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Continuing Dental Education 2 mCME Hours

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New bacterial species found in human mouth

Scientists have discovered a new species of bacteria in the mouth. The finding could help scientists to understand tooth decay and gum disease and may lead to better treatments

"The healthy human mouth is home to a tremendous variety of microbes including viruses, fungi, protozoa and bacteria," said Professor William Wade from King's College London Dental Institute. "The bacteria are the most numerous: there are 100 million in every millilitre of saliva and more than 600 different species in the mouth. Around half of these have yet to be named and we are trying to describe and name the new species."

Scientists studied healthy tissue as well as tumours in the mouth and found three strains of bacteria called Prevotella that could not be identified. Prevotella species are part of the normal microbial flora in humans and are also associated with various oral diseases and infections in other parts of the body. The researchers named the new species Prevotella histicola; histicola means 'inhabitant of tissue'.

"Interestingly, this species was isolated from within the oral tissues, both in oral cancers and normal, healthy tissue," said Professor Wade. "This confirms other work showing that oral bacteria can invade both tissues and individual cells."

Tooth decay and gum disease are the most common bacterial diseases of man and are caused by changes in the microbes normally present in the mouth. To understand these diseases better, scientists first need to know which bacteria are present in human mouths. Understanding the composition of the oral microbiota will also help scientists devise new prevention measures and treatments for oral diseases.

"A detailed description and name for each species of bacteria are needed so that different laboratories can recognise all of the bacterial species present in the mouth," said Professor Wade.. DT

Qatar dentist lured by UK smile awards

At least one regional dentist will be competing in next year's UK Smile Awards contest.

Dr Majd Habbab, who owns a private clinic in Qatar, is striving to meet the November 30th deadline for entry into the London-based competition next March.

There are ten categories in which dental professionals can compete, including sections such as best orthodontic smile, restorative smile, facial reconstruction and aesthetic technician. However, all the entrants will be chasing the coveted Smile of the Year award, which is chosen by the judges from the winning cases in each category..

"I am really excited by the prospect of having some of my best work judged by some of the leading dentists in the business," Dr Habbab said. "My technicians and I are discussing which of our cases to submit and which of the categories to enter.

"However, I would love to be competing for the top award."

The Smile of the Year award judges include top industry professionals such as Dr Christopher Orr, one of the founding members of the British Academy of Cosmetic Dentistry (BACD), Dr Neil Counihan of Eleven Orthodontics and award-winning beauty journalist, Alice Hart-Davis. . DT

Doctors return to Iraq

BAGHDAD - - A kidney specialist who fled Iraq's bombings, kidnappings and sectarian killings 20 months ago has reported back to work at his Baghdad hospital - one of some 800 doctors who have returned over the summer.

Doctors are just a tiny group among Iraq's more than 4 million refugees and displaced, but Iraq's health minister says their homecoming sends a message to other emigres that security has "improved dramatically." Still, the nephrologist, who came back from Britain in July, remains cautious. He mostly sleeps at his workplace, Baghdad's Surgical

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Tonguing has a new meaning

ATLANTA: Researchers at the Georgia Institute of Technology have developed a tongue-driven control system to help disabled people to manipulate devices like wheelchairs. The system consists of a magnet and sensors that track the movements of the tongue and send it to a receiver. DT

Flossing is good for you

LEIPZIG: A new study by the New York University has demonstrated that including flossing as part of one's oral care routine can actually help reduce the amount of gum disease-causing bacteria found in the mouth. The study examined 51 sets of twins between the ages of 12 and 21. DT

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SPS launches several new products from Carestream Health

Carestream Health, formerly known as Kodak Health Group, is celebrating its first anniversary as an independent company by focusing on international growth and introducing a spate of more than 25 new digital products and services.

Samir Photographic Supplies (SPS), the KSA partner of Carestream Health will be a part of this celebration as it introduces some of healthcare industry's latest innovations in the Kingdom.

Carestream Health has earned the trust of thousands of organizations around the world. That confidence is evident in many successful initiatives and accomplishments in recent months, including

Establishing 20 'Center of Excellence' sites featuring leading hospitals around the world that are collaborating with the company to develop the next generation of digital imaging and healthcare IT solutions.

Widening its lead in the dental market in a successful year that included shipping the affordable new KODAK 9000 3D Extraoral Imaging System.

Core businesses offer customers many choices

Carestream Health is building momentum in each of its businesses. Its Digital Medical Solutions business provides complete workflow solutions-from general radiography to specialty applications like mammography, oncology, and orthopedics-to meet the needs of all healthcare providers. Its solutions facilitate the transition to digital by improving exam workflow, delivering high-resolution x-ray image quality, consolidating patient information, and enhancing communication among care providers, thereby answering the challenges of rising medical costs while improving patient care.

Carestream Health's customized, scalable solutions-including CARESTREAM RIS/PACS, Information Management Solutions, computed radiography, digital radiography and services-seamlessly integrate images and patient information for processing, diagnosis, sharing and storage.

Carestream Health also holds the No. 1 global market position for medical films. The company's Medical Films & Printing Solutions business provides market-leading x-ray and mammography film and laser imagers for printing patient medical images.

The Dental Systems group continues expanding its global leadership as a premier provider of advanced dental digital imaging systems and practice management solutions. Another key business-the Molecular Imaging Systems group-develops digital imaging systems, imaging agents, film and accessories for the life science research and drug discovery markets. DT

Philips and the Specialized Academy for Medical Training collaborate

Royal Philips Electronics and the Specialized Academy for Medical Training (SAMT) announced, that they will work together to provide medical education and training programs for young Saudi high school graduates and staff in hospitals and medical centers across the Kingdom of Saudi Arabia.PRESS RELEASE

It is expected that several programs will be implemented from October 2008 onwards, covering medical technology disciplines including X-ray, Ultrasound and Healthcare IT.

Each program will consist of a combination of E-learning modules and practical training and will be accredited by the Saudi Commission for Health Specialties.

SAMT was established in 2000 with the aim of providing high-quality medical education and training to young Saudi nationals.

