

# Use of virtual reality to train dental professionals

<b>Submission date</b> 03/02/2020	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
<b>Registration date</b> 17/02/2020	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 28/10/2021	<b>Condition category</b> Oral Health	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

In England, the population is ageing and people are retaining their teeth for longer. Dental professionals are increasingly treating patients with multiple illnesses. It is therefore important to improve dental professionals' communication during dental visits in order to help increase older people's compliance with preventive advice and routine dental attendance. Simulation technology could be an ideal way to train dental professionals' on appropriate practice and communication to these groups of patients. Virtual reality (VR) has improved clinical practice but it has not been used to simulate dental care, which is a unique experience. The aim of this study is to test the use and acceptability of a virtual reality training tool which mimics the visual, physical and auditory experience of an older person with complex needs (some associated with age) visiting a dentist and receiving oral health advice.

### Who can participate?

Training dental professionals from the University of Portsmouth Dental Academy, and qualified dental professionals

### What does the study involve?

Participants complete a questionnaire to test their level of confidence in providing preventive care and instruction to increasingly frail dental patients who may have cognitive and age-related challenges. The simulation uses VR goggles and runs for 5 minutes. It is carried out at the University of Portsmouth or where the participants work (potentially two NHS practice sites). After the simulation a questionnaire is used to evaluate the professionals' confidence again and different aspects of the tool such as its usefulness and acceptability and ways it can be adapted or improved.

### What are the possible benefits and risks of participating?

The benefits would be additional knowledge delivered by the training. Risks of the study are minimal. They include the inconvenience of participation. The questionnaires and simulation will be related to participants' experiences of the VR simulation, this could lead to them feeling uncomfortable.

Where is the study run from?

1. William Beatty Building (UK)
2. Oxfordshire Priority Dental Service (UK)
3. Southampton NHS Treatment Centre (UK)

When is the study starting and how long is it expected to run for?

April 2018 to April 2020

Who is funding the study?

1. Oral and Dental Research Trust (UK)
2. Solent NHS Trust (UK)

Who is the main contact?

Dr Kristina Wanyonyi

k.wanyonyi@qmul.ac.uk

## Contact information

### Type(s)

Scientific

### Contact name

Dr Kristina Wanyonyi

### ORCID ID

<https://orcid.org/0000-0003-2320-6805>

### Contact details

Research Lead/Senior Lecturer in Dental Public Health

Departmental Research Degrees Coordinator

NIHR CRN Wessex Oral and Dental Specialty Lead

University of Portsmouth Dental Academy

William Beatty Building

Hampshire Terrace

Portsmouth

United Kingdom

PO1 2QG

+44 (0)23 9284 5746

k.wanyonyi@qmul.ac.uk

## Additional identifiers

### Clinical Trials Information System (CTIS)

Nil known

### Integrated Research Application System (IRAS)

253855

### ClinicalTrials.gov (NCT)

Nil known

**Protocol serial number**

CPMS 40603, IRAS 253855

## Study information

**Scientific Title**

The use of virtual reality as a training tool to improve preventive dental practice for increasingly frail dental patients: a pilot study with dental professionals

**Study objectives**

In England, the population is ageing and people are retaining their teeth for longer (Steele et al., 2012). Dental professionals are increasingly treating patients with multiple comorbidities. It is therefore important to improve dental professionals' communication during dental visits in order to help increase older people's compliance with preventive advice and routine dental attendance (Borreani et al., 2008, British Dental Association, 2003).

Simulation technology could be an ideal way to train dental professionals' on appropriate practice and communication to these groups of patients. Virtual reality (VR) has improved clinical practice (McGaghie et al., 2010), however, it has not been used to simulate dental care, which is a unique experience.

The aim of this study is to test the use and acceptability of a virtual reality training tool which mimics the visual, physical and auditory experience of an older person with complex needs (some associated with age) visiting a dentist and receiving oral health advice.

