Early Caries Detection: The Key to Tooth Longevity
Early detection of caries can have life-long benefits for your patients. The use of multiple caries detection technologies, not just radiographs, can be of great value in the quest for early detection. While X-ray is used for diagnosis for a wide variety of diseases, its sensitivity is often lacking in the diagnosis of interproximal caries. This is where Near-Infrared (NIR) Transillumination technology excels.

NIR TRANSILLUMINATION ADVANTAGES:

- Can help detect interproximal caries often earlier than radiographs
- Provides a non-ionizing radiation diagnostic alternative
- Unlike fluorescence (which is not indicated for interproximal use or detection around restorations), this technology offers detection for occlusal, interproximal, and recurrent caries and cracks
- Offers an image instead of colors, codes, and sounds
- Images and findings are not affected by bacteria on the tooth's surface
- System needs no calibration prior to use

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For years, dentists have relied on visual inspection and bitewing radiographs for the detection of interproximal caries. Now, NIR Transillumination offers practices a higher accuracy rating than these tools.

INTERPROXIMAL DENTIN CARIES DETECTION RATE

2% Visual Inspection
96% Bitewing X-ray
99% CariVu Image

Visual Inspection = 2%
Bitewing X-ray = 96%
CariVu = 99%

A Useful Alternative to Bitewing X-rays

Caries detection and diagnostics with near-infrared light transillumination:
CLINICAL EXPERIENCES

The study suggests that "NIR Transillumination is a method that may help to avoid bitewing radiographs for diagnosis of caries in everyday clinical practice."

CASE 1

*Case courtesy of: William J. McKibben, DDS • Faculty, Esthetic Professionals, Tarzana, California; Private Practice, Long Beach, California*

In the case of interproximal caries, x-rays have limitations. For this reason, NIR caries detection is an effective adjunct to radiographic imaging methods and digital photographs.

**FIG 1.** Bitewing radiograph shows no indication of interproximal caries.

**FIG 2.** CariVu image shows darkness around composite and in the cracked region, indicating caries in both areas.

**FIG 3.** Camera image of the initial opening of the tooth shows caries into the dentin.

Disclosure: Dr. McKibben did not receive an honorarium and has no financial interests in DEXIS.
A Helpful Adjunct
Early Caries Detection: An Effective Diagnostic Aid in Determining When to Restore

**CASE 2**

*Case courtesy of: William J. McKibben, DDS • Faculty, Esthetic Professionals, Tarzana, California; Private Practice, Long Beach, California*

As demonstrated in these two cases, NIR caries detection was instrumental in the clinician’s decision to move forward with restorative procedures.

**FIG 4.** Bitewing radiograph shows no indication of caries.

**FIG 5.** CariVu image shows darkness on the mesial crossing the dentinoenamel junction, indicating caries.

**FIG 6.** Camera image of the initial opening of the tooth shows caries.
Caries Detection in Children

The ADA’s Radiographic Protocol calls for an individualized approach for various types of patients.

| Young child prior to the eruption of the first permanent tooth or mixed dentition | Young adults with transitional dentition or adolescents with permanent dentition |
| CONSIDERATIONS | CONSIDERATIONS |
| • Very low caries risk (none or occlusal restorations, and sealants) | • Moderate-to-high caries rate |
| | • Fair hygiene |
| | • Frequently postpones recall appointments |
| IMAGING PROTOCOL | IMAGING PROTOCOL |
| • Bitewings at 24-month intervals | • Bitewings at 12-month intervals |
| • Panoramic X-ray for growth and development may be advised. | • Periapical images and a panoramic exam may be advised. |

But how might NIR Transillumination change your radiographic protocols?

SEE THE FULL ADA RADIOGRAPHIC GUIDELINES
Maximizing What We Can See

“Why do we take bitewings on 16-year-olds and younger? To look for interproximal decay; we’re not looking for periodontal disease. So now, in my practice, we take CariVu images. This has become my protocol for anyone under 20 unless they’re high caries. One of the best parts of CariVu is seeing Class II lesions before you will see it on an X-ray.”

- Lou Graham, DDS, Chicago, IL

Disclosure: Dr. Graham has received an honorarium for his work with DEXIS.
Minimally Invasive Protocols

EARLY CARIES DETECTION CAN LEAD TO:
• Less invasive corrective procedures
• Smaller restorations
• Greater longevity of the tooth over patient’s lifetime

MINIMAL INTERVENTION DENTISTRY (MID) FOR MANAGING DENTAL CARIES – A REVIEW

“The aim of MID is to keep teeth healthy and functional for life. A most important element is achieved through implementing the important strategies for keeping teeth free from carious lesions. These strategies [include] early caries detection and risk assessment.”

READ THE FULL REVIEW
Clinical Operation of NIR Transillumination

By hugging the tooth and bathing it in safe, near-infrared light, CariVu’s NIR Transillumination technology makes the enamel appear transparent while porous lesions trap and absorb the light.
About the Company

DEXIS is an industry leader in developing high quality digital imaging solutions for the dental community. The company understands the clinical environment and devotes its resources to bring practical innovation and enhancements that benefit both practices and patients.

In 1997, DEXIS introduced digital radiography on laptop computers — making it the first truly portable and affordable digital X-ray system.

In 2001, DEXIS became the first intra-oral digital radiography system to be accepted by the American Dental Association into the highly prestigious ADA Seal Program.

With the release of DEXIS Platinum sensor and DEXIS Imaging Suite software for both PC and MAC, plus a variety of apps geared for today’s most-used digital devices in recent years, the company demonstrates that it keeps its pulse on the needs of the modern dental practice.

Committed to continued innovation, in 2014, the company introduced CariVu, a unique type of caries detection device, to further provide clinicians with state-of-the-art imaging solutions.

Today, DEXIS continues to offer highly awarded digital imaging systems with numerous accolades from dental researchers, well-respected dental publications, and the dental community at large.