The organization currently offers six Diploma programs in dental technology, medical secretary, medical laboratory, medical records and archiving, radiology technology and nursing.

Each program includes two years of academic study and six months of practical training in a healthcare environment.

'At Philips Healthcare we believe the key to improving health outcomes is to develop strong partnerships with leading healthcare organizations such as the Specialized Academy for Medical Training,' said Dick Bunschoten, Country Manager Kingdom of Saudi Arabia at Philips. 'In the Middle East, as in many parts of the world, the lack of availability of trained medical staff is an increasingly large challenge. This collaboration demonstrates Philips' commitment to solving the big issues in healthcare, while at the same time actively seeking to respond to the Saudi Community call to develop, train & educate the future Saudi generations in the latest Healthcare Technologies & Solutions.'

In addition to its Diploma program, SAMT also provides a combination of Continuous Medical Education (CME-accredited) courses and workshops.

It operates at the moment from five locations in the Kingdom - Riyadh, Medina, Jeddah, Qassim and Taif and is planning to open additional facilities in the coming years. Currently more than 1000 students enrolled on its courses.

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Medical check-ups not high on UAE residents' list of priorities

A person should aim to be healthy, wealthy and wise - but is it followed in that particular order?

Healthcare may be taking a back seat to one's expenses, as lower income earners are fighting the rising costs of daily expenses. It was recently announced that the cost of medicines will rise this October, adding a further burden to residents' pockets.

In a recent Gulf News poll, 58 per cent of respondents said they would get their medicines from abroad, 26 per cent said they would opt to buy a cheaper brand of medicine, while the remaining 16 per cent said they were not affected by the price change.

Egyptian Magdi Ali Esmail, a court administrator, 50, said: "With the substantial rise in living expenses, a regular medical check-up is perhaps the last thing on the minds of most expatriates, especially those with low incomes. The most important thing is the health of the kids; as long as they are fine and we can get them the right medical treatment when they get sick then me and my wife will be satisfied.

"I think making it compulsory is unnecessary because some expatriates will undergo medical check-ups in their own countries as they have more trust in their own doctors and the cost will be much more affordable."

Kinan Baroudi, Syria, Group Sales Manager, 33, only goes for a general check-up if he feels sick, or every six months for a dental appointment.

"Medical check-ups shouldn't be mandatory. You cannot control people's freedom, and they should be able to go to a hospital of their own free will. Public hospitals and authorities however, are advancing and the standard of medicine and technology used across the UAE far exceeds the USA in a lot of ways. Facilities in hospitals are expensive, but everyone is covered."

Sania Shakil, a distribution account manager from Pakistan, 37, said: "I get a check-up once every three months and I think it should be compulsory for everyone to have one regularly. However, it should be covered by the employee's administration so that people will be encouraged to get a check-up. Hospitals offer very good facilities and it is difficult to see the same standard of services and hygiene at private clinics." DT

UN report says 33.2 million people living with HIV

From news reports

NEW YORK/LONDON: An estimated 33.2 million people worldwide were living with HIV as of December 2007, according to a UN report released in June. The report, prepared by UN Secretary-General Ban Ki-moon, said that the annual rate of new HIV infections appears to have decreased over the last decade. “Since 2006, progress in containing the HIV epidemic is now being seen in nearly all regions of the world,” the report states. “The world is staring to reap the benefits of the unprecedented investments made during the present decade in responding to the HIV epidemic.”

In 2007, an estimated 2.5 million people were newly infected, down from 3.2 million in 1998, while the annual number of Aids deaths has declined from 3.9 million in 2001 to 2.1 million in 2007. Antiretroviral coverage reaches a number of 3 million people in low-and middle-income countries.

The Red Cross and Red Crescent (IFRC) has warned that despite these efforts, the Aids epidemic should be classified as a disaster in some countries. Much of the money spent on Aids is not reaching those in need, IFCR officials told the BBC in London. DT

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Hospital, because he fears being attacked en route to his hometown, an insurgent stronghold north of Baghdad. He refused to give his name for publication because he still fears being targeted. For every doctor who comes back, nine stay away.

Some 8,000 physicians, most of them specialists, have abandoned jobs at government health centers since the U.S.-led invasion in 2003, most seeking refuge abroad and a few hundred heading to the relative safety of Iraq's Kurdish region. Many ran from a violent campaign by extremists and crime gangs that targeted Iraq's elite. Their departure has further crippled a health care system plagued by corruption, mismanagement and a lack of equipment and drugs.

Only four of 10 elevators work at the 17-story Surgical Hospital, and patients wait a month for root canal treatment at a Baghdad dental hospital because surgeons lack electricity and anesthetics.

Health Minister Dr. Salih al-Hasnawi said getting doctors back is key to turning the situation around. Al-Hasnawi has floated the idea of turning Baghdad's Medical City, a five-hospital complex near the Tigris River, into a safety zone for visiting emigre specialists.

He's even come up with a catchy name - the "White Zone" - similar to Baghdad's fortress-like "Green Zone" for international staff. Al-Hasnawi promoted the plan in a meeting in Jordan with Iraqi doctors. "Our proposal is that the military can provide security for this complex, and we bring doctors from outside Iraq because it is a secure area," he said in an interview at the Rashid Hotel in the Green Zone, where he and other Iraqi Cabinet ministers still live for security reasons. "This is a first step in bringing the doctors home," he said.

Iraq needs 100,000 doctors and has only 15,500, said Adel Muhsin, a top Health Ministry official. Egypt and Jordan, paupers compared to oil-rich Iraq, have almost four times as many - 24 per 10,000 residents to Iraq's six per 10,000. Iraqi rheumatologist Dr. Muneeb al-Huwaish, who has settled in the Jordanian capital of Amman, said he likes the idea of the White Zone, but that it's not enough to lure him back. "When you leave the hospital and go home, you don't know what will happen to you," said the 61-year-old, who fled Iraq in late 2004 after being seized by a dozen gunmen outside his Baghdad clinic.

