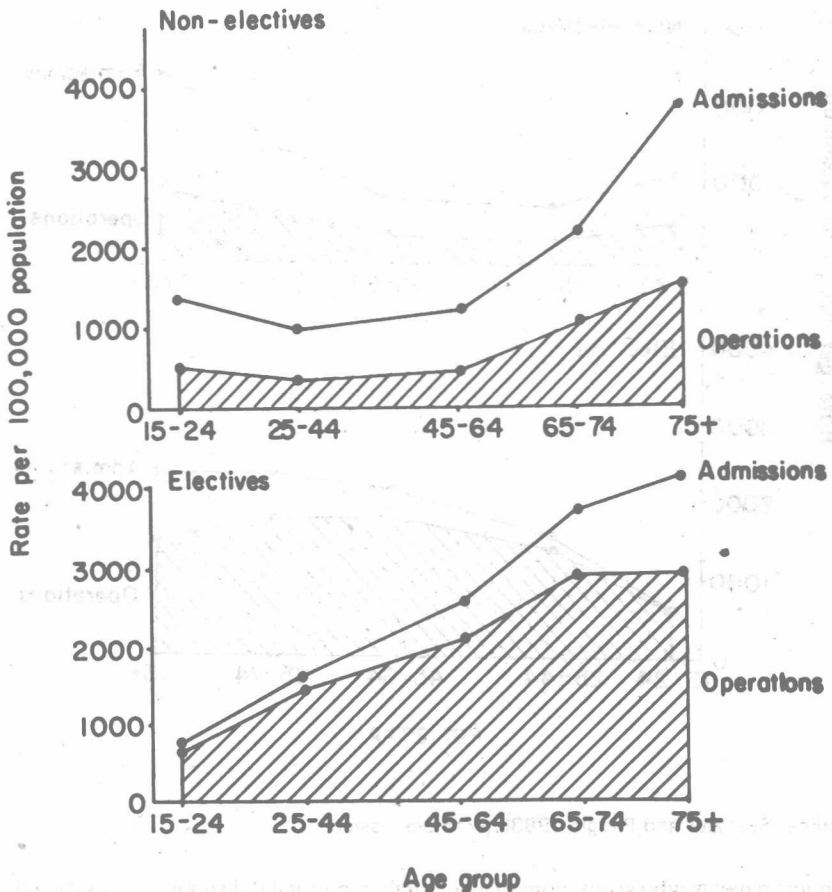
**Figure 1.2:** Age-specific Discharge (Including Death) Rates from Surgical Specialties in England and Wales 1981



Source: HIPE, 1981.



Figure 1.3: Male Admissions to General Surgical Units in Scotland 1979

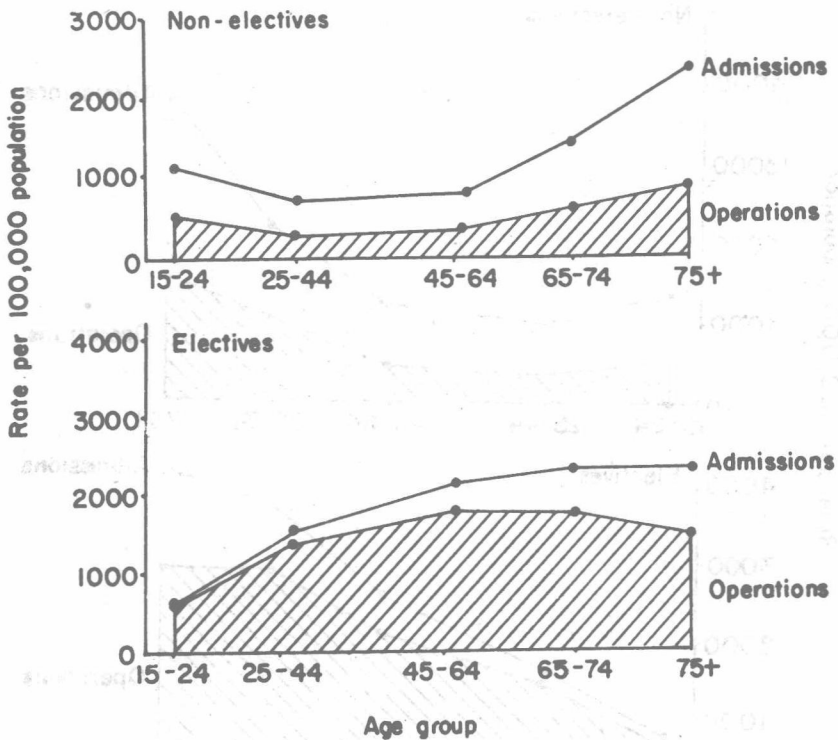


Source: Seymour and Pringle 1983b, with permission.

