

RESEARCH SUMMARY

Radiographic processing in general dental practice

Assessing the quality of radiographic processing in general dental practice

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Objectives

To determine if a commercial device (*Vischeck*) for monitoring film processing quality was a practical option in general dental practice, and to assess processing quality among a group of GDPs in the West Midlands with this device.

Design

Clinical evaluation.

Setting

General dental practice, UK, 2004.

Method

Ten GDP volunteers from a practice based research group processed *Vischeck* strips (a) when chemicals were changed, (b) one week later, and (c) immediately before the next change of chemicals. These were compared with strips processed under ideal conditions. Additionally, a series of duplicate radiographs were produced and processed together with *Vischeck* strips in progressively more dilute developer solutions to compare the change in radiograph quality assessed clinically with that derived from the *Vischeck*.

Results

The *Vischeck* strips suggested that at the time chosen for change of processing chemicals, eight dentists had been processing films well beyond the point indicated for replacement. Solutions were changed after a wide range of time periods and number of films processed. The calibration of the *Vischeck* strip correlated closely to a clinical assessment of acceptable film quality.

Conclusions

Vischeck strips are a useful aid to monitoring processing quality in automatic developers in general dental practice. Most of this group of GDPs were using chemicals beyond the point at which diagnostic yield would be affected.

COMMENT

This paper is very timely as it highlights the extent of processing problems in general dental practices. These problems are not unique to the West Midlands as there is ample research evidence that radiographic processing in general dental practice is frequently less than ideal. Irrespective of whether the method of processing is either automatic or manual, there is often a tendency not to replace processing solutions frequently enough and, in some cases, to increase exposure factors to compensate for poor processing practices.

Within the legislation relating to the use of ionising radiation there is a requirement for practitioners to develop quality assurance programmes. The development of a dedicated processing quality assurance programme requires correctly prepared processing chemistry along with the control of both developer temperature and time. However, additional periodic monitoring of processing is a necessary requirement but one that is infrequently adopted.

This small study has proved the effectiveness and simplicity of a commercially available quality control test device with which to monitor radiographic film processing quality and demonstrates that the equipment required need not be prohibitively expensive nor be time-consuming. More importantly, the research demonstrates how a simple monitoring device, when routinely used, can rapidly alert the practitioner to those variations in radiographic density which cause a significant deterioration in clinical image quality.

This well conducted study is welcomed as it will raise the awareness of poor processing within general dental practice while, at the same time, presenting a simple method to correct it. Unfortunately, many research studies have shown that simply highlighting poor processing has met with limited success. Hopefully this simple and inexpensive device will influence dentists' willingness to carry out processing quality control and ensure that every radiograph exhibits acceptable quality for the benefit of patient and dentist alike.

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IN BRIEF

- The quality of processing is critical to the effective use of radiographs.
- A large proportion of this group of GDPs were producing radiographs which had been processed in weak solutions.
- The point at which solutions require changing is difficult to predict using either time or numbers of radiographs processed.
- Use of a simple monitoring device enhances quality assurance in dental radiography.