During a struggle, the abductors broke his right arm with a rifle butt, but released him five days later for $40,000 in ransom. Al-Huwaish's experience isn't unusual. In the past five years, Iraq's doctors, professionals and academics have been targeted by militants trying to widen chaos or by extortion gangs going after the wealthy. Since 2003, at least 620 medical professionals, including 134 doctors, have been killed and many more threatened. "Simply, the goal is to destroy Iraq," Muhsin said. DT

Dear Doctors

The Emirates Medical Association Dental Society have great pleasure to inform you that we in cooperation with the Sharjah Dental School is organizing the "2nd Sharjah Dental College & the14th EMA international Dental conference" from 14th to 17th October 2008 at Sharjah University, Dental school.

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3. Oct 15th to 17th, 2008 – Conference – Fees – Students Dhs. 350/- (provided their student ID), EMA Valid members – Dhs. 450/- (please provide the ID), Non members – Dhs. 600/-

Please do not hesitate to contact in the following address for any more queries or information:

If you are interested please book your seat at the earliest

Thank you and waiting for your kind response

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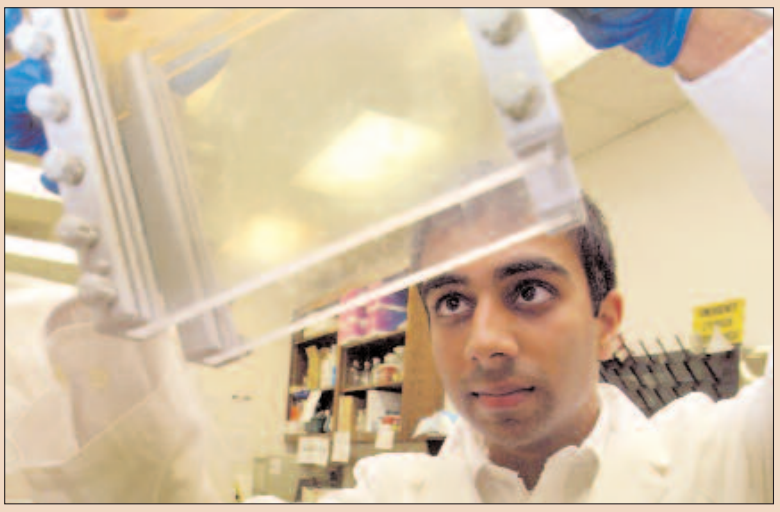
Blue lights stop oral tumours growing

Amy Connell & Daniel Zimmermann
MCG & DTI

AUGUSTA, USA/LEIPZIG: The blue light used by dentists to harden dental fillings could also help to treat cancer, according to new research. A student at the School of Dentistry at the Medical College of Georgia, USA, found the light halted the growth of tumours while doing tests on mice.

Mr Alpesh Patel, who has been working with three other researchers on this project, studied ten tumour-bearing mice. He exposed half the mice to the blue light for 90 seconds a day for 12 days and left the other half untreated. When the tumours were extracted, he found there had been a decrease in the cell growth of the light-treated tumours.



Medical College of Georgia student Alpesh Patel examines how blue light stops oral cancer cells from growing. Photo: Phil Jones.

Blue light, which is used by the latest generation of light curing units in dentistry, sends wavelengths of blue-violet light to the composite, which triggers hardening. The waves produce free radicals that activate a catalyst and speed up polymerisation of the composite resin. "In oral cancer cells, though, those radicals cause damage that decreases cell growth and increases cell death," Patel said. Tissue analysis indicated an approximate 10 per cent increase in cell suicide.

"We're thinking that some day, blue light therapy may serve as an adjunct to conventional cancer therapy," Jill Lewis, dentistry professor at the college and co-researcher on this project added. "Patients may, therefore, receive lower doses of chemotherapy, which would decrease the adverse effects most cancer patients experience from standard chemotherapy regimens." DT

Hormones speed osseointegration

GRANADA: According to researchers at the University of Granada, Spain, the use of growth hormones can help to regenerate bone and hasten implant osseointegration to only two weeks. The research obtained the direct biochemical joint between the raw bone and the surface of the implant irrespective of any mechanical joint mechanism. DT

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Toothpaste found too pricey for the poor

From news reports

LONDON: Fluoride toothpaste is prohibitively expensive for the world's poorest people, a study published in *Globalization and Health* has revealed. A team of researchers compared the relative affordability of fluoride toothpaste in 48 countries and found that the poorest populations of developing countries have the least access. Fluoride toothpaste is widely used as a method of preventing dental decay, but currently only 12.5 per cent of the world benefits from it.

The researchers believe that the low-use of fluoride toothpaste is due to its cost, which is too high in some parts of the world. The results showed that in different income groups in various countries, as the per capita income decreased, the proportion of income needed to purchase a year's supply of toothpaste increased; the poorest in each country being the hardest hit.

"Steps should be taken to make fluoride toothpaste more affordable and more accessible," Ann Goldman, School of Public Health and Health Services at the George Washington University, USA, and member of the research team commented. "Because of the importance of fluoride toothpaste in preventing tooth decay, it must be made more available to the world's poorest populations."

Her team suggest that this can be done by exempting fluoride toothpaste from taxation, encouraging the local manufacture of fluoride toothpaste and persuading multinational manufacturers to implement different pricing policies for poorer countries. DT

Vitamin D crucial for infants' oral health

WINNIPEG: Low concentrations of Vitamin D during pregnancy may lead to tooth enamel defects and early childhood tooth decay, researchers at the University of Manitoba, Canada, have found. In the study which was recently presented at the Annual Congress of the International Association for Dental Research in Toronto, vitamin D levels of 206 women in their second trimester of pregnancy were analysed.

The researchers also examined 135 infants and found that 21.6 per cent of them had enamel defects and 33.6 per cent showed indication of early childhood tooth decay. Mothers of infants with enamel defects had lower, but not significantly different, mean vitamin D concentrations during pregnancy than mothers of infants without enamel defects. Only 21 or 10.5 per cent of the women in the study had adequate vitamin D levels.

Photo: Supri Suharjoto.

