Despite advances in the knowledge of the pathophysiology of acute pancreatitis (AP), and advances in intensive care management for patients with severe AP, the mortality rate is still appreciable and improvements are slow. Mortality ranges overall from 2% to 10%, but in severe AP approaches 20% (1-13).

About 25% of patients will develop complications (9), but it can be difficult to predict from an individual patient assessment who will progress to severe disease and therefore require intensive care monitoring. Severe disease is characterised by organ failure and local complications such as abscess or pseudocysts. Complications can develop very quickly, particularly organ failure (especially respiratory and renal failure). Multiple organ failure is the most common cause of death within 7 days of disease onset (4-7,9).

The mortality rate is higher for elderly patients (11,12) probably due to a higher incidence of concomitant disease, but younger patients may also die early on in the course of the disease (10). Available data show that patients who survive a severe attack of AP have a good chance of returning to normal activity with good quality of life (14). Early and correct diagnosis is therefore vital if these patients are to receive appropriate care.

The reported incidence of AP and the accuracy of diagnosis in an individual patient depends on a number of factors such as: clinical awareness of the possibility of the diagnosis; availability of rapid and accurate enzyme measurements of amylase and lipase; availability of imaging equipment such as computed tomography (CT); and availability of autopsy information.

Other factors, such as the willingness to perform peritoneal aspiration (15) may also affect diagnosis of the disease. It is now many years since the publication of the verification of the safety and accuracy of peritoneal aspiration in the difficult differential diagnosis and, indeed, its usefulness in grading severity (16). This approach, which is very rapid and also safe when nasogastric tube and a urinary catheter are placed, is underutilised.

In the developed world, when genuine diagnostic doubt exists, CT can often identify pancreatic swelling and the accumulation of peripancreatic fluid in the difficult diagnostic situation. However, this approach is expensive and slower than peritoneal aspiration.
Disease Incidence and Clinical Awareness

In an 18-year study from 1950 to 1967 carried out in the Bristol area (UK), an increasing incidence of AP was documented during the first 6 years of the study and a further peak of incidence occurred from 1961 to 1964 (17). The initial increase was attributed to wider application of blood amylase measurements, and the later increase to locally heightened interest in the disease. Therefore, both surges of incidence were thought to be due to improvements in diagnosis rather than an absolute change in incidence (17). In a study extending from 1940 to 1969 in Rochester, Minnesota, USA, a similar experience was reported (18).

The original Bristol data were updated in a paper published in 1985 (19) and showed an increase in incidence of 26% over the previous two decades. However, the overall case mortality rate was little changed at approximately 20% throughout the 30-year period covered by both studies (17,19). The suggestion, therefore, was that improved understanding of fluid replacement and other supportive therapy for patients with AP had had little impact on mortality.

A study on the changing patterns of incidence and mortality from AP in Scotland from 1961 to 1985 (20) revealed a steady increase from 181 cases per year in 1961 to 1234 in 1085, an almost seven fold increase in diagnosis. Although there was a steady increase in diagnosis throughout the 1960s a sharp rise in diagnoses in both males and females occurred from 1971 onwards following the introduction and widespread acceptance of the Phadebas test (Pharmacia Diagnostics, Uppsala, Sweden), a simple reproducible assay for blood amylase. This test was probably a major factor in the surge of diagnosis of AP from 1971, when the total annual incidence in Scotland was less than 500 cases per year, reaching almost 1000 cases per year by 1975 (20). As already indicated, the incidence had increased to 1234 cases per year by 1985. However, the mortality rate showed a marked change, thus differing from the Bristol data. Indeed, in the Scottish study the case mortality had fallen from 17.8% in the period 1961 to 1965 to 5.6% in the period 1981 to 1985. It was concluded that the apparent increase in the incidence of AP was largely attributable to improved accuracy in diagnosis, with milder forms of AP being identified more often.

The data obtained from the Scottish study (20) were collated from the Scottish Hospital Inpatient Statistics, and were based on the discharge diagnosis recorded for each patient on a standard form (SMR1) required since 1961. Throughout that period from 1961 to 1985 the population of Scotland had remained remarkably stable at around 5.2 million, which is very similar to the national populations of Norway, Denmark and Finland.

A study of incidence and mortality of AP has been published from Finland (21) in which the incidence steadily rose from 1970 to 1989. These data identified each pancreatitis discharge (rather than individual patients) and showed an overall correlation with increased alcohol consumption ($r = 0.78, P = 0.0001$). The pancreatitis discharges correlated with liver cirrhosis for men ($r = 0.81$), with gallstone disease for women ($r = 0.77$). Overall episodes rose from 466 to 734 per million per year, mainly in men (from 591 to 1134), while in women the figure was constant at 350. Mortality rates decreased from 5.9% to 2.6% (21).

Our centre has performed a further study of incidence and mortality of AP in Scotland from 1985 to 1994, and this shows a steady increase in incidence, to a figure of over 380 patient episodes per million in 1994 (22).