

EXPLAINING THE INVISIBLE

Hull and East Yorkshire Hospitals **NHS**
NHS Trust

A Pilot Study using a **COMPUTER SIMULATION TOOL** for Patient/Carer Education of Radiotherapy

ABSTRACT

With improvement of public knowledge of radiotherapy being a global objective; we believe if patients have a more thorough understanding of the processes and issues then they may be more compliant to instructions and have reduced anxiety regarding treatment. Information is often more efficiently absorbed when presented in a novel manner, in this study we utilised a computer simulation of a Linear Accelerator, PEARL (Patient Education and Radiotherapy Learning).

INTRODUCTION

How do you explain to a young woman, suffering with a poor body image since her surgery for breast cancer, that you are missing her heart and skimming her lungs with the 'harmful' radiation that is being used to eradicate any of the possible residual tumour cells?

Explaining complex information, about the position of internal organs, movement and possible 'anomalies' that occur in the normal healthy body on a daily basis, is complicated by the very fact you can't actually see radiation. By utilising PEARL we can explain.

Daily variations due to reproducibility, for example, of bladder filling and rectal emptying combined with the introduction of bowel gas all of which will compromise the optimal treatment plan and thus affect dose distribution. On a daily basis we are asking individuals to understand internal anatomy and radiotherapy planning that usually a trained individual would see. We believe increased understanding will lead to increased compliance and reduced anxiety

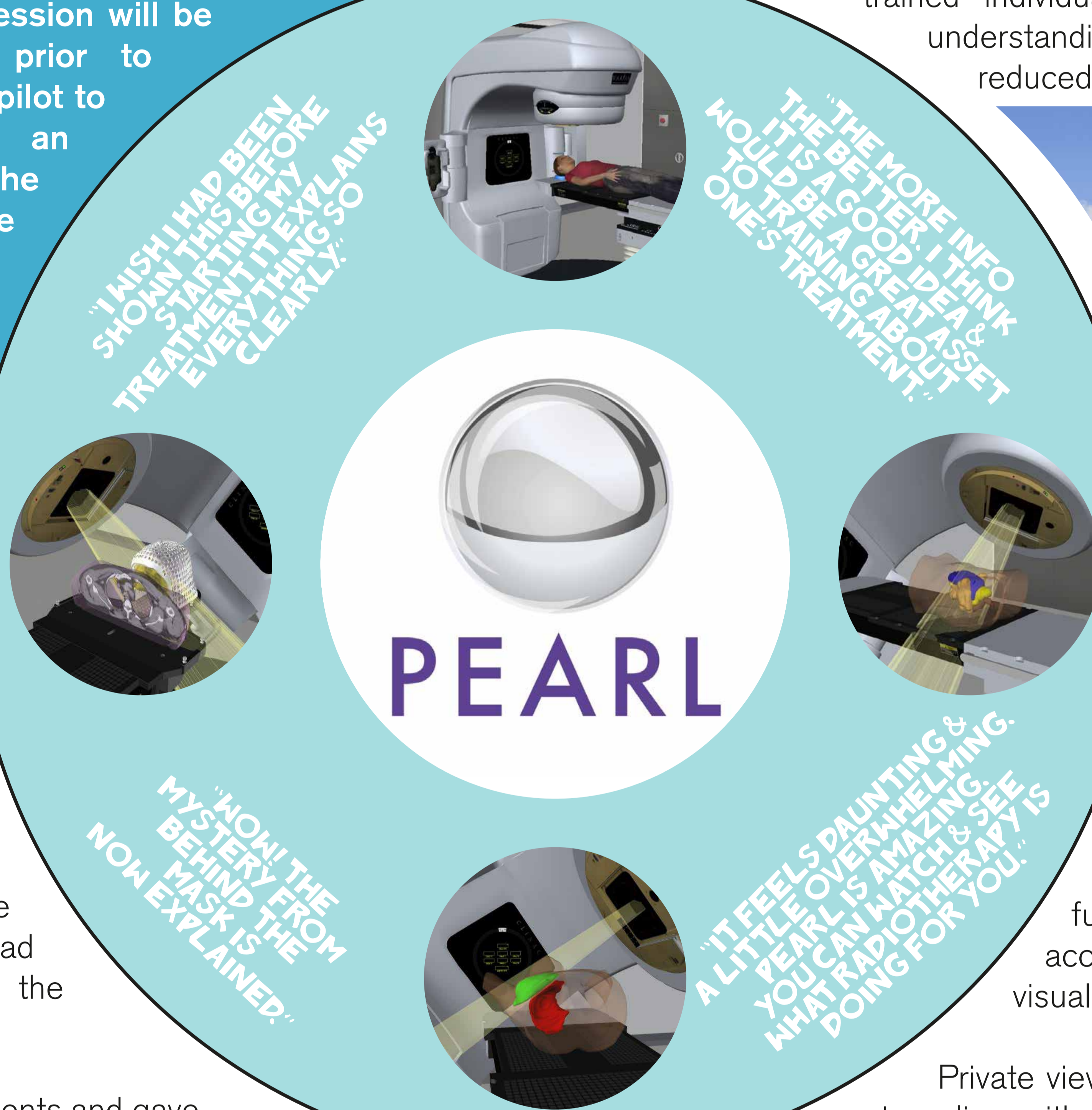
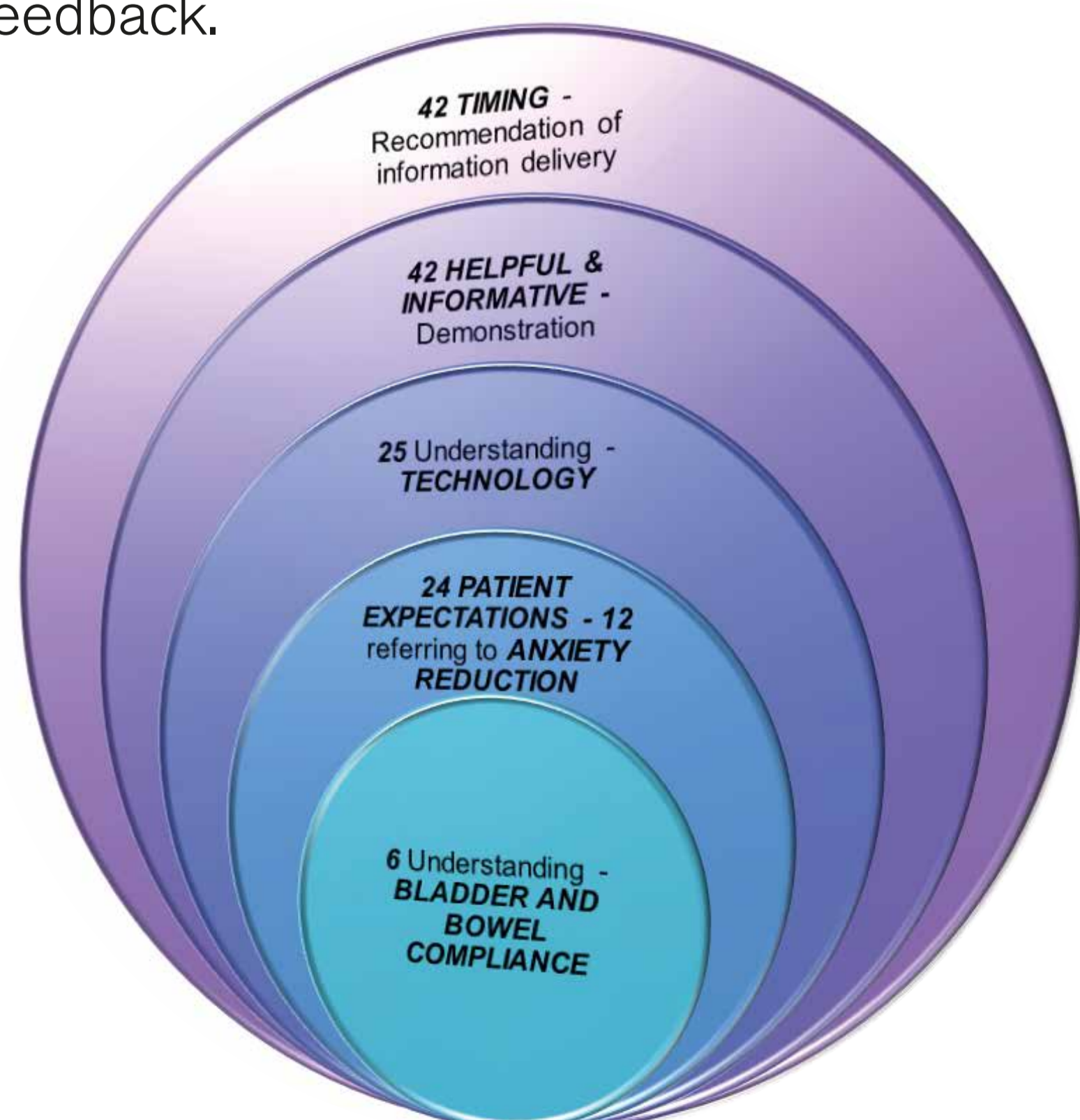
CONCLUSIONS

