

patients who contributed to the wording and the simplification of the questions re: ethnicity.

Questionnaires were offered to all patients attending the CMH Rheumatology Unit. The evaluation was discontinued when a target of 100 was reached ( $n=102$ ). No questionnaires were excluded. And upto 5% of questions were unanswered. Data was analysed on SPSS.

**Results:** The Number of questionnaires returned for this service evaluation was 102.

- Most respondents (94%) showed compliance with rheumatic medication as prescribed.
- More than half the respondents (66%) agreed or strongly agreed that their arthritis medications are necessary for their health.
- 54% were concerned about potential adverse consequences.
- The overall necessity score (19.32 S.D. 3.17) was higher than the concerns score (13.48; S.D. 3.35;  $t=61.57$ ,  $P<0.001$ ).
- Concerns about the long term effect of rheumatic conditions correlate positively with perceptions of health in the future  $P<0.01$  level (2-tailed Pearson).
- No significant correlation was found between compliance and patient's ethnicity/individuals demographics.

**Conclusions:** Most people with Rheumatic conditions have positive beliefs about the necessity of their medication. However, levels of concern are high, especially towards the long-term effects of the medication. This concurs with asimilar study in Rheumatoid Arthritis.(2). The service evaluation using the Beliefs about Medicines Questionnaire has helped to identify people at risk of poor compliance long term. This illustrates a need to discuss patients beliefs and concerns in targeted drug counseling sessions with specialist nurses. A post study patient focus group recognised the high level of compliance yet recommended a fixed weekly walk in session with a nurse and pharmacist to sustain this high quality outcome. Further methods of continued patient re-education will be explored.

**References:**

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## HPR service developments, innovation and economics in healthcare

### AB1242-HPR NUMERICAL PREDICTION OF THE OPTIMUM SHEET METAL THICKNESS IMPLANTED AS THE JOINT CARTILAGE

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**Background:** The combination of computer-aided-design (CAD), digital image processing techniques and finite element method (FEM) has been successfully employed to create the customized distal condyle implants in human joints during arthroplasty surgery when the manufacturing method is incremental sheet forming (ISF) technique. However, due to the high time of process in the FEM analysing of human joints, finding the optimum material thickness with respect to the joint cartilage has been neglected.

**Objectives:** To apply a numerical investigation based on the FEM to predict and propose the sheet metal thickness for joint cartilage in the ISF process in a timely method for the human knee as a case study.

**Methods:** To reduce the expense of experiments and save the time of production, a numerical investigation method based on FEM is designed for the ISF. The user subroutine is employed to navigate the tool motion and material behaviour for reducing the time of simulation in the analysing tool. Hence, the sequence of FEM applied was as follow. 1) Create the solid model of the clamping system and sheet metal. 2) Choosing associated nodes together with Shell elements to increase the accuracy of the simulation and simplify the process. 3) Applying the specifications of every element. 4) Assign and render the material properties for sheet metal. 5) Apply the initial boundary conditions. 6) Assigning the asymmetric boundary conditions using the subroutine for time reduction purpose. 7) Apply the loads related to the complete FEM. Consequently, the proper thickness from MRI based on the previous study is sent to the CAD system for the mechanical and anatomical modification.

Sheet metal thickness and also material selection were based on the joint mechanical properties, shape and size. Therefore, by using the optimum pressure profile, the FEM can be performed to predict the sheet stretch and also shear failure to illuminate the optimum sheet thickness used in customized medical implants.

**Results:** The result of this study is based on the validation of predicted sheet thickness with the real patient cartilage thickness. This result showed a good agreement with the hospital data (for cartilage thickness of ~2.20mm) and simulation result (~2.23mm for sheet thickness). It was not possible to divide the model into some sections and only analyse one particular part as a sample.

Therefore, the time of calculation was 23 hours for FEM when a high-performance computer was used. Regarding the same issue, the mesh was not uniform distributed so the time of analysing for each particular location was not the similar and predictable. The shear failure happens on the edge of design and also some locations that a turning point existed.

**Conclusions:** A numerical simulation is required to predict the material thickness replaced with the joint cartilage. Thus, the mathematical solution is investigated to predict the sheet thickness in the customized production process. Therefore, the result showed 98.5% similarity thickness of sheet metal with cartilage.

**References:**

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### AB1243-HPR USING INFORMATION-COMMUNICATION TECHNOLOGIES AND OPPORTUNITIES FOR TELEREHABILITATION IN OCCUPATIONAL THERAPY

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**Background:** The use of information and communication technology (ICT) in occupational therapy should allow management of chronic diseases by providing support programs in education including the use of multimedia services.

**Objectives:** In order to determine the presence of information and communication technologies use in the options of telerehabilitation, a survey was conducted 224 newly diagnosed patients with rheumatoid arthritis (RA).

**Methods:** The quantitative research approach was used with the newly created detected patients with RA treated on Department of Rheumatology at the University Medical Centre Ljubljana. The questionnaire included basic demographic information and questions about the use extent and possibilities for using ICT. The population also accounted for patients with RA diagnosed between 1 January 2014 and 31 December 2015. The data obtained was statistically analysed with the SPSS program IMB 20. The total of 64 survey questionnaires were completed, which represents 28% of the selected population.

**Results:** 23.4% RA patients don't use internet. 48.4% RA patients use personal computers (PC), and 51.6% patients use smart phones. 35.3% of patients that use PC use it for e-mailing, searching health information (35.4%), video calls (13.3%) and sending messages (15%). Patients who use smart phones use them for calls (31.9%), texting and calls (26.7%), e-mailing (25%), searching health information (12.9%), and video calls (3.4%). There is a positive correlation between the use of modern ICT and the opinion that the interviewed patients would use telerehabilitation services during their rehabilitation. Pearson correlation coefficients are statistically significant with all the ICT. With using a PC ( $r=0.602$ ) and smart phones ( $r=0.542$ ) there is a medium strong positive correlation. Positive coefficients indicate that the surveyed patients who are increasingly using ICT think they could help themselves with telerehabilitation. Increased frequency of ICT usage is associated with potentially greater possibility of using telerehabilitation.

**Conclusions:** The need for rapid access and exchange of information is the main reason for the use of information and communication technologies in healthcare, and is conditional for the development of e-health. Research provided answers questions about the possibilities of using information and communication technology and rehabilitation services at a distance – telerehabilitation in occupational therapy.

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### AB1244-HPR GUIDED SELF-MANAGEMENT FOR PATIENTS WITH RHEUMATIC INFLAMMATORY DISEASES AND FATIGUE – A PILOT PROJECT

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**Background:** Fatigue is reported to be a common symptom in people with inflammatory rheumatic diseases. It is a complex symptom, characterized by an individual interplay of biopsychosocial factors that has been associated with factors like inflammation, deconditioning, sleep problems, decreased function, pain and psychosocial factors like depression.

**Objectives:** The main objective was to contribute to improved coping and quality of life in people with inflammatory rheumatic disease and fatigue. Cognitive therapy is one of the common psychological interventions used in the rehabilitation