Vitamin D, which is chemically related to steroids, is found in milk, egg yolk and fat fish or is produced by activation through ultraviolet irradiation of sterols. Deficiency results in impaired bone mineralisation and leads to bone softening diseases, such as osteomalacia or osteoporosis. Latest research has indicated that it is also linked to colon and breast cancer. DT

US blames dentists for mercury waste

From news reports

WASHINGTON D.C./NEW YORK/LEIPZIG: Dentists in the US find themselves under attack from lawmakers after the US Food and Drug Administration (FDA) said that dental fillings containing mercury may pose a safety concern for pregnant women and young children. The precaution posted on the organisations website in June is a dramatic U-turn for the regulator which previously told American dentists the fillings are safe.

At a US House Government Oversight Subcommittee hearing this month in Washington D.C. representatives of the American Dental Association (ADA) and the dental industry were also asked to testify about pollution from mercury in tooth fillings and whether dentists should be required to install 'separator' equipment to keep pieces of fillings from getting into public wastewater as well as to report annually on quantities of mercury collected. Currently, dentists in only nine US states are required to use separators.

According to figures of the US Environmental Protection Agency, up to 10 tons of mercury from amalgam fillings are released into the environment each year. While the ADA says that dentistry only contributes a very small amount of mercury into wastewater, other organisations are not so sure. Michael Bender, director of the Mercury Policy Project, a watchdog group promoting the elimination of mercury use, claims that the age of amalgam is over and recent improvements in technology for the non-mercury filling have rendered the mercury tooth filling obsolete. One only has to look at the recent bans on new amalgam placement in Norwegian or Swedish dental patients to document mercury-free tooth restoratives as a viable substitute, he said.

Norway and Denmark banned mercury from fillings earlier this year while other countries like Finland and Japan have severe restrictions. Its safety has been subject of numerous reviews, including a recent one by the EU Commission's Scientific Committee that found no increased risk of systemic disease.

Researchers, however, claim that mercury vapour escapes and small amounts are passed into the bloodstream and organs. Some research suggests that this could be linked to high blood pressure, infertility, disorders of the central nervous system or Alzheimer's disease. DT

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Top marks for UK University

Penny Palmer & Daniel Zimmermann
DT United Kingdom & DTI

LONDON/LEIPZIG: The *Times Good University Guide* has rated Queen's University Belfast as the top dentistry school in the UK. The latest edition of the guide awarded the university's undergraduate course in dentistry an overall rating of 100 per cent. This year the league tables incorporated results from the National Student Survey with Queen's being given the highest student satisfaction rating of 87 per cent.

Professor Paddy Johnston, dean of the School of Medicine and Dentistry at Queen's, called it a "wonderful achievement" as "we drive towards the development of an international research-led dental school in the next few years." Each year around 40 dentists graduate from Queen's and 100 per cent are in employment six months after qualifying.

"This top ranking position recognises the dedication and commitment of the staff in Queen's Dental School," Professor Donald Burden, head of Dentistry, said. "It also highlights the high standards achieved by our dental students." He added that most of the schools' graduates will go on to work as general dental practitioners or dental specialists providing dental care for the people of Northern Ireland. DT

The Impact of Infectious Diseases on the Practice of Dentistry

Raghunath Puttaiah, U.S.A.

The article has been accredited by Health Authority - Abu Dhabi as having educational content and is acceptable for up to 2 (Category 1) credit hours. Credit may be claimed for one year from the date of subscription (20 CME hours per year).

Infectious diseases have an impact at basically three levels in dentistry. First, there is a public health component of incidence and prevalence in the community. The second level is how dental care affects medically compromised patients. Finally, there is how infectious or immunocompromised diseases impact dental healthcare workers. In this article we shall try to address these three aspects in a simple and pragmatic way.

Common Infectious Disease Impacting the Community

Common conditions are the different hepatitis-causing viruses, HIV and AIDS, and tuberculosis (TB) including multidrug-resistant TB.[1–9] While Hepatitis B, C, D and G viruses follow a bloodborne route of transmission, Hepatitis A and E are transmitted through the fecal-oral route. Contamination of food and water through improper and unhygienic handling and from contaminated water the main sources.

Hepatitis A and E virus infections are seen more commonly in developing countries. HIV infection and tuberculosis are now common conditions that must be considered as important players.[10] Other conditions such as herpetic infections, influenza and bacterial infections may have an impact on the clinicians providing care if they are infected. Although medical history should not be used in profiling patients with respect to universal/standard precautions, it plays an important role in patient protection and understanding whether the patient's health is compromised.

Hepatitis A Virus (HAV) belongs to the picornoviridae family and is an RNA virus. HAV infection causes jaundice and rarely causes death.

Among otherwise healthy adults the death rate is about 1 in 1,000, and in people over 50 years of age the rate is 27 in 1,000. The incubation period is about 4 to 6 weeks. Once a person recovers from Hepatitis A infection, the person is protected for life. A vaccine against Hepatitis A viral infection is now available in most countries. If one has not been exposed to HAV, a one-time vaccination may provide life-long immunity.

Hepatitis E viral (HEV) infection is similar in nature to the HAV infection epidemiologically except for the higher rate of infection among pregnant women in the third trimester (20% infection rate). Outbreaks are commonly seen in the South Asia, Southeast Asia, Africa, Central and South American regions among other geographic regions in the world. As of today, there is no vaccine available against Hepatitis E virus.

Hepatitis B viral (HBV) infection is caused by a DNA virus that is a hepadnavirus. Most patients with HBV infections cannot be clinically identified as being infected. About 2–7% of the population in Southern Asia, the Middle East, the Mediterranean, Eastern Europe, Russia and parts of Central and South America are infected with this virus. Certain regions in Alaska and Canada (the Tundra), South America, Africa and Southeast Asia including China are considered high in prevalence (> 8% of the population). Most of the regions in North America, parts of South America, Australia and Western Europe are considered low in prevalence (< 2% of the population).