### 1.2.3 Duration of Stay of the Elderly Surgical Patient

There is ample evidence from a number of countries to show that elderly medical and surgical patients have a mean (and median) duration of hospital stay which is longer than that of younger adults (Sewell 1979, Haupt 1980, Medical Manpower Steering Group 1980, Seymour and Pringle 1982b, Tamasy 1982). Figure 1.5 demonstrates the positive correlation between age and duration of stay in a general surgical unit in Scotland. However, just because elderly patients are staying in hospital longer than the young it does not necessarily follow that beds are being 'blocked' by patients whose needs are social rather than medical. The analysis by Seymour and Pringle (1982b) indicated that the great majority of elderly general

**Figure 1.4:** Female Admissions to General Surgical Units in Scotland 1979



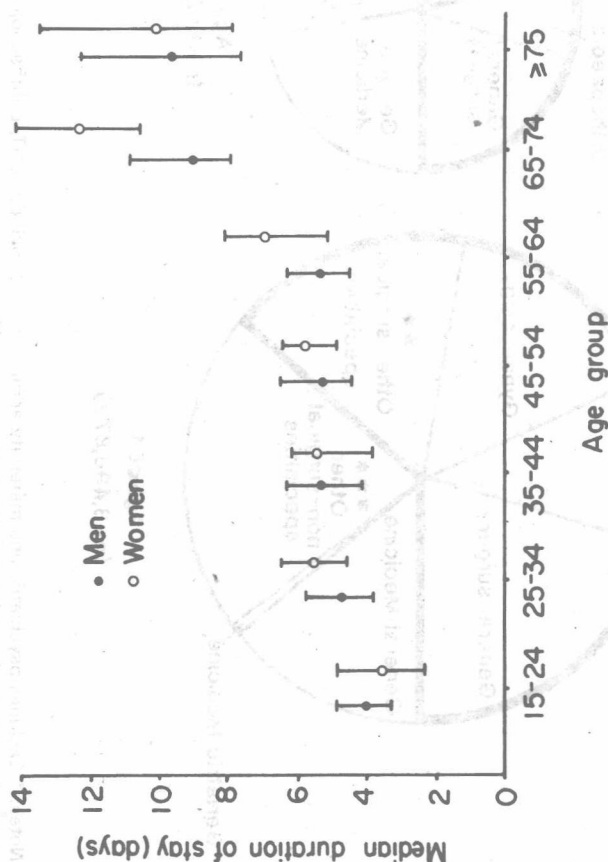
Source: Seymour and Pringle 1983b, with permission.

surgical patients who spent more than a month in hospital did so for reasons directly related to their surgical problem. However the study of Seymour and Pringle did not review orthopaedic and trauma departments, where prolonged bed occupancy by elderly patients following femoral neck fractures may cause considerable logistic problems. The majority of these patients are frail elderly women who often require a prolonged period of rehabilitation in hospital. The best way to manage such patients is probably by forming a team which includes both an orthopaedic surgeon and a physician in geriatric medicine. In some areas joint orthopaedic/geriatric wards have been set up for this purpose (Devas 1976, Irvine 1983).

