LONGITUDINAL STUDIES BASED ON
CLINICAL DATA COLLECTIONS

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INTRODUCTION

This is an entirely non-technical paper for which no further apology will be made. It is written from the perspective of a public health researcher interested in using statistical techniques which are currently under development, but lacking the training and skills required to contribute directly to their development. One purpose of this paper is to describe an area where longitudinal statistical methods will be increasingly applied, in the hope of arousing some interest in this area among professional theoretical and applied statisticians.

Approximately 8% of Australia's GNP is expended in activities collectively termed "health". The focus of most of these activities is in fact illness, but this perverse nomenclature is traditional and is likely to remain with us for some time. In general terms, most modern medical methods are based on observation. Clinicians informally accumulate observations about their patients and gradually refine their recollections of similar patterns of illness into diagnostic groups. With the addition of relatively recent technological advances (eg microscopy, radiographic imaging and so on) many of these clinical entities have been refined considerably and a biochemical or other mechanistic explanation is now available for some organic diseases.

However, it is important to understand that remarkably few treatment methodologies in modern western medical practice have been subject to formal, experimental, controlled (or even uncontrolled) clinical trials which would enable confident assertions about the relative effectiveness of alternative treatment modalities to be made. Clinicians must often choose from among alternative treatments on the basis of their accumulated experience, rather than from experimental evidence. While