The incubation period lasts from 45 to 160 days; therefore, it is also called "chronic hepatitis infection". Transmission can be both percutaneous and non-percutaneous, but it is primarily bloodborne. This variety of hepatitis is very contagious and has been occupationally acquired by dentists in the past. Outcomes of HBV infection are: about 90% of the infected become healthy again; about 9–10% become asymptomatic carriers or suffer from chronic, persistent hepatitis or develop active hepatitis leading to hepatocellular carcinoma and death; about 1% develop fulminant disease after infection and die.

Vaccines against HBV infections are available in most countries. The rate of infection among dentists (general practitioners and specialists included) range from 13.6% to 38.5%. Therefore, it is not an uncommon disease affecting dentists. There have been cases of dentists infecting patients with HBV. According to the Centers for Disease Control & Prevention (CDC), booster doses of the vaccine may not be necessary due to the anemnistic response and lack of evidence of previously immunized persons being re-infected (although the titers may be low after immunization, in the event of an exposure to HBV the body will show a protective immune response).

Hepatitis C virus (HCV) or the parentally transmitted non-A non-B virus is an RNA virus, usually seen in association with blood transfusions and contact with blood and other body fluids. This disease can be very debilitating and can be fatal. Over 60% of the infected may develop chronic liver disease. Of those who develop liver disease, 30–60% develop active liver disease and 5–20% cirrhosis of the liver.

HCV infection and hepatocellular carcinoma are found to be epidemiologically associated. Although a vaccine is not available, various treatments against this infection—including chemotherapy—have shown to help control the disease and reduce viral load. This virus is highly infective; therefore, healthcare providers must take adequate precautions while treating patients.

Hepatitis D viruses are a virus-like particle that is always dependent on the presence of a Hepatitis B viral infection in the patient (piggy-back virus). It may occur as a co-infection with HBV or after being infected by HBV. Mode of transmission is similar to blood and other body fluid contact.

Hepatitis G viral infection is the most recent type that has been identified. It is a bloodborne condition.

In short, hepatitis viral infections are the most insidious infections that occur among susceptible patients. Dentists must avoid contact with blood and other body fluids of patients by using adequate barrier techniques and adopting safe practices for the disposal of waste to avoid cross-infection among other patients.

Human immunodeficiency virus (HIV) is a condition where transmission occurs through contact with blood and other body fluids. This disease was identified in June 1981 and has been the plague of the 20th century. Initially, it was seen among homosexual individuals and later found its way into all segments of society including heterosexuals, women and children. This infection is on the rise in South Asia and Southeast Asia[9] while in the US infection rates are on the decline or have been stable. An initial HIV infection progresses into a more severe and debilitating condition where it is associated with a variety of other infections and is called *AIDS* or *Acquired Immunodeficiency Syndrome*.

There are many classifications for AIDS such as the Centers for Disease Control's Surveillance Definition, the Walter-Reed's Classification or the WHO's Classification. In early stages, the HIV infection may not be noticeable and may be accompanied by symptoms such as weakness, arthralgias, or even be totally asymptomatic. Upon progression, HIV infection may be associated with a variety of conditions. Some of the oral lesions associated with HIV infection and AIDS are Hairy Leukoplakia, Kaposi's Sarcoma and *Candidiasis*. It is imperative that dentists have knowledge of the clinical appearance of these oral lesions.

In addition to the oral conditions there may be systemic conditions such as protozoal infections, fungal infections, other viral infections and mycobacterial infections. Almost each of the organ systems may be involved in this infectious process as well.

Although there was a series of patients that were infected by a dentist in Florida (USA), no other cases of transmission from a dentist have been reported in the US. There have been no occupational exposures leading to HIV infection of the dentist or dental auxiliaries during dental treatment. It is absolutely essential to understand that in order to reduce the probability of seroconversion, post-exposure protocols must be followed, and this means taking antiviral drugs immediately after exposure to a patient infected with HIV.

Tuberculosis is one of the oldest infectious diseases known to humans. In the past, most countries had TB under control. But now it has reemerged in both prevalence and with a new type of a multidrug-resistant strain. Mycobacterium tuberculosis is the organism that commonly affects the lungs, but may involve most organs in the body.

Each year about 8 million people develop TB and 3 million die. TB mimics many respiratory conditions, therefore when the practitioner observes a cough of more than 3 weeks of duration and sputum possibly tinged with blood, the patient should be referred for a TB skin test and, if diagnosed with active infection, treatment prescribed. It is pragmatic to defer care for patients with active TB until the disease is controlled.[11]

In the United States, dentists can defer elective dental care until the patient is pronounced non-infectious, and all emergency dental treatments may be provided in institutions that are equipped to deal with the control of cross contamination or occupational exposure. Such facilities should include negative air pressure treatment rooms with the air vented to the outside of the building. The air conditioning and ventilation system must also be equipped with HEPA (high efficiency particulate air) filters, and during contact with infected patients personnel must use masks that have a HEPA filter.

Dentists and staff must undergo testing for the disease on a periodic basis, especially if living in endemic areas where the prevalence is high. Many healthcare institutions in the United States have made annual TB testing mandatory for their personnel and have effective TB control plans. In endemic areas, the testing may be done every six months. Similar control plans may be adopted by individual clinics for the benefit of the personnel and patients.

Medical History & Impact of Infectious Diseases in the Clinic

While taking medical history, the clinician should not discriminate against an infectious disease patient with reference to the potential of spreading the disease in the clinic.[10] The reason one should look out for patients with infectious diseases is to protect them from acquiring other infectious disease conditions as they these individuals are usually medically compromised. For some patients with active infectious disease, it may be advisable to defer routine dental care (as in tuberculosis) until the patient is deemed non-infectious.[11] Sometimes it may be necessary to differentiate between patients at risk for infections, such as patients with a history of rheumatic heart disease, where the American Heart Association recommended that antibiotic prophylaxis is necessary.[12]

All in all, one must know where the patient stands in the panorama of health and disease *before* offering treatment or even advice. Knowledge of various infectious diseases, their potential for transmission, clinical features, progression and outcomes is essential for a clinician. While speaking to patients with infectious diseases one must maintain a high level of professionalism and confidentiality in acquiring the patient's trust and confidence. If the patient is not comfortable, there is bound to be a barrier in doctor-patient communication such as information giving and seeking; the end result being an incomplete history, possible misdiagnosis, and inappropriate treatment.