The information sessions using the PEARL software were popular with our patients. This pilot study has served to help plan a further study wherein the session will be staged post CT planning but prior to treatment. In turn this will act as a pilot to produce evidence to support an intended randomised study to test the hypothesis that appropriate information given via this graphical interface will promote greater compliance with prostate patients and result in fewer 'on treatment' interventions.

RESULTS

116 patients viewed the demonstration and 64 patients (or carers) returned free text feedback; 139 individual comments were identified in post processing producing 5 common themes. Comments were in general all positive and reflected that the use of PEARL had been useful in communicating the information imparted.

48% of the patients were prostate patients and gave verbal comments as to the usefulness in understanding their bowel and bladder preparation instructions although not all left written feedback.



METHODS

PEARL is a commercially available PC based tool that provides a realistic and functional 3D model of a linear accelerator and using a dicom interface can visualise treatment plans.

Private viewings were used for patients who were struggling with treatment preparation requirements or who were anxious about treatment. We were able to use the software to explain why we needed the patient to have a full bladder and empty bowels for treatment and touched on the implications of non-compliance. PEARL easily demonstrated the patient positioning and machine movement. From the positive response these initial viewings provided we could see the potential impact of providing information in a visual manner.

We staged 'drop-in' sessions in the waiting room of our clinic. Patients currently receiving treatment and carers were offered demonstrations and explanations of the treatment process by treatment radiographers using PEARL. No specific diagnosis or stage was targeted. Immediately following the discussion, feedback comments were invited and captured using a 'free text' questionnaire. Post processing split these responses into common themes and where appropriate, multiple comments were scored per patient.

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