Poor-quality radiographs make diagnosis difficult or sometimes impossible. Rather than try and formulate a diagnosis or treatment plan from a poor radiograph, a decision should be made at an early stage to assess whether the exposure needs to be repeated or not. Panoramic radiographs have a number of inherent faults due to the mechanism by which the image is created, they are also hugely reliant on the positioning of the patient.

**STAGE 1: Assess the quality of the radiograph**

**Figure 1** shows a number of indicators that can help in assessing the image quality of a radiograph. The red line indicates the occlusal plane, this should follow a shallow arc, too flat and the patients’ chin is too high; and too deep (or “smiley”) and the patients’ chin is down on their chest. The blue arrows indicate the widths of the right and left ascending rami, these should be approximately the same size; a difference may indicate the patient is rotated in the machine, causing more magnification on one side. The third indicator is the ghost shadows of the angles of the mandible, again these should be at approximately the same level. In this example the line on the left is
higher that the line on the right, indicating that the head is tilted to the left. Finally, the green highlighted area shows an area of the image that is much darker than its surroundings; this is an air space shadow caused by air between the hard palate and the dorsum of the tongue. As can be seen, this often lies over the apical area of the maxillary teeth, making diagnosis difficult. By getting the patient to push their tongue against the roof of their mouth during exposure, this shadow can be reduced or eliminated. Exposure factors should be assessed, and be such that the contrast levels allow enamel, dentine and bone should be distinguishable.

**STAGE 2: Assess the whole radiograph in a logical fashion**

One approach to assessing the radiograph is what could be described as the ‘windscreen wiper’ method, whereby the clinician casts their eyes from left to right and right to left, in an attempt to cover all the detail. A preferred method, as illustrated in Figure 2, is to assess the radiograph in an ‘ever-decreasing spiral’. Starting at the right condyle, the assessment progresses along the lower border of the mandible, right round to the left condyle. From here, the assessment crosses the maxilla taking in the maxillary antra and the hard palate. The next sweep starts at the right sigmoid notch and carries around the mandible again, this time assessing the periapicals and the alveolar bone. From the left sigmoid notch, the eye is then cast across the peri-apical tissues of the maxillary teeth back to the starting point. The final sweep involves looking at each of the teeth and the alveolar bone.

**STAGE 3: Remember the normal anatomy**

Figures 3 and 4 (cropped panoramic images) show some of the normal anatomy seen on a panoramic radiograph. There are also a number of soft tissue shadows that appear on the image, and also a number of ‘ghost shadows’ that appear as a result of how the panoramic image is captured.

**Conclusion**

One of the main problems with panoramic radiographs is that often normal anatomy or one of these ‘ghost shadows’ can look like pathology. By assessing the quality of the radiograph, reading the radiograph in a logical fashion and remembering the normal anatomical images, it is possible to get the most from the radiograph.