A legal issue that may be associated with the patient's medical history is the completeness of the medical/dental record in the event of malpractice litigation. In the event the dentist does not pay due importance to medical history, this inaction may be construed as negligence during litigation and may affect one's right to practice dentistry.[13] Therefore, not only must the dentist possess skills in providing dental care, but must also have the acumen to address the general health of the patient and focus on the required options for general patient management.

Some Components of the Patient Assessment Record in Relation to Infectious Disease[13,14]

Identification Characteristics
Date of visit, name, age, gender, ethnic origin, marital status, address, and occupation are some of the variables that are needed. Each variable may have a bearing on the infectious disease status of the patient. For example, military personnel may be exposed to a

different variety of infectious diseases based on their history of residing in multiple geographic regions. Certain ethnic populations may have a predilection to infectious diseases that may not be common locally (sickle-cell anemia). The date when the history was taken may also have a bearing on the time of occurrence and progression of disease.

History of Illness (Past & Present) History of trauma or other medical conditions that involved hospitalization and invasive surgery requiring blood transfusion, blood dyscrasias, immunosuppressive therapy, chemotherapy and radiation therapy that may alter the immune response of the patient must be recorded and dental treatment provided accordingly. Patients with chronic diseases such as diabetes mellitus and cancer may be more likely to fall sick due to microbial and viral exposures and exhibit a greater probability of recurrence than healthy persons.

Family History Hereditary diseases and disorders such as hemophilia, diabetes and certain conditions affecting the nervous system may be elicited here (vertical transmission of disease, ie, parents to offspring). Certain diseases acquired through proximity and repeated exposure, such as tuberculosis, are also of importance (horizontal transmission, ie, between spouses, patients, patient to healthcare provider and vice-versa).

Social History Information on travel, sexual promiscuity, use of drugs and alcohol, personality and emotional state may also determine the level of risk of acquiring infectious diseases and possible immunosuppression as sequela.

Review of Systems

a) *Skin* Generalized itching could be commonly seen as a sign of cirrhosis prior to an occurrence of jaundice. Macules, papules, vesicles and scarring could represent the various stages of chicken pox. A variety of pigmentation conditions associated with varying levels of immunosuppression such as Addison's disease, von Rechlinghausen's disease, Peutz-Jeghers syndrome and Cushing's disease and some nutritional/micronutrient deficiencies are also possible. Body hair (the lack or loss of it) may be associated with chronic illnesses, dermatomysitis, systemic lupus erythematosis, lymphoma, cachexia, Herpes Zoster and micronutrient deficiencies.

b) *Limbs* Infectious, immunologic and neoplastic processes may be associated with joint disorders. One must consider modification of routine dental treatment so as to reduce the risk of infections in persons with prosthetic implants and total joint replacement by administering antiobiotic prophylaxis, along with seeking a possible consult from the patient's physician.

c) *Eyes* Blurred vision may be associated with diabetes mellitus and Stevens-Johnson syndrome. Some signs of hemolytic/obstructive jaundice, chronic hepatitis and cirrhosis maybe associated with icteric sclera. Herpes keratitis, the common cold, viral infections, goncoccal infections and chlamydial infection could be associated with signs of conjunctivitis.

d) *Ear, Nose & Throat (ENT)* Hearing loss may be associated with rubella or syphilis. Sinusitis with purulence may be associated with an acute episode of viral infection and a bacterial super infection. Acute viral and bacterial infections of the upper respiratory tract may be associated with pharyngitis.

e) *Respiratory Infections* Chronic bronchitis, pulmonary tuberculosis, pneumonias and viral infections in the upper respiratory tract could be associated with productive or non-productive cough. Hemoptysis may be associated with pulmonary tuberculosis. A cough of 3 weeks or more could be a sign of pulmonary tuberculosis, thus necessitating a referral for a TB skin test and a pulmonology consult to rule out active TB.

f) *Cardiovascular System* Most patients with cardiovascular disease must be handled with care. They are more likely to suffer from stress and are more likely to be immuno-compromised. Infective endocarditis prophylaxis must be applied to rheumatic heart disease, which includes organic heart disease and non-rheumatic heart conditions such as mitral valve prolapse with regurgitation. Other conditions that warrant such action are prosthetic heart valves and persons undergoing dialysis. If adequate antibiotic coverage is not provided when needed, patients may end up with infective endocarditis or other renal complications.

Apart from the above mentioned conditions, a complete list of conditions that need prophylaxis may be obtained from the American Dental Association (www.ADA.org) or the American Heart Association (www.americanheart.org). However, when in doubt, one should obtain a consult from the patient's primary care physician.

g) *GI Tract* Signs of jaundice could be related to hepatitis, cirrhosis, and hepatocellular carcinoma as sequelae to viral infections of the liver. Other than Hepatitis A, E, B, C, D and G, Epstein-Barr virus, Cytomegalovirus, Rubella, Rubeola, Coxsackie's B virus, herpes viruses and adenoviruses may also be associated with inflammation of the liver. Inflammation and infections of the liver will predispose the patient to other infections due to immunosuppression.

h) *Genitourinary Tract* Among non-infectious conditions that can affect the kidneys is hypertension leading to secondary renal damage that affects the patient's immune system. Patients with prolonged use of medications that affect renal function are also at risk of suffering from immunosuppression. Sexually transmitted diseases (STDs) may also affect the function of the genitourinary system.

i) *Endocrine System* Diabetes mellitus, thyroid abnormalities and adrenal insufficiencies also alter the patient's immune function.

j) *Hematopoitic Abnormalities* Persons undergoing long-term treatment with various medications may suffer from abnormalities that may affect the immune system. Anemias, HIV infection, leukemias and patients without a spleen (asplenic) are also important conditions that alter the immune function, and thereby the routine treatment of such patients.

k) *Neurologic System* Paresthesias and numbness not associated with trauma may be due to micronutrient deficiencies and metabolic abnormalities.