#### **1.2.4 Impact of Elderly Surgical Patients on Hospital Services in Britain, USA and Hungary**

In order to estimate the impact made by elderly surgical patients on hospital services it is useful to consider both surgical and non-surgical admissions. Raw data from England and Wales (HIPE 1981) are given in Table 1.1, but these have been

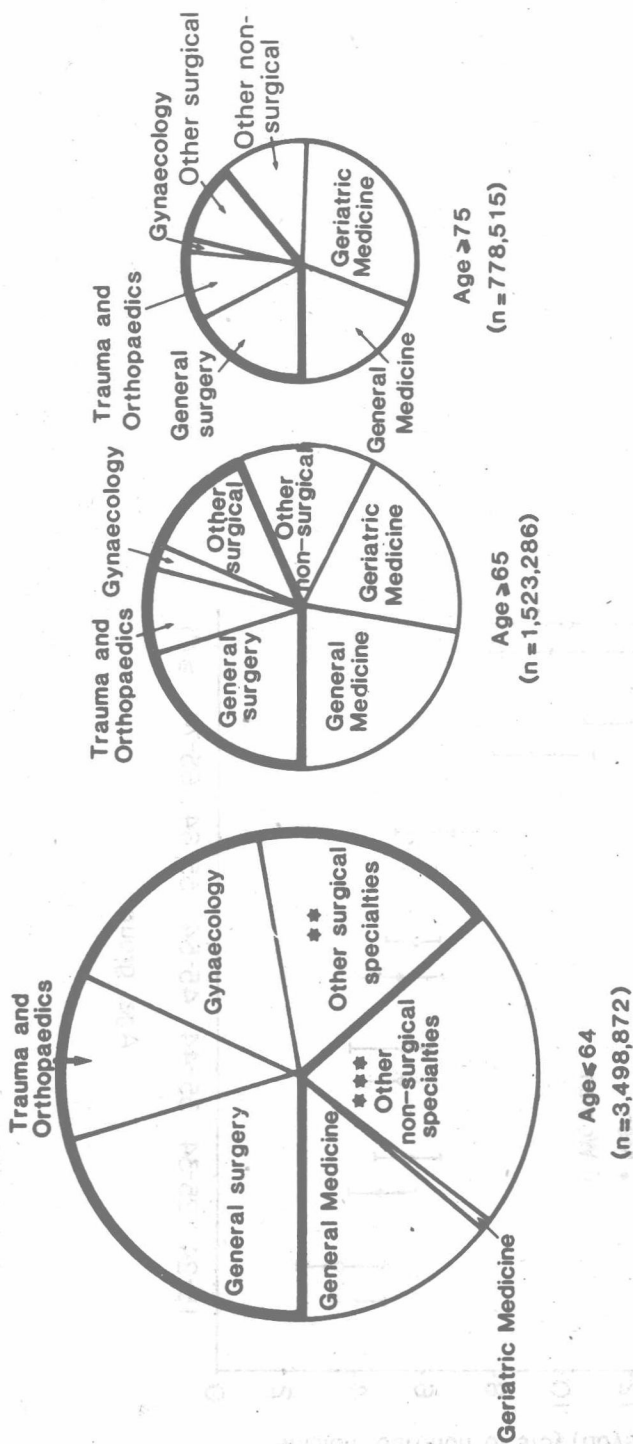
Figure 1.5: Age and Duration of Stay of Patients in a General Surgical Unit in Scotland (with 95% Confidence Limits)



type

Source: Seymour and Pringle 1982b, with permission.

**Figure 1.6: Discharges (Including Death) From Hospitals in England and Wales, 1981\* (from HIPE)**



Notes: \* Excludes psychiatric and maternity admissions. \*\* Includes ENT, ophthalmology, urology, plastic, thoracic, oral and neurosurgery. \*\*\* Includes specialties of paediatrics, infectious diseases, chest diseases, neurology, cardiology, rehabilitation, venereology, rheumatology, radiotherapy and general practitioner units.

**Table 1.1: Discharges (and Deaths) from Hospitals in England and Wales, 1981<sup>a</sup> (in thousands)**

		All discharges/deaths 5022.2											
		All surgical specialties <sup>b</sup> 2872.1				All non-surgical specialties <sup>b</sup> 2150.1							
		General surgery 1041.0		Trauma & orthopaedics 509.2		Other <sup>c</sup> surgery 1321.9		General medicine 857.6		Geriatric medicine 303.7		Other non-surgical 988.8	
Age		≤ 64	≥ 65	≤ 64	≥ 65	≤ 64	≥ 65	≤ 64	≥ 65	≤ 64	≥ 65	≤ 64	≥ 65
		731.9	309.1	376.2	133.0	1104.8	217.1	509.8	347.8	4.8	298.9	771.4	217.4
Age		≥ 75		≥ 75		≥ 75		≥ 75		≥ 75		≥ 75	
		133.8		73.7	88.6		149.3		232.4		100.8		

Notes: a. excludes psychiatric and maternity admissions.

b. see Figure 1.6 for definitions.

c. includes gynaecology (538.3 aged under 64, 34.4 aged 65-74, 11.5 aged over 75).

