

## Development of an Excel® Spreadsheet to Document Disease Activity in Autoimmune Bullous Disease

Objective measures of disease activity have attracted considerable interest within dermatology because of their capacity to evaluate disease severity through a validated means, to monitor the trajectory of a patient's disease and as standardised outcome measures in clinical trials (1). Two disease-specific instruments exist for measuring the extent of autoimmune bullous diseases: the Autoimmune Bullous Skin Disorder Intensity Score (ABSIS) (2), and the Pemphigus Disease Area Index (PDAI) (3). All patients attending specialised Bullous Clinics at our institution have a standardised profile recorded at each presentation including ABSIS and PDAI scores, medication dosages and quality of life (QOL) scores, such as the Dermatology Life Quality Index (4), allowing us to map their disease longitudinally and evaluate the quality of care. This information has traditionally been recorded in hardcopy with the patient and clinician completing a series of forms. This imposes a significant administrative burden and extrapolating the data into useful information then necessitated going through each form by hand, which was impractical. To improve the efficiency of this process, our institution has developed a specialised Excel® spreadsheet, which records a series of clinical variables at each presentation. Each column represents a data field on the forms for the ABSIS, PDAI and QOL instruments as well as medication dosages. Many of the instruments require arithmetic calculations (for example, scoring the ABSIS requires multiplying affected body surface area by an index dependent on the severity of lesions) and we have programmed the spreadsheet to perform this automatically, making the process appreciably faster. Another major advantage of the spreadsheet is that it facilitates data extraction. Using the graph function of the spreadsheet to map the clinical course of a patient, one can instantly appreciate how their disease has evolved over time across a range of param-

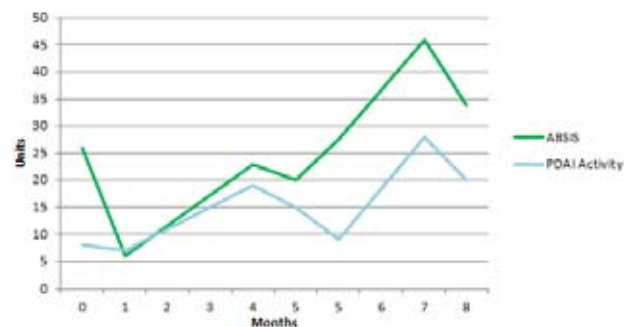


Figure 1a. Disease activity scores

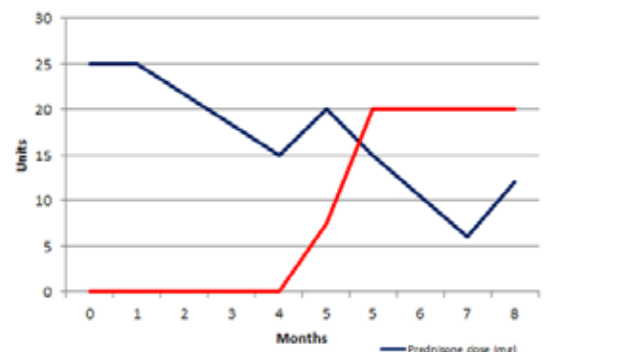


Figure 1b. Immunosuppression

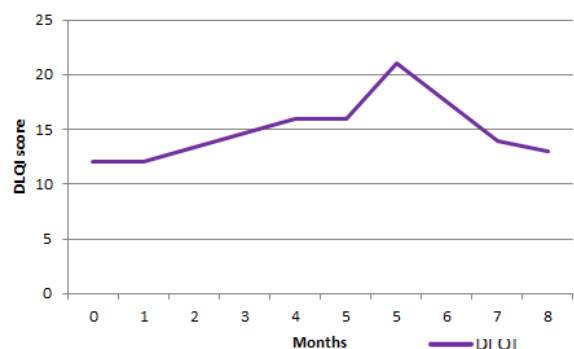


Figure 1c. Quality of life scores

eters including disease activity, QOL and the need for immunosuppression (Fig. 1). We have included a number of features to assist new users of the spreadsheet such as explanatory 'pop-ups', which provide information explaining the meaning of the data field when the patient clicks on a particular cell. We have also placed restrictions on the range of values available to particular data fields because as the ABSIS and PDAI scoring systems can be complex to use for those unaccustomed to the instruments, by placing limits on data fields this helps guide users how to score patients accurately but also preventing accidental input of invalid data. The template we have designed is flexible enough to allow users to add other variables they feel may warrant inclusion and delete variables they may not assess during routine clinical review. The spreadsheet built by our group is practical for routine clinical use and is a useful tool for longitudinal monitoring of disease activity in bullous patients. It possesses a number of advantages over recording clinical data by hand, namely, its speed, capacity for automated calculation and its ease of data extrapolation, and for these reasons similar spreadsheets could be devised to record routine clinical data in other settings (5).

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