**Dental Caries**

*An ever expanding horizon*

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**Introduction**

Dental caries continues to be a common chronic disease among various population groups. Patient care can be improved with prevention, detection, reversal and management at the earliest stage. Accuracy in the above mentioned areas would permit targeted preventive treatment, thereby significantly improving dental health and reducing the need for expensive treatment. The latest improvements and research in these core areas of dental caries have been brought out in this poster which when adopted by the clinicians will definitely help in eliminating the carious process in its bud stage.

**Objectives**

Current techniques do not have sufficient sensitivity and specificity in prevention, detection, reversal and management of dental caries. We hereby, present with latest research technologies with higher sensitivity and specificity.

**Material and Methods**

Searched articles from the Pubmed database and Dental Clinics of North America for latest researches, reviews and clinical trials. Main search involved mesh terms associated with caries, caries research, caries vaccine etc. additional search involved Bluetooth device, diagnost, gene therapy, probiotics etc as well as relevant searching of references of all the retrieved articles for possible inclusion.

**Results**

**Caries prevention**

The latest methods in caries prevention are the Bluetooth device which sends signals to the mobile device when the pH<5.5, gene therapy modifying the bacterial genetic pattern, probiotics overgrowing the pathogens, nanorobots fighting the pathogens and the use antibacterial composites.

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![Fig 1: Bluetooth device](image1)

![Fig 2: Gene therapy using adenovirus vector](image2)
Caries diagnosis

The latest in diagnosis are the optical coherence tomography, polarized raman spectroscopy studying the composition, crystallinity and demineralization, impedance spectroscopy measuring the impedance to current, laser fluorescence seen in carious lesions, electronic caries monitor measuring the resistance of enamel and near infrared imaging showing high specificity of detection for caries.
Caries reversal using the ozone which destroys the bacteria, plant extracts reversing the demineralization, nanosolutions promoting better bonding, lasers reversing caries, resin infiltration for early pit and fissure caries and tooth mousse pastes which help in early remineralization are the methods on the horizon which are proving themselves very effective.
**Caries management**

Air abrasive tooth preparation with a flow of abrasive particles at high speed, bioengineering the natural tooth invivo or invitro, ultrasonics for minimal and effective tooth removal, micro invasive procedures promoting bonding, bonded sapphire replacing the enamel giving the natural enamel the strength of ceramics and waterlase which is a combination of water and laser for better hydrodynamic efficiency are some of the future trends in caries management.
Conclusions

Exploring these various future technologies by continued research and bringing them into dental practice shows great promise to erase dental caries.

Literature


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DENTAL CARIES - AN EVER EXPANDING HORIZON
Exploring the various future facts reveals promising aids to erase dental caries

CARIES PREVENTION

BLUE TOOTH DEVICE

DENTIFRIBOTS

OPTICAL COHERENCE TONOGRAPHY

Laser fluorescence

CARIES DIAGNOSIS

Gene therapy

Natural products

Polarized Raman spectroscopy

Electronic caries monitor

Near infrared imaging

CARIES MANAGEMENT

Air abrasive tooth preparation

Micro invasive procedures

Ozone

Bio-engineering

Bonded sphere replacing enamel

Plant extracts

Resin infiltration

Ultrasonics

Waterlase

Nanosolution

CFF-ACP

CARIES REVERSAL

Blue tooth device

Dentifrióbots

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Nanosolution

CFF-ACP