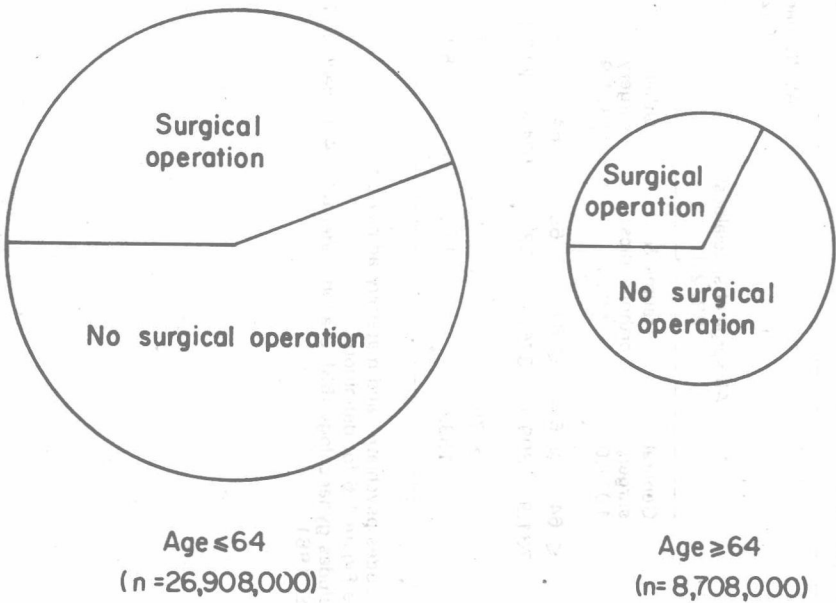
Source: HIPE, 1981.

reconstituted into the more digestible form of a 'pie' chart in Figure 1.6. When psychiatric cases are excluded, 43 per cent of all hospital admissions in the over-65s entered surgical wards, and in the over-75 age-group the figure was 38 per cent. It will come as a surprise to many doctors to realise that in England and Wales at present, surgeons are admitting almost as many patients over 75 as are general physicians and geriatricians combined. This illustrates, yet again, that any physician in geriatric medicine who offered, in a moment of enthusiasm, to assess all elderly patients in surgical wards would be taking on a formidable task (Seymour 1983).

Figure 1.7 deals with hospital admissions in the USA (Haupt 1980). Unfortunately, an exact comparison with British data is not possible because of different methods of recording information in the two countries (Vayda *et al.* 1982). However, it is clear that patients having surgery account for at least one-third of hospital admissions in the over-65 age group in the United States.

When comparing North American and British hospital data it is important to remember that the *overall* rate of admission to hospital tends to be higher in the USA. In England and Wales in 1981 the total hospital admission rate for patients over 65 was 201 per thousand population (calculation based on HIPE 1981) while

