Test may overestimate mercury exposure from amalgam fillings

A common test used to determine mercury exposure from amalgam fillings may significantly overestimate the amount of the metal released from fillings, according to University of Michigan (U-M) researchers.

Scientists agree that dental amalgam fillings slowly release mercury vapour into the mouth, but both the amount of mercury released and the question of whether this exposure presents a significant health risk remain controversial.

Public health studies often make the assumption that mercury in urine (which is composed mostly of inorganic mercury) can be used to estimate exposure to mercury vapour from amalgam fillings. These same studies often use mercury in hair (which is composed mostly of organic mercury) to estimate exposure to organic mercury from a person's diet.

But a U-M study that measured mercury isotopes in the hair and urine from 12 Michigan dentists found that their urine contained a mix of mercury from two sources: the consumption of fish containing organic mercury and inorganic mercury vapour from dental amalgams. This is an important consideration for studies seeking to determine the health risks of mercury vapour inhalation from dental amalgams, said U-M biochemist Joel D. Blum, a co-author of the paper.

About 80 per cent of inhaled mercury vapour is absorbed into the bloodstream in the lungs and transported to the kidneys, where it is excreted in urine. Because the mercury found in urine is almost entirely inorganic, total mercury concentrations in urine are commonly used as an indicator, or biomarker, for inorganic mercury from dental amalgams.

But the study by Sherman, Blum and their colleagues suggests that urine contains a mix of inorganic mercury from dental amalgams and methylmercury from fish that undergoes a type of chemical breakdown in the body called demethylation. The demethylated mercury from fish contributes significantly to the amount of inorganic mercury in the urine.

Chief Executive of the British Dental Health Foundation, Dr Nigel Carter OBE, commented: “Minute amounts of mercury from dental amalgam do escape from dental amalgam and are absorbed into the body, some of it into the central nervous system. Everyone has a small amount of mercury in their system, measurable through their blood and urine. On average a UK adult absorbs about nine milligrams of mercury a day from all environmental sources — about a sixth of which comes from amalgam fillings. “Most people with dental amalgam fillings containing mercury show less than five micrograms per litre of urine. Nearly all dentists have levels below 10 micrograms per litre. Compared with this, the maximum permitted level of exposure to mercury for industrial workers in the US will produce levels around 155 micrograms per litre, which is still considered safe by medical authorities.

“Confirmed cases of allergic reaction to amalgam are extremely rare — fewer than 100 cases have been reported worldwide. This is an extremely small number in relation to the many thousands of millions of amalgam fillings that have been provided to patients since the material was developed.”
More than 200,000 children start smoking every year

Around 207,000 children aged 11-15 start smoking in the UK every year according to new research published by Cancer Research UK.

This means that nearly 570 children are lighting up and becoming smokers for the first time every day. The new figures show this number has jumped by an extra 50,000 from the previous year, when 157,000 started smoking.

Around 27 per cent of all under 16s have tried smoking at least once – equivalent to one million children. Eight out of ten adult smokers start before they turn 18.

With so many children starting to smoke each year, the Welsh Government is working with the government to commit to plain, standardised packaging of tobacco. Research has shown that children find the plain packs less appealing and are less likely to be misled by the sophisticated marketing techniques designed to make smoking attractive to youngsters.

A public consultation on the future of tobacco packaging closed in August 2012 and there has been no decision announced from the government on whether this will proceed.

Sarah Woolnough, Cancer Research UK’s executive director of policy and public affairs, said: “With such a large number of youngsters starting to smoke every year, urgent action is needed to tackle the devastation caused by tobacco.

Replacing slick, brightly coloured packs that appeal to children with standard packs displaying prominent health warnings, is a vital part of efforts to protect health. Reducing the appeal of cigarettes with plain, standardised packs will give millions of children one less reason to start smoking.

“These figures underline the importance of sustained action to discourage young people from starting. Smoking kills and is responsible for at least 14 different types of cancer. Standardised packaging is popular with the public and will help protect children. We urge the government to show their commitment to health and introduce plain, standardised packs as soon as possible.”

