

# A quality improvement programme for panoramic radiography

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|----------------------------------------|---------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <b>Submission date</b><br>24/04/2012   | <b>Recruitment status</b><br>No longer recruiting | <input type="checkbox"/> Prospectively registered<br><input type="checkbox"/> Protocol            |
| <b>Registration date</b><br>30/04/2012 | <b>Overall study status</b><br>Completed          | <input type="checkbox"/> Statistical analysis plan<br><input checked="" type="checkbox"/> Results |
| <b>Last Edited</b><br>11/08/2016       | <b>Condition category</b><br>Oral Health          | <input type="checkbox"/> Individual participant data                                              |

## Plain English summary of protocol

### Background and study aims

Radiography is an essential part of dental practice, with few patients undergoing a course of treatment without having at least one x-ray taken. However, there is some evidence that large x-rays taken outside the mouth not only do not give much useful information to the dentist when formulating a definitive treatment plan but that they also vary greatly in quality. As exposure to x-rays carries with it an associated risk to the patient, it is essential that these x-rays be taken only when necessary and that their quality should be of the highest standard.

This study aimed to determine whether long-distance education could improve the quality of panoramic x-rays taken by general dental practitioners, not only from the technical aspect in correctly positioning the patient prior to the x-ray being taken but also in the processing of the film to provide a clinically acceptable film.

### Who can participate?

The participants in this study were general dental practitioners who routinely took panoramic x-rays on all new patients attending their practice for routine treatment and these were taken only on dentate patients who were over the age of 18.

### What does the study involve?

Forty general dental practitioners were randomly divided into two groups, an active and a control group. Each dental practitioner provided 20 panoramic radiographs for the researcher to evaluate with regard to technical and processing faults apparent on the x-rays. The active group provided 20 x-rays for the researcher to evaluate. The first five were examined for technical and processing faults and were returned to the practitioner describing the faults and giving instructions on how to correct those faults with a request to act on the recommendations. The second five were treated in the same manner, as were the final ten x-rays. The control group provided 20 films but only received evaluation after all 20 films had been received.

Eight weeks later a reassessment of film quality was undertaken with the practitioners providing a further ten x-rays. The researcher was then able to evaluate the effectiveness of distance education in the short term and the effect of the intervention in the medium long term.

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

The benefits of this study were:

1. Educating the dental practitioner to take an acceptable x-ray in the first instance, which eliminated the possible necessity for a retake. This has both a financial and a time-saving benefit to practitioner and patient alike.
  2. Provided an appreciation of the deleterious effect of spent processing chemicals, which can lead to a poor image that would not be of any diagnostic benefit in treatment planning.
  3. X-rays that are acceptable from a technical and processing view will avoid the need for retakes, thereby reducing patient radiation exposure.
- There are no risks attached in the participation of this study.

Where is the study run from?

This study has been run from the Dental School, Manchester University.

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

The study ran from January 2004 to January 2008.

Who is funding the study?

AXA PPP Healthcare.

Who is the main contact?

Dr Michael Rushton.

## Contact information

### Type(s)

Scientific

### Contact name

Dr Michael Rushton

### Contact details

Well Farm House  
Well Lane  
Little Budworth  
Tarporley  
United Kingdom  
CW6 9DA

## Additional identifiers

### Protocol serial number

5439/1612

## Study information

### Scientific Title

A quality improvement programme for panoramic radiography: a cluster randomised controlled trial

### Study objectives

Null hypothesis: There would be no improvement in the technical and/or processing quality of dental panoramic radiographs of the practices as a result of feedback information by the researchers in the immediate short and moderate long term. This was tested against the alternative hypothesis:

H<sub>1</sub>: There would be an improvement in the technical and/or processing quality of dental panoramic radiographs of the practices as a result of feedback information by the researchers in the immediate short and moderate long term.

### **Ethics approval required**

Old ethics approval format

### **Ethics approval(s)**

Ethical approval was applied for this study from the Manchester Local Research Ethics Committee who advised that as the data was anonymised and unlinked, there were no apparent ethical issues identified. Hence no approval was required.

### **Primary study design**

Interventional

### **Study design**

Cluster randomised controlled trial

### **Study type(s)**

Diagnostic

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

Primary dental healthcare

### **Interventions**

Forty general dental practitioners were divided into two groups of twenty, an active and a control group. Each dental practitioner provided twenty panoramic radiographs for the researcher to evaluate with regard to technical and processing faults apparent on the x-rays.

The active group provided 20 x-rays in tranches of 5, 5 and 10 for the researcher to evaluate. The first five were examined for technical and processing faults and were returned to the practitioner describing the faults and giving instructions on how to correct those faults with a request to act on the recommendations. The second tranche of five were treated in the same manner as was the final 10 x-rays.

The control group provided 20 films but only received evaluation after all twenty films had been received.

### **Intervention Type**

Other

### **Phase**

Not Applicable

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

Improvements were found in both short term and medium long term in participants that received feedback on how to correct the faults found on the radiographs

**Key secondary outcome(s)**

The control group showed no improvement in improving technical faults but did in improving processing faults

**Completion date**

01/01/2008

## Eligibility

**Key inclusion criteria**

Dental practices that took panoramic radiographs on all new patients over the age of 18 attending for the first time

**Participant type(s)**

Patient

**Healthy volunteers allowed**

No

**Age group**

Adult

**Lower age limit**

18 Years

**Sex**

All

**Key exclusion criteria**

Specialist dental practices involved in orthodontics

**Date of first enrolment**

01/01/2004

**Date of final enrolment**

01/01/2008

## Locations

**Countries of recruitment**

United Kingdom

England

**Study participating centre**  
**Well Farm House**  
Tarporley  
United Kingdom  
CW6 9DA

## Sponsor information

**Organisation**  
AXA PPP Healthcare (UK)

**ROR**  
<https://ror.org/02t15ae18>

## Funder(s)

**Funder type**  
Industry

**Funder Name**  
AXA PPP Healthcare (UK)

## Results and Publications

**Individual participant data (IPD) sharing plan**

**IPD sharing plan summary**  
Not provided at time of registration

### Study outputs

| Output type                     | Details  | Date created | Date added | Peer reviewed? | Patient-facing? |
|---------------------------------|----------|--------------|------------|----------------|-----------------|
| <a href="#">Results article</a> | results: | 01/04/2013   |            | Yes            | No              |