Imaging neural responses to pain-related stimuli in patients with chronic non malignant pain (CNMP) before and after a pain management programme

Principle Investigator: Prof Judith Hall

This year has been spent piloting the materials to be used for the study, obtaining ethical approval, revising ethical approval and obtaining honorary contracts for the researchers to work in various Trusts within Wales in order to complete the piloting. Ethical approval has been obtained to pilot PHODA (photographs of daily activities) and Stroop testing outside and within the MRI scanner in two sets of 20 healthy volunteers age and gender matched to 20 chronic pain patients with predominantly musculoskeletal pain. Piloting outside the scanner has resulted in the addition and validating of more photographs to address a UK population (PHODA was developed in Maastricht University) and to ensure that more neutral photographs of activities are available. PHODA is divided into certain activities such as flexion, extension, compression etc and therefore we have been able to put the photographs back into blocks so we can randomize the photographs when used. We have to establish how individuals with chronic pain rest when we consent them so that we use the appropriate neutral photographs in the scanner. The range of photographs ensure that participants' images can be compared when the brain is processing potentially non painful, non threatening activity photographs and compared to the processing of images that would cause pain and anxiety if patients were asked to comply with the activity in the photograph. The numerical Stroop has been criticized, in the literature, for not promoting enough conflict and therefore the face-word Stroop has been investigated as a way of improving conflict and making the attentional differences between patients with and without pain larger. Although emotional and numerical Stroop testing has been undertaken in pain populations, the face-word Stroop appears not to have and hence the need to pilot this outside and within the Scanner. The questionnaires that will be used to correlate against the scans are also being reviewed as the Pain Management Programme is moving towards more patient centered ones. In identifying a positive correlation between changes in the function and structure of the brain pre and post a pain management programme and certain questionnaires, the validity and reliability of the questionnaires and the pertinence to what the programme is trying to achieve is key in ensuring the clinical utility of this study. We are helping the Programme by reviewing the suitability of questionnaires for both clinical and research utility. The aim is to start recruitment soon, once the pilot has been finished. To expedite scanning, another member has been employed to the Cardiff University Brain Research and Imaging Centre Pain Group, this person is a primary user and has a wealth of practical scanning experience. This should lead to the scanning pilot being completed on time and the commencement of the activities outlined in the NIAA bid.