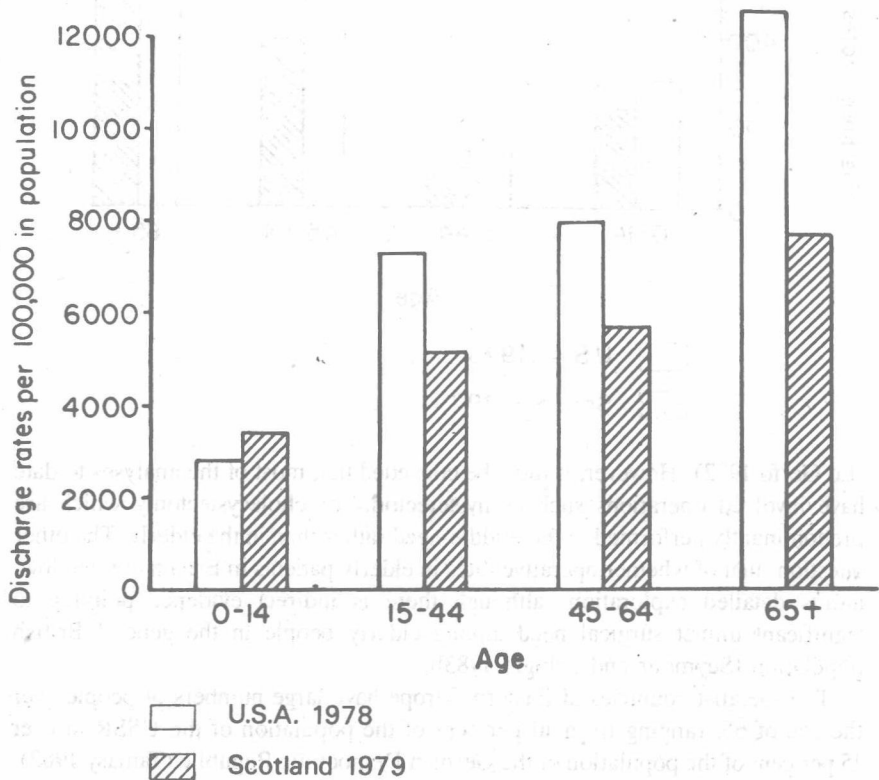
Figure 1.7: Discharges from Non-federal Short-stay Hospitals in USA 1978



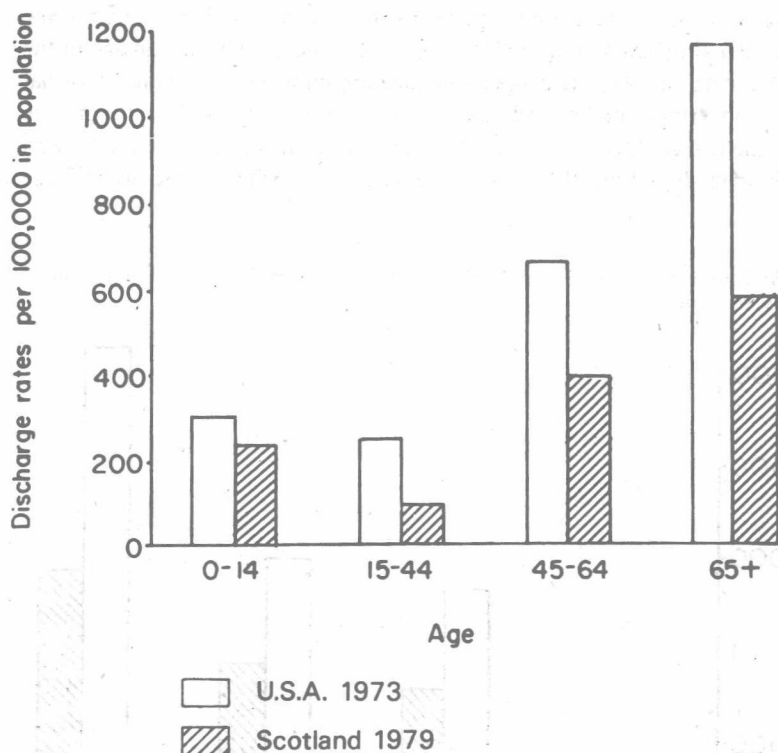
Source: Haupt, 1980.

three years earlier in the United States the figure had already attained 362 per thousand (Haupt 1980). Many common surgical operations such as herniorrhaphy, cholecystectomy and hysterectomy appear to be performed twice as often in the USA as in Britain (Vayda *et al.* 1982). Figures 1.8 and 1.9 take advantage of the fact that Scottish and American operative data are published in a similar format (Seymour and Pringle 1983b) and compare the rates of surgery for different age groups in the two countries. The American operative rates can be seen to be well above the Scottish and this difference appears to be maximal in the over-65 age group.

**Figure 1.8:** Scotland 1979 and USA 1978 Hospital Discharge Rates of Patients who had Received Surgery



Do the above statistics imply that American operative rates are 'too high' or is it possible to argue the converse, that British operative rates are 'too low'? Not surprisingly, questions such as these have proved to be of considerable surgical and political interest (Mosteller 1978, McPherson 1982, Rutkow 1981, 1982). There is evidence that the commercial framework of medicine and surgery in the USA, where payment of surgeons tends to be on a case-by-case basis rather than by means of a fixed salary, may encourage the performance of 'unnecessary surgery'.