Wales launches five-year plan oral health plan

Wales’ Chief Dental Officer (CDO), David Thomas, has launched the Welsh Government's National Oral Health Plan on the same day a survey shows a decrease in tooth decay in Welsh children.

During a visit to the Primary Care Dental Unit at St David’s Hospital, Cardiff, the CDO David Thomas welcomed the results of the survey, and outlined the aims of the five-year Plan:

“A dental survey of five-year-olds published today by the Welsh Oral Health Information Unit confirms just over 41 per cent of children in Wales currently experience dental decay and whilst this figure is still too high it represents a decrease of six per cent since 2007/08.

“The data also shows for the first time there is no evidence of widening inequalities, and dental disease levels in children are improving across all social groups in Wales.

“The National Oral Health Plan looks to the future and outlines an agenda for improving oral health, reducing oral health inequalities in Wales over the next five years and beyond.”

An integral part of the Plan is the Welsh Government’s National Oral Health Improvement Programme, Designed to Smile, which has more than 78,000 children now taking part.

Stuart Geddes, BDA Director for Wales, said: “We welcome the Welsh Government’s intention to vigorously address this inequality in experience of child tooth decay”, and their call to Health Boards to ensure strategic action is taken to meet the oral health needs of all groups of the population.

“However, dentists and their teams have worked hard to deliver improvements in oral healthcare in Wales, and need continued support in terms of adequate funding, to deliver the aspirations of the Oral Health Plan.”

GDC launch Polish version of patient leaflet

A Polish translation of the General Dental Council’s (GDC) Smile patient leaflet has been launched online.

Available as a PDF on the GDC website www.gdc-uk.org, it explains the role of the GDC; what patients can expect from their visit to a dental professional; and what they can do if they’re unhappy with their experience.

The Smile leaflet is also available in print in English and in EasyRead format.

The EasyRead version features larger font, pictures to support and help explain the text, shorter sentences and language that sounds natural when spoken. The PDF is compatible with screen readers with tagged images and can be printed or ordered from the GDC website.

The final version was user checked by the Making it Easier Group which gave its seal of approval to the leaflet.

Smile can be downloaded as a PDF in Welsh, Polish, Bengali, Chinese, Punjabi and Urdu from the GDC website.

Melon extract could treat cancer

A Saint Louis University (SLU) researcher has received a $55,425 grant from the Lottie Caroline Hardy Charitable Trust to continue her research on treating cancer with a natural substance.

Ratna Ray, Ph.D., professor of pathology at SLU, is studying the effect of the extract from bitter melon, which is often used in Indian and Chinese cooking, on head and neck cancer cells.

“The goal of our study is to see if a complementary alternative medicine treatment based upon bitter melon can stop the spread of head and neck cancer,” she said.

In a controlled lab setting, she previously found that bitter melon extract activated a pathway that triggers the death of breast cancer cells, stopping them from growing and spreading. The effectiveness of using bitter melon extract to treat breast cancer in people has not been tested.

“We have pretty good indications that bitter melon extract works in cancer cell lines to halt the growth,” Ray said. “I think it might be effective to treat solid tumours, and our grant will help us to get pre-clinical data to show whether something looks promising in fighting breast cancer could work in other cancers.”

If bitter melon extract stops the growth of cancer cells in animals, the findings could lay the groundwork for studying the treatment in a phase I clinical trial of human patients who have head and neck cancer, Ray said.

“Treatments for head and neck cancers often include surgery and radiation, which impacts a patient’s quality of life, such as how he or she feels, looks, talks, eats and breathes. It’s important to develop additional new therapies that are effective and much less invasive,” Ray said.

Bitter melon, a vegetable that is a staple of diets in India and China, is also a folk remedy in those countries for treating diabetes. Metformin, a drug developed to treat diabetes, is used for cancer therapy. Ray hypothesized that a folk medicine for diabetes also might work to treat cancer.
I must admit I was tempted to put some dubious news in to honour the fact that April 1st is indeed April Fool’s Day. But I decided that I would give you a little quiz here instead.

Story one: One of the first tasks that the new Pope Francis I had to do when elected was to call his dentist and cancel his upcoming appointment.

Story two: Golfing star Justin Rose has fallen foul of US PGA golf chiefs after withdrawing from a tournament mid-round complaining of a painful wisdom tooth.

