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# The Dental Probe

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# Editorial

## By Dr David Muscat

Dear colleagues,

We are living in a surreal world where everything has been turned upside down. Clinics have closed or are providing emergency cover for their patients.

Dentists and dental hygienists are doing a lot of the swabbing at the centres and they are to be thanked and recommended for doing this.

Several dentists have applied for government help regarding their staff but at the time of writing this editorial, all have been refused. This is most unfortunate especially as we have had to spend more on ppe and are working just a few hours a week.

The DAM had tried very hard to get funding for our colleagues but unfortunately our requests were not accommodated. The SPH has given guidelines that we are only to do emergency/essential work. The situation is not sustainable. The dentist and his/her nurse are most at risk from close contact with patients. We cannot use the fast handpiece nor can we use ultrasonic or piezo scalers. due to the vapour produced.

Dentists are sourcing their ppes from wherever they can as were only provided with two kits by the Goverment. We hope that we will be rid of this virus by the end of the Summer. We will see. Hopefully we will have a vaccine this year.

The DAM committee is currently working on new guidelines for dentists working in practice.

The cover picture is a photo taken by Dr Josef Awad during the Naxxar feast.

Best regards,

*David*

Dr David Muscat B.D.S. (LON)
Editor / Secretary, P.R.O. D.A.M.

## St Apollonia Event 2020






St Apollonia was celebrated at St Dominic's Convent in Valletta, followed by lunch at The Office on Sunday 9th February 2020.

# CBCT History


By Mr Joe Cremona
Principal Radiological Protection
Occupational Health and Safety Authority


Investment and subsequent use of CBCT in Malta has dramatically increased and the Commission for the Protection from Ionising and Non-Ionising Radiation (RPC) was noticing that although training was being given on the use of the equipment by the suppliers, it was not felt that enough clinical training was being carried out.

The Legal Notice (Basic safety Standards for Ionising Radiation Regulations, LN210 of 2048) gives the RPC the mandate to set syllabus for training and as such, it started looking into ways that the training could improved and made more comprehensive.

In view of that CBCT procedures can give the patient a much higher dose than the traditional OPG techniques the RPC started working on a syllabus, that once approved, all CBCT users would have to attend a course that delivers such syllabus.

In June 2019, the RPC asked the International Atomic Energy Agency (IAEA) if it would be feasible to carry out a National Course following this syllabus, using funds that were allocated by the IAEA to the RPC.

Whereas these funds were for the benefit of the RPC, it was felt that there was a greater need to carry out this course.

At this stage, I would like to make clear the fact that, although the RPC has a legal mandate to set syllabi, it has no obligation to organise any course, the responsibility lies with the Undertaking (employer, owner, user) to arrange to get in line with any requirements set by the RPC.

Having said that, as mentioned before, it was felt that if we could start something locally, then it could be a catalyst so that courses could be repeated later, by local or other experts, as the need arose.

The IAEA were very enthusiastic about all this, since, although they organise and fund a lot of courses all over the world, these would normally be based just on the general radiation safety and CBCT physics.

Our syllabus comprised both physics and clinical aspects. Owing to the demand and to allow for the dentists to have a choice of training dates we asked for two experts to deliver the two day course twice.

It was also felt that the RPC should involve the Dental Association of Malta (DAM), and it must be mentioned that the RPC was very encouraged by the enthusiasm shown by your Association.

The target date was set for mid January, however the IAEA were finding it difficult to find suitably qualified clinicians to deliver at the rates that are normally paid by IAEA, since clinicians would charge higher fees.

The IAEA is a big organisation, and although as mentioned previously, they organise a lot of training in all aspect of radiation use, they have a very strict payment scales for experts (lecturers in our case). Around mid December, the RPC was officially informed by the IAEA, that unless Malta covers the difference between what the IAEA was paying and what the experts were asking, the course would be shelved.

This started a flurry of meetings, tens of emails between the RPC, DAM and sponsors. Finally a decision was taken to go ahead and the IAEA was informed accordingly.

We were informed that due to the end of year, preparations by the IAEA will not be ready to carry out the course in January, and we were asked to provide alternate dates in February or March.

It must be mentioned that the funds allocated to the RPC for this c course were only available till mid March.

Once the dates were decided, all hands were on deck to finally get this course done.

The RPC has in the past been asked by the IAEA to help in organising courses in Malta, mostly on a regional level, ie we have participants from all over the world, and these involve a lot of work from our side, issuing of visa invitations and applications, accommodation for 30 odd participants, venues, social events etc, however, the organisation of this course was by far the most challenging that we ever had.

*Continues on page 11.*

# SIMPLIFIED LAYERING TECHNIQUE FOR SUPERIOR-QUALITY POSTERIOR RESTORATIONS

Presentation of a bilaminar histo-anatomical layering approach

By Dr Gianfranco Politano, Rome/Italy, and Assoc. Prof. Marleen Peumans, Leuven/Belgium

Flowable bulk-fill materials and medium-translucency composite resins offer an efficient method for restoring posterior teeth. This article presents a fast and straightforward layering protocol on the basis of two different cases.

Today, there is a strong trend towards streamlining dental materials and procedures. We would like to show that simplification and good quality are not a contradiction in terms when posterior teeth are restored with proven direct materials.

Furthermore, we have developed a method to heighten our efficiency which involves a simplified layering protocol and a composite material that is easy to adapt to the remaining tooth structure.

## STRAIGHTFORWARD AND EFFICIENT

In this article, we present a simplified layering protocol for the placement of direct composite restorations in posterior teeth.

In the two cases described, we used Tetric EvoFlow Bulk Fill as the dentin replacement and a medium-translucency nanohybrid composite A2/A3 (IPS Empress® Direct and Tetric® EvoCeram) as the enamel replacement. Clinical experience has shown that the combination of these two material used Presentation of a bilaminar histo-anatomical layering approach By Dr Gianfranco Politano, Rome/Italy, and Assoc. Prof. Marleen Peumans, Leuven/Belgium with a bilaminar histo-anatomical layering method results in restorations that blend in seamlessly with the surrounding tooth structure. In the two cases, a simplified layering protocol was used to place superior-quality restorations in posterior teeth in only 30 minutes.

One of the benefits of streamlined products and procedures is that clinical protocols are easier to standardize, thereby reducing the risk of error. If we look at the different steps of the clinical procedure, we see quite clearly that cavity preparation cannot be simplified. To ensure the longevity of the restoration, the cavity must be properly prepared according to the biomechanical analysis.

However, with regard to the adhesive protocol, it can definitely be streamlined by making use of a contemporary universal adhesive (e.g. Adhese® Universal).

It can be applied in several modes: etch-and-rinse, self-etch or self-etch with prior selective etching of the enamel with phosphoric acid. The restoration is then efficiently placed by following a simplified layering protocol, taking three important aspects into account:

1. ***Application of the histo-anatomical bilaminar layering technique***
   The objective is to copy the natural tooth. Therefore, the histo-anatomical build-up of the natural tooth has to be reproduced: The natural occlusal dentin is concave, while the enamel is convex. This biological fact (Bazos et al., 2011) has to be taken into consideration during the composite layering process. As a result, the dentin composite will be layered in a concave way and the enamel composite in a convex way (Fig. 1).

   Layering according to this "bilaminar" technique is simple. In the prepared occlusal cavity, the enamel and dentin can be clearly distinguished so that the dentin and enamel composite can be efficiently applied in the correct spatial order. