

# BDJ Team CPD



## CPD questions May 2022

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### Article: The value of bitewing radiographs in the management of carious primary molars

FEATURE



#### The value of bitewing radiographs in the management of carious primary molars

**Aneeka Anwar, Alexander James Keightley, Elizabeth Mary Roebuck and Stephen Turner** highlight the role of bitewing radiographs in detecting hidden proximal caries.

CPD questions

**Abstract** Bitewing radiographs (BRs) are underutilised by children and adolescents. This study aimed to assess the prevalence of proximal caries in children and adolescents using BRs. The study included 488 proximal surfaces were assessed. Bitewing detected 4.6% of additional proximal carious lesions (ACDLs). As a result, 4.6% of proximal carious lesions were undetected using the Fisher's exact test. In a total of 488 proximal carious lesions, 22.6% were undetected using the Fisher's exact test. Sensitivity and specificity analyses were performed.

**Introduction** Bitewing radiographs (BRs) are underutilised by children and adolescents. This study aimed to assess the prevalence of proximal caries in children and adolescents using BRs. The study included 488 proximal surfaces were assessed. Bitewing detected 4.6% of additional proximal carious lesions (ACDLs). As a result, 4.6% of proximal carious lesions were undetected using the Fisher's exact test. In a total of 488 proximal carious lesions, 22.6% were undetected using the Fisher's exact test. Sensitivity and specificity analyses were performed.

**Conclusion** Bitewing plays a vital role in proximal caries detection of primary molars.

**Keywords** bitewing radiograph, proximal caries, carious lesions, children, adolescents, Fisher's exact test, sensitivity, specificity, bitewing radiographs.

**Introduction** Bitewing radiographs (BRs) are underutilised by children and adolescents. This study aimed to assess the prevalence of proximal caries in children and adolescents using BRs. The study included 488 proximal surfaces were assessed. Bitewing detected 4.6% of additional proximal carious lesions (ACDLs). As a result, 4.6% of proximal carious lesions were undetected using the Fisher's exact test. In a total of 488 proximal carious lesions, 22.6% were undetected using the Fisher's exact test. Sensitivity and specificity analyses were performed.

bitewing radiograph, it is assumed the finger is under-represented.

In addition to the use of radiological studies, visual inspection (VI) is the most commonly used method of caries detection in clinical practice. However, its reliability with the epidemiological studies, VI alone has limitations in detecting proximal caries. This is particularly so for the tooth-to-tooth contact of primary molars because of their wider contact area, buffering primary caries, which is more aggressive in progression.<sup>1</sup>

Similar to occlusal lesions on occlusal caries, proximal caries may progress into dentine under occlusal or minimally detectable contact and occlusal contact. These clinically undetectable carious lesions are often not detected until advanced stage when the marginal edge of the dentine (MEL) is visible.

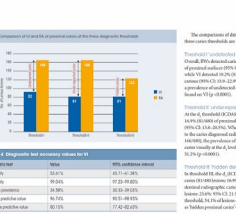
As a primary level, an under-diagnosis of proximal caries can have a significant impact on the ability to manage progressing carious lesions and restore. Furthermore, late diagnosis of proximal caries can have a significant impact on the ability to manage progressing carious lesions and restore.

In fact, the management of caries remains the common reason for a child to go to a general dentist, with an estimated cost of over £20 million for the National Health Service in the UK.<sup>2</sup> As an epidemiological tool, the results of the survey are used to inform capacity and service planning and therefore are under- and over-diagnosis of caries has an impact on the management of caries.

Table 1 Clinical and radiographic techniques used for caries

Technique	Advantages	Disadvantages
Visual inspection	• No radiation	• Limited to visible surfaces
Bitewing radiograph	• Detects hidden proximal caries	• Radiation exposure
Fluoride release microprobe	• Detects early caries	• Expensive
Micro-Raman spectroscopy	• Detects early caries	• Expensive
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**Clinically visible cavitation of proximal caries is often not detected until an advanced stage when the marginal ridge breaks down (4 level caries)**



**When the ICDAS findings were compared with the radiographic depth of lesions, a number of interesting findings emerged.**

ICDAS	Visual Inspection	Bitewing Radiograph
0	100%	100%
1	100%	100%
2	100%	100%
3	100%	100%
4	100%	100%

As a result, 4.6% of proximal carious lesions were undetected using the Fisher's exact test. In a total of 488 proximal carious lesions, 22.6% were undetected using the Fisher's exact test.

approximately half and the prevalence of proximal caries was significantly higher in children with bitewing radiographs compared to those without bitewing radiographs.

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#### 1. Recent epidemiological surveys in the UK have:

- A. used radiographs to detect dental caries
- B. used the visual-only method at the D<sup>2</sup> level
- C. under-represented disease prevalence and severity
- D. reported over half of five-year-old children with evidence of obvious decay into dentine

#### 2. What percentage of proximal enamel lesions were undetected using visual inspection?

- A. 100%
- B. 50%
- C. 33%
- D. 75%