Story three: Dental Tribune’s Joe Aspis was the winner of the football quiz at a comic relief fundraiser hosted by a dental marketing company.

Which isn’t right? Answers on an email please...

Coming up this month is the BDA Conference and Exhibition, to be held this year in London. This year will be a special one, not only will I not have to stay in a hotel as I live 30 minutes from the venue, but this year the BDA has launched a new tiered membership, a huge reformation for the 130-year-old Association.

There has already been much discussion about the move in forums and discussions groups around the profession. For me, I think it is a great move and shows that the new structure of BDA management is really trying to change things to be more responsive to modern dentists’ needs. I urge you to take a look at the new structure and make up your own mind.

Luke Barnett becomes Bridge2Aid Unity Partner

Luke Barnett Dental Laboratory is delighted to have become a Unity Partner of the Bridge2Aid charity. A shocking statistic is that 70 per cent of the world’s population has no access to emergency dental care. If you were in agony, how would you cope?

Luke explains, “I found that figure horrifying and tried to put myself in the position of a person with excruciating toothache, knowing nothing could be done. That galvanised me into doing something about it.”

By becoming a Unity Partner, Luke and his team are sponsoring the training of a Tanzanian Clinical Officer in Tanzania so that less people will have to face this nightmare in future. “I think that all successful businesses should give something back and help make a difference. In fact it has also helped inspire my team and give us all a focus away from the bench”, Luke noted.

If you and your dental practice would like to find out more about becoming a Unity Partner please visit http://www.bridge2aidunitypartnership.org
Human microbe study provides insight into periodontitis

Scientists at the Oak Ridge National Laboratory (ORNL) have found the genetic code of bacteria, which could lead to treatments for periodontitis, according to a new study.

The finding, published in the journal Proceedings of the National Academy of Sciences, profiles the SR1 bacteria, a group of microbes present in many environments, ranging from the mouth to deep within the Earth, that have never been cultivated in the laboratory. Human oral SR1 bacteria are elevated in periodontitis, a disease marked by inflammation and infection of the ligaments and bones that support the teeth.

Scientists also found that the SR1 bacteria employ a unique genetic code in which the codon UGA - a sequence of nucleotides guiding protein synthesis - appears not to serve its normal role as a stop code. In fact, scientists found that UGA serves to introduce a glycine amino acid instead.

"This is like discovering that in a language you know well there is a dialect in which the word stop means go," said co-author Mircea Podor of the Department of Energy lab's Biosciences Division. Podor and Dieter Söll of Yale University led the team that also included scientists from DOE's Joint Genome Institute who contributed to the analysis of the single-cell sequencing data.

The researchers believe the altered genetic code limits the exchange of genes between SR1 and other bacteria because they use a different genetic alphabet.

In the big pool of bacteria, genes can be exchanged between species and can contribute to increased antibiotic resistance or better adaptation to living in humans," Podor said. "Because SR1 has a change in its genetic alphabet, its genes will not function in other microbes."

Podor and colleagues envision this work providing a path toward a better understanding of microbiological factors of periodontitis as well as to the establishment of a framework to help scientists interpret genomic data from this bacterium and others that have the same altered genetic code.

Oxte Limited, a recent spinout from the University of Oxford, will soon begin work with researchers at the University of Malaya to develop its novel hydrogel tissue expanders to treat crossbite and transverse maxillary hypoplasia.

Jan Czernusza, Lecturer in Materials at the University of Oxford, and Chief Technical Officer of Oxte, led the research into the development of the hydrogel-based tissue expander. He said, "This is a significant grant and we are delighted that the University of Malaya has recognised the potential of our products to treat deformities of the jaw. We are confident that the research into tailoring the device for oral applications and the resulting clinical trials will lead to long-term benefits for an even broader range of surgical procedures."

Crossbite is a common problem in clinical dentistry. It can be painful and affects nearly one-in-ten of Malaysia's population.