**Ethics approval required**

Old ethics approval format

**Ethics approval(s)**

Approved 18/01/2019, University of Portsmouth Science Faculty Ethics Committee (Science Faculty Office, University of Portsmouth, St Michael's Building, White Swan Road, Portsmouth, PO1 2DT, UK; Tel: +44 (0)23 9284 3379; Email: ethics-sci@port.ac.uk), REC ref: 18/NS/0138

**Study design**

Non-randomised; Interventional; Design type: Prevention, Process of Care, Education or Self-Management

**Primary study design**

Interventional

**Study type(s)**

Other

**Health condition(s) or problem(s) studied**

Training dental professionals

**Interventions**

Study design: This is a before and after study involving the testing of a simulation training intervention with a baseline questionnaire and a follow-up questionnaire after the simulation.

Simulation developmental: Researchers at the University of Portsmouth's Centre for Technology and Dental Academy will build and model the dental environment into a VR aperture. This will be built into a portable device which can be worn to experience the VR environment by training students.

Study conduct: A cohort of UPDA students and qualified dental professionals (n= 50) who have consented to take part will experience three stages of the study.

Stage a) Baseline questionnaire. This semi-structured questionnaire will test the level of confidence in providing preventive care and instructions to and increasingly frail patients who may have cognitive and age-related challenges.

Stage b) Experimental/Simulation: The participants will experience the simulation environment using VR goggles. This will either be carried out in the Dental Academy or in selected where the participants work (NHS practice sites)

Stage c) Post simulation questionnaire: After this simulation, participants will be given and will be asked to undertake the follow-up questionnaire which will evaluate their confidence again and aspects of the tool e.g its usefulness and acceptability, ways it can be adapted/improved and ascertain their confidence in delivering preventive advice to this target group.

### **Intervention Type**

Device

### **Phase**

Not Applicable

### **Primary outcome(s)**

1. Confidence levels in providing care to an increasingly frail patient measured using a questionnaire pre and post simulation (simulation is 5 min)
2. Views on acceptability and improvements of the tool measured using a questionnaire at the end of the study

### **Key secondary outcome(s)**

There are no secondary outcome measures

### **Completion date**

30/04/2020

## **Eligibility**

### **Key inclusion criteria**

Dental professionals training at the University of Portsmouth Dental Academy and qualified dental professionals working in NHS community dental services settings who provide dental care to patients in the full age spectrum

### **Participant type(s)**

Health professional

### **Healthy volunteers allowed**

No

**Age group**

Adult

**Sex**

All

**Total final enrolment**

39

**Key exclusion criteria**

Dental professionals training at the University of Portsmouth Dental Academy and qualified dental professionals working in NHS community dental services settings who do not provide dental care to patients in the full age spectrum

**Date of first enrolment**

21/01/2019

**Date of final enrolment**

01/08/2019

**Locations****Countries of recruitment**

United Kingdom

England

**Study participating centre****William Beatty Building**

Hampshire Terrace

Portsmouth

United Kingdom

PO1 2QG

**Study participating centre****Oxfordshire Priority Dental Service**

Astral House

Granville Way

Bicester

United Kingdom

OX26 4JT

**Study participating centre**

**Southampton NHS Treatment Centre**  
Care UK  
Level D R.s.h Hospital  
Brintons Terrace  
Southampton  
United Kingdom  
SO14 0YG

## Sponsor information

### Organisation

University of Portsmouth

### ROR

<https://ror.org/03ykbk197>

## Funder(s)

### Funder type

Government

### Funder Name

Oral and Dental Research Trust

### Funder Name

Solent NHS Trust

### Alternative Name(s)

Solent NHS

### Funding Body Type

Government organisation

### Funding Body Subtype

Trusts, charities, foundations (both public and private)

### Location

United Kingdom

## Results and Publications

## Individual participant data (IPD) sharing plan

The datasets generated and/or analysed during the current study during this study will be included in the subsequent results publication

## IPD sharing plan summary

Other

## Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Abstract results</a>	Presented at 2020 IADR/AADR/CADR meeting	01/01/2020	28/10/2021	No	No