An accurate medical history helps one to understand possible medical complications that may arise out of routine dental care and to understand any special needs, plan adequate and safe delivery of routine dental care, reduce the possibility of patient injury or litigation due to oversight and build patients' confidence in the dentist.

Infectious Conditions That May Restrict the Dentist's/ Staff's Ability to Practice

In a dental setting, the dentist and the dental staff may be infected by a variety of conditions. The CDC has suggested work restrictions for Dental Health Care Workers infected with or exposed to major infectious diseases in the absence of state and local regulations.[15,16] While it may not sound very practical in a clinical situation due to an absence leading to loss of income and due to rescheduling patients or running short-handed, it may be viewed as an ethically responsible step in controlling the spread of infection to other colleagues or patients. These issues are addressed in Table 1. DT

Condition	Restriction	Return to Work
Conjunctivitis	Yes	Until discharge ceases
Staphylococcus aureus (active)	Yes	Until lesions have healed
Streptococcus group A	Yes	Until 24 hours after starting effective treatment
Viral respiratory infections	Yes	Until acute symptoms resolve
TB (active)	Yes	Until treated and deemed non-infectious
TB (+ ve skin test only)	No	Evaluate for infectious status, treat if potentially infectious or as needed
Influenza	Yes	Until DHCW is asymptomatic
Pediculosis (lice)	Yes	Until treated and is has no lice
Herpetic whitlow	Yes	Until lesions heal
Herpes, orofacial	Yes	Until lesions heal (need to be on regular anti-viral medication)
Varicella (Chicken Pox)	Yes	Until lesions dry and crust
Shingles (Herpes Zoster)	Yes	Until lesions dry and crust
Hepatitis B (HBe antigen)	Yes	Until Hepatitis-B e-antigen is negative (universal/standard precautions, expert panel and care)
Hepatitis C	No	Universal/standard precautions, aseptic techniques and care to reduce viral load
HIV/AIDS	Yes	Expert panel, UP/SP, antiviral medications
Measles	Yes	Until 7 days after rash appears
Mumps	Yes	Until 9 days after start of parotitis
Rubella	Yes	Until 5 days after rash appears
Pertussis	Yes	Until 5 days after start of effective antibiotic therapy
Diarrhea	Yes	Until symptoms resolve
Enteroviral infections	Yes	Until symptoms resolve
Hepatitis A	Yes	Until 7 days from onset of jaundice

Table 1: Suggested Work Restrictions for Dental Health Care Workers

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The importance of regular patient mailings

Dentists who want to succeed financially need dental practice marketing. A recent Wealthy Dentist survey on the topic of dental practice marketing asked dentists if they do a regular mailing to their patient base - and dentist respondents were split right down the middle! While 51% said it didn't seem worth the effort, 49% think it pays to keep in touch.

Geographic location also played a particularly interesting role. Two out of three urban dentists in this survey do regular mailings. Half of suburban dentists do. Only one in five rural dentists reports doing so.

Dentists emphasize the importance of dental web site design and internal marketing programs. "Dentists must offer these services and make it known to their patients that they do, otherwise patients will seek it elsewhere," said one dentist. "We are not recognized by the public and not marketed by organized dentistry! Why?" asked a California dentist.

Many dental practices find internal marketing to be pleasantly profitable. "Internal marketing by far is the best bang for the buck," said an Illinois dentist. "In my well established practice, internal marketing has been successful for me," agreed an Ohio dentist.

Some feel that direct mail marketing is an old-fashioned dental practice marketing strategy. "Postal mailings are a complete waste of time," declared a California dentist. "Patients ask us not to send them any more junk mail. This is not the 1970's."

Some wonder if it's worth the investment. "It seems necessary, but it's hard to tell if it pays off," complained a California dentist. "Profitable enough, but very competitive," commented a South Korea dentist.

"Frankly, I can hardly believe that half of dentists are not sending out regular mailings!" sighed Jim Du Molin, dental practice management consultant and founder of The Wealthy Dentist. "Internal marketing programs are among the most profitable, so it amazes me that so many dentists are failing to keep in touch with their regular patients." DT

Mouthwash could replace the "Toothbrush"

The dreaded dentist's drill and common toothbrush could become a thing of the past.

Scientists have created a solution that mimics the way the body forms new teeth - allowing natural repairs of holes without the need for drilling and filling.

Oral hygiene experts at Leeds Dental Institute have also made a mouthwash that kills plaque-making bacteria when a light is shone into the mouth.

They believed the new liquid could be available in less than three years - and perform the same job as using a toothbrush.

The mouthwash uses a molecule that is absorbed by bacteria in the mouth and destroys the harmful bug when it is activated by a bright light. It is deemed safe as the molecule is already used by the food industry and not harmful if accidentally swallowed.

Called photo dynamic therapy, it was developed from a cancer treatment as a way of helping disabled people look after their mouths if they were unable to use a toothbrush.

The institute's research director, Professor Jennifer Kirkham, said the mouthwash could be used to treat gum disease and would only take a hygienist to perform the treatment.

She added: 'We feel confident that this is a major step change for the future.

'It is a safe way of improving oral hygiene for those patients for whom brushing is not feasible or as an adjunct to brushing.

The new mouthwash could perform the same job as a toothbrush

'At the moment we are not saying it is going to take over brushing as the trials have not been done yet.

'We have now to look at how much it is going to cost. At the moment it is very cheap.'

The drilling alternative that uses a protein to naturally repair holes on the tooth's enamel, could be ready for patients within five years.

The compound works by creating a scaffold and attracting minerals that form enamel in the same way as the body creates teeth.

The chemical can be painted on teeth in small holes to prevent them decaying and becoming larger. The same treatment can be used to fill in tiny holes in teeth that cause them to become sensitive to hot and cold food and drinks.

The protein must pass British safety checks, which are currently underway. The institute is hopeful that trials will start early next year, with a view to getting a licence within five years. DT

Stem cells from wisdom teeth is now a reality

Early minimally invasive removal of wisdom teeth will change the practice of dentistry and advance anti-aging medicine. Paents who did not save their children's cord blood will get a second to let their children share in potential medical miracles in the future.