Associate Professor Zamri Radzi and Professor Nour Hayaty Abu Kasim of the Faculty of Dentistry at the University of Malaya said, "The established technique for mild to moderate cases of crossbite is to use a quad helix - a spring loaded appliance – that moves the teeth outwards over a period of time. Whilst these are established techniques, there is a 50 per cent chance of relapse. The use of a self-expanding hydrogel offers tissue expansion at a precisely controlled rate to produce increased surface area of the targeted soft tissues. Their action can also be delayed to allow swelling to commence after a predetermined time - normally one to two weeks after implant - to allow the tissues to settle. This new approach is expected to reduce significantly the tendency to relapse, leading to better patient outcomes."

The £1.2M High Impact Research grant from the Ministry of Higher Education, Malaysia will fund three Doctorate and four Masters places over a period of four years, and is expected to generate 55 scientific papers and at least one patent.

Dental anaesthesia more effective with mannitol

An improvement may be in order for the most common dental anaesthetic. The inferior alveolar nerve block is the most commonly used form of local anaesthesia for mandibular restorative and surgical procedures. A study found that the addition of the drug mannitol significantly increases the effectiveness of this anaesthetic.

The journal Anesthesia Progress presents a study testing the efficacy of lidocaine with epinephrine compared with equal amounts of lidocaine and epinephrine plus mannitol. After injection of the anaesthetic, the subjects' teeth were electric pulp tested for sensation. Pain of solution deposition and postoperative pain were also measured.

Failure rates of 10 per cent to 50 per cent for the traditional formulation of lidocaine and epinephrine have been reported. One reason may be that, because of the perineural barrier around the nerve, the anaesthetic solution does not completely diffuse into the nerve trunk. With mannitol, the anaesthetic solution permeates the nerve trunk in greater amounts, increasing the efficiency of the anaesthetic.

The same 40 patients were given both drug combinations in two separate appointments at least one week apart. To blind the experiment, random five-digit numbers were assigned to each anaesthetic formulation, so neither the patients nor the personnel administering the anaesthetic knew which formulation was being given.

An electric pulp tester was used to test the sensitivity of the patients' teeth. A drop of toothpaste acts as a conductor of the electric current to the tooth. After the injection of the nerve block, different teeth were tested once a minute in a repeating pattern for a total of 60 minutes. The patients also rated their experiences of lip numbness and postoperative pain on a scale of 0 to 5.

No significant differences were found between the two treatments for pain of solution deposition and postoperative pain. However, the mannitol treatment in this test was shown to be more effective for all teeth, offering a greater level of pain relief for dental patients.
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Celebration of world’s undisputed lingual leader

D idier Fillion, the orthodontist who has done more than any-one else to further the course of lingual systems, especially in the UK where he works part-time, was celebrated by the British Lingual Orthodontic Society (BLOS) at its Spring meeting.

Having been a founder member of BLOS in 2005, he went on to become its first Chairman and then first President. He was also a founder member of the French, European and World lingual societies. He has been a regular speaker at BLOS events and was on the programme at the Spring meeting with a talk called: Yes we scan!

Rob Slater, a BLOS committee member, who, with Asif Chatoo, was also a founding member of BLOS, paid tribute to Dr Fillion. He told the audience how Didier learned about the lingual technique directly from its inventors in the 1980s but then, after it went out of fashion in the 1990s, he maintained a practice dedicated to lingual.

In the 21st century, as new and more sophisticated lingual systems were brought to market, Didier was available to teach and inspire younger practitioners.

Dr Slater continued: “Didier was there at the birth of modern lingual orthodontics and has continued to be at the forefront of new technologies. He has been a great ambassador for orthodontics in the UK and with this in mind the committee agreed that he should be recognised for his work and it is an honour for me to present him with the Life Membership of BLOS.”

The framed certificate of life membership and a Map-pin and Webb decanter were the gifts which marked the end of Dr Fillion’s era as BLOS President. He is soon to chair the meeting of the World Society of Lingual Orthodontics in Paris in July.

Mouth cancer screening accreditation scheme launches

U K dentist and Mouth Cancer Foundation Ambassador, Dr Philip Lewis, plans a life-saving presentation to delegates at the BDA Conference and Exhibition at 12:15 pm on Saturday 27th April 2013. Dr Lewis explains how by carrying out thorough head and neck cancer checks at routine appointments lives will be saved. The presentation is the formal launch of the Mouth Cancer Foundation’s new screening initiative, the Mouth Cancer Screening Accreditation Scheme.