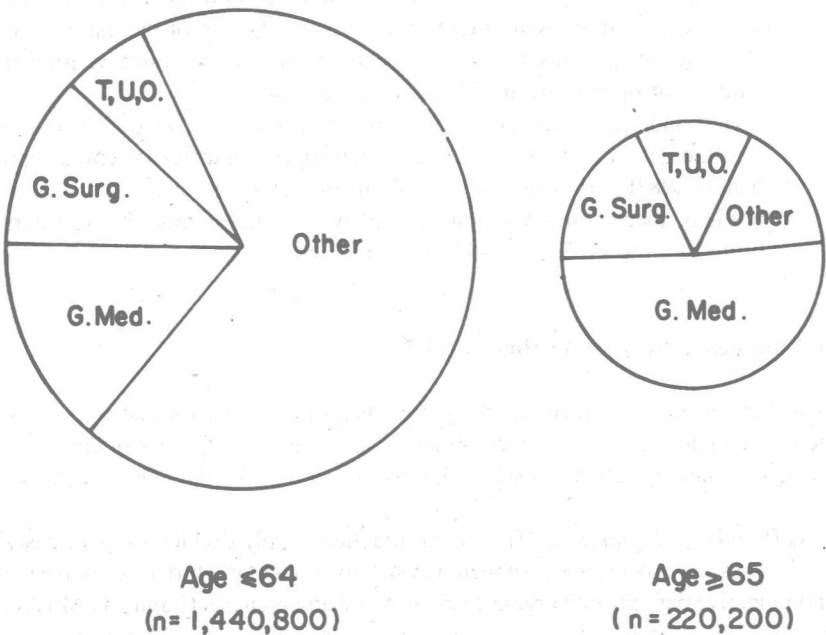
**Figure 1.9:** Scotland 1979 and USA 1978 Hospital Discharge Rates of Men Receiving Inguinal Hernia Surgery

(Lo Gerfo 1982). However, it must be conceded that most of the analyses to date have involved operations such as hysterectomy or cholecystectomy which are predominantly performed in the middle-aged rather than in the elderly. The other question, that of whether operative rates in elderly patients in Britain are 'too low' awaits detailed exploration, although there is indirect evidence pointing to significant unmet surgical need among elderly people in the general British population (Seymour and Pringle 1983b).

The socialist countries of Eastern Europe have large numbers of people over the age of 65, ranging from 10 per cent of the population of the USSR to over 15 per cent of the population of the German Democratic Republic (Tamasy 1982). The recent report from Hungary by Tamasy has allowed some comparisons to be made between the pattern of hospital admissions of the elderly in Eastern Europe and that found in Britain. Hospital admissions in Hungary in 1972-3 are shown in Figure 1.10. For patients under 65, direct comparisons with British data present problems as the Hungarian statistics include maternity admissions. Over the age of 65, however, the pattern of surgical admissions is very similar in Hungary and England/Wales with the proportion of hospitalised patients entering general surgical wards being 18 per cent in the former and 20 per cent in the latter.



Figure 1.10: Hospital Discharges in Hungary 1972-3



Notes: G. Med = general medicine

G. Surg = general surgery

T, U, O = trauma, urology, ophthalmology

Other = all other medical and surgical specialties, including obstetrics.

Source: Tamasy 1982.

### 1.2.5 Predicting the Future Surgical Needs of the Elderly

The relative and absolute numbers of very elderly people in the population are increasing throughout the developed and developing world. In developed countries, the maximal impact of such demographic changes will be experienced early in the twenty-first century while in developing countries a slightly longer time-scale is anticipated (Macfadyen 1982, Grinblat 1982). As elderly people have greater surgical needs than the young, and as they tend to stay in hospital longer, these demographic changes imply a need for increased numbers of surgical beds in the future, even if present admission practices are maintained. In fact, the actual need for surgical facilities in the elderly promises to be even higher for the following reasons:

- (a) Continued developments in surgical and anaesthetic techniques will tend to offer the prospect of safe surgery to yet older and frailer patients in the future.
- (b) Over the last two decades both elderly patients and their doctors appear