The Japanese have produced stem cells from wisdom tooth of ten-year-old girl.

A previous report of growing livers from stem cells found in wisdom teeth was also very exciting. Last year it was shown that stem cells could be created from human skin cells.

The National Institute of Industrial Science and Technology of Japan used the cells of a 10-year-old girl that had been frozen for three years.

The recent study also showed that stem cells were viable after being frozen for three years. Once cells are frozen three years and a hundred years are basically the same. This excellent source of stem cells is easily obtained and does not involve the moral dilemma associated with embryonic stem cells.

Research has shown that healthy stem cells tend to spread through the entire body replacing aging cells. Continual replacement of stem cells periodically throughout life will allow healthy stems cells to continually replace youthful cells with aging cells.

The stem cells from wisdom teeth are in a quiescent phase for many years before they form a tooth and are therefore less affected by contaminants it the environment such as lead, B is Phenol A and damage from radiation and other sources.

The use of stem cells from umbilical cord blood has been proven to replace bone marrow transplants when a suitable HLA match is unavailable and many parents are saving cord blood for future personal use.

It is very possible that saving of cord blood may be the greatest gift a parent can give a child. The use of stem cells is in its infancy and future uses will probably seem miraculous by today's standards.

Imagine what research can do over the next 10 or 20 years much less a lifetime of 80 years or more. Collection of stem cells from wisdom teeth is a second chance for parents who did not save umbilical cord blood. DT

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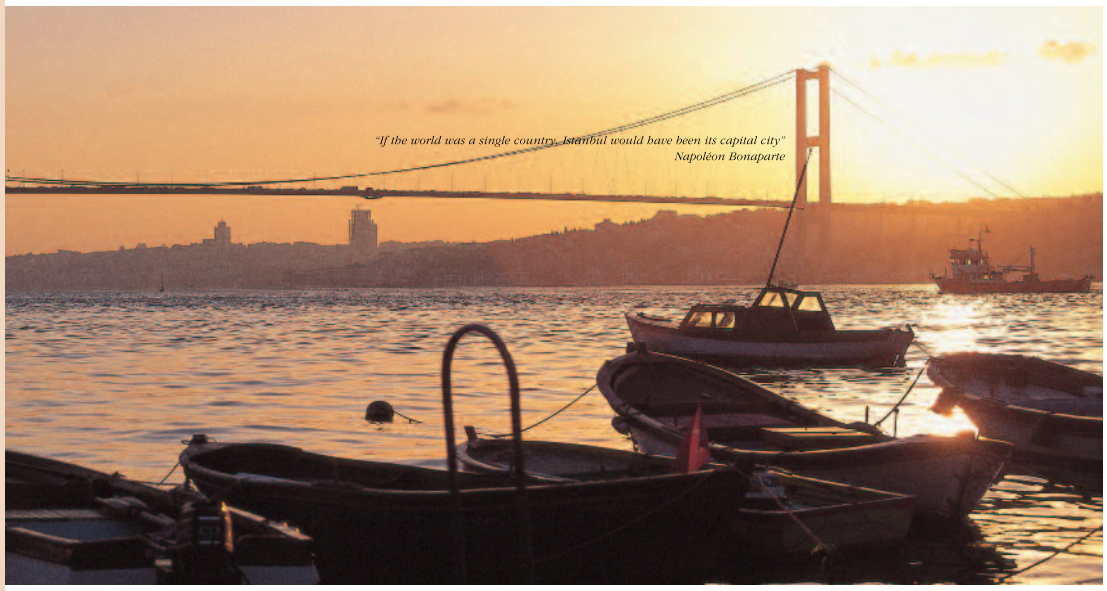

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Laser technology spots cavities before they start

It might someday help lessen dentists' reliance on the dreaded drill

Using lasers to spot troubled teeth before cavities form, researchers hope to turn the dentist's drill into a relic of the 20th century.

The technology, called "Raman spectroscopy" (RS), is not brand new. In fact, scientists in other fields have long been using it to distinguish between various chemicals, based on their unique molecular fingerprints.

But this is the first time RS has been used to identify teeth in the very earliest stages of decay, the British research team said.

"The technique we are working with can tell the difference between [healthy] enamel and decaying enamel, and so in the future, if this technology is further developed, a dentist could identify early decay using it," explained study co-author Frances Downey, a graduate student with the Biomaterials, Biomimetics & Biophotonics Research Group operating out of the Dental Institute of King's College London.

Results of what Downey and her colleagues refer to as a "preliminary" effort were reported at the Microscience 2008 conference held recently in London.

The new approach to cavity prevention might be available for practical use five years down the road, Downey said. For the moment, work has been conducted solely with already extracted teeth, rather than with actual patients.

Researchers took advantage of the fact that cavities develop when the acids produced by microorganisms found in dental plaque begin to demineralise tooth enamel and produce distinct chemical changes.

By focusing RS optical fibers on individual teeth, the authors were able to track the unique light patterns that emanate from chemical compositions on either healthy or decaying enamel.

Theoretically, such a process could quickly spot tooth decay at a much earlier stage than the current screening standard, which is based on visual exams and X-rays.

The result of such early detection might be cavity prevention, not repair, the researchers said. In essence, sites of decay could be rematerialized with medicinal mouthwashes and fluoride varnishes, preventing the development of full-blown cavities and eliminating the need for dental drilling.

Study supervisor Dr. Frederic Festy said that larger studies involving patients are in the planning stages.

"However, that is not to say dentist drills would become obsolete," said Downey. She and her team noted that, in its current form, the screening procedure would be both expensive and time-consuming. "I think there will always be those of us who like our sweets a bit too much, and visit the dentist too infrequently, to keep them in business," she said.

But Charlie Brown, national counsel for Consumers for Dental Choice, based in Washington, D.C., hailed the innovation as an "excellent development."

"Anything that means that there might be fewer filling materials used in the mouth is a tremendously positive development," Brown said. "I salute any technology that will scan the mouth and prevent cavities before they occur, so we can try to have the least intervention in the mouth as possible." DT

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