The scheme will recognise dental practices that demonstrate a visible commitment to increasing public awareness of mouth cancer screening to all patients and to establish a documented referral pathway with a local specialist department.

Awareness is integral to achieving early detection of head and neck cancers, thus saving lives. The Mouth Cancer Foundation will accredit dental practices that meet certain criteria and routinely participate in oral cancer screening. Full membership includes access to a dedicated section of the charity website and free one hour CPD element as well as professional development and training modules suitable for all members of the practice to ensure regular screening benefits practice patients.

The Mouth Cancer Screening Accreditation Scheme aims to improve outcomes for head and neck cancers in accordance with The British Dental Association’s occasional paper for the early detection and prevention of oral cancer and NICE guidelines. It offers a realistic approach for dentists who seek to adopt best practice in oral cavity examination and opportunistic screening.

The scheme embraces recent Care Quality Commission, Information Governance and Clinical Governance requirements and necessitates the recommendation by the General Dental Council for continuous professional development for the management of oral cancer for dental professionals.

The Mouth Cancer Screening Accreditation Scheme is open to any dental practice whose clinicians are registered with the GDC. For more information or to join please contact the Mouth Cancer Foundation via info@mouthcancerfoundation.org or call +44 (0) 1924 930 930 for more information.

Studies support efficacy of light- accelerated tooth movement

B ioLux Research Ltd. saw two of its sponsored research studies on photobiomodulation results presented at the International Association of Dental Research/American Association of Dental Research General Session and Exhibition in Seattle, March 20-23, 2013. These presentations included clinical evaluation of both efficacy and safety of BioLux-patented Light Accelerated Orthodontics™ technology and devices.

The first presentation is Photobiomodulation for Orthodontic Tooth Movement. This study was a multicentre study including the University of Alabama at Birmingham, Mahidol University in Bangkok, Thailand, and private practices in North America. The research evaluated the effect of the novel photobiomodulation device on the rate of tooth movement during the alignment phase of orthodontic treatment with fixed appliances, and included upper and lower arches in 75 test subjects and 17 controls. The results, as measured by rate of change of Little’s Irregularity Index over the course of the alignment phase, showed a statistically significant 2.5-fold increase in tooth movement in the patients treated with photobiomodulation.

The second presentation is Radiographic Analysis of Teeth after Photobiomodulation Therapy. This study evaluated whether the use of photobiomodulation in conjunction with fixed orthodontic appliances led to any significant change in root resorption, to address the concern that accelerating tooth movement with light treatment may lead to increased root resorption. Twenty patients were evaluated with cone beam computer tomography before and after orthodontic treatment, and no statistically significant findings were noted for root length change at the end of treatment compared to the start of treatment, for either anterior or posterior teeth. Also, no clinically significant changes between root lengths were noted above 0.5 mm.

“We are very pleased to work with such great investigators in evaluation of our Light Accelerated Orthodontics™ technology and products, and are excited about the clinical research results presented at the IADR/AADR,” states Dr. Peter Brawn, founder and chief scientific officer of BioLux Research Ltd.
The importance of quality - BDTA

More investigations for more people

From 2 April 2015, the Health Service Ombudsman will be investigating more complaints and sharing more information with the NHS, including dentists, marking the first step in delivering plans to have more impact for more people.

Under the new plans, once a complaint meets some basic tests it will usually be investigated. This means the Ombudsman service will be investigating and sharing the learning from thousands more complaints each year. The changes will benefit individual complainants, public services and the wider public.

For complainants, an independent organisation will have looked at their complaint and made a formal ruling on it. For organisations complained about, including dentists, GPs and other NHS providers, they will benefit from seeing, commenting on and learning from more of the cases the Ombudsman looks at. This will help them improve public services.

The new approach is also a response to what public organisations themselves want from the Ombudsman service: which is to share more learning from the cases it looks at. This will also support the drive across public services to use complaints to identify service failure and deliver service improvement, especially in light of the recent findings by the Mid Staffordshire Public Inquiry.

Julie Mellor, the Health Service Ombudsman said: “We’ve responded to feedback from our practitioners who may currently benefit all incorporated dental practices and particularly those practitioners who may currently own and operate more than one limited company. It may also encourage yet more practices to go down the incorporation route.”

Portugal wins the World Cup!

Portugal triumphed in the recent Comic Relief ‘Mini World Cup’ Challenge, which was organised by Manan and has raised more than £1,000 so far.

In a bid to raise money for Red Nose Day, Manan Ltd brought together some of the biggest names in dentistry for a table football tournament, which was organised by Manan’s Matthew Fearn and Manan Ltd’s Joe Vincent and Richard McGowan, Product Managers from Straumann, beat off stiff competition to make it to the final round. It was close, but Portugal brought home the trophy in the final round, beating New Zealand 10-8.

On the day, attendees also took part in other fundraising activities, including a football tournament, an evening of talks at Dental Tribune’s Joe Asps; “keepsie uppers”; FIFA on Xbox; and the spinning bike challenge. All proceeds went directly to Comic Relief.

The launch of the BDTA Dental Showcase 2015 theme to the press was a great opportunity to highlight the importance of this prestigious event. With the rise in popularity of the Internet and the recent cases of suspect dental equipment being sold online, quality trade shows from trusted associations such as the BDTA offer dental professionals an opportunity to buy with confidence.

BDTA Dental Showcase is the UK’s largest and most popular dental exhibition and this year’s theme reinforces all that is great about the event—the ability to view, touch and experience all that is new in dentistry, all under one roof”.

More investigations for more people

The new impetus has been given to practice-owners wanting to appoint more staff members thanks to George Osborne’s 2013 Budget. In a variety of ways, he has cut the staffing costs of employers as well as making it easier for potential employees to move home or organise childcare says Charles Linaker, a Partner in UNW LLP.

Charles listed some of the key benefits for practice owners and their teams:

- A new “Employment Allowance” which will result in a saving in Employers NIC up to £2,000.
- Help with the purchase of new-build homes for those trying to get on the property ladder. So long as the property is worth less than £600k and the purchaser can find five per cent for the deposit, the Government will provide an interest free loan of 20 per cent.
- An uplift from £5k to £10k in employer loans that can be made without giving rise to a taxable benefit on the employee – helpful for season rail tickets or other transport (or indeed new build house purchase?) – will come into effect from 6 April 2014.
- Childcare discount of 20 per cent up to a value of £1,200.

The tax free Personal Allowance will be increased to £10,000 from 6 April 2014, a year earlier than planned (and coming on top of the increase from £8,105 to £9,440 already announced from 6 April 2015). This could help team members working part-time or starting work half way through the tax year.

Expansion of dental teams made easier by 2013 Budget

More than 25 members of the dental press gathered at the Park Plaza Sherlock Holmes Hotel in Baker Street on 15 February to mark the launch of the BDTA Dental Showcase 2015 marketing theme and brand new website.

The Sherlock Holmes venue was chosen to link with this year’s theme of ‘seeing what’s new in dentistry’, which features the popular Showcase dental character with a detective’s magnifying glass, helping bring to life the idea of delegates at Showcase searching out the latest in their field.

Guests gathered for drinks and a catch up before Tony Reed, Executive Director of the BDTA, introduced the theme and thanked the press for their continued support of BDTA Dental Showcase. This was followed by lunch in a room that included pictures and memorabilia of the popular detective stories.

Tony Reed commented, “The launch of the BDTA Dental Showcase 2015 theme to the press was a great opportunity to highlight the importance of this prestigious event. With the rise in popularity of the Internet and the recent cases of suspect dental equipment being sold online, quality trade shows from trusted associations such as the BDTA offer dental professionals an opportunity to buy with confidence.

BDTA Dental Showcase is the UK’s largest and most popular dental exhibition and this year’s theme reinforces all that is great about the event—the ability to view, touch and experience all that is new in dentistry, all under one roof”.

BDTA Dental Showcase 2015 will be held at Birmingham NEC from 17-19th October.

To find out more about BDTA Dental Showcase 2015 and register for tickets visit: www.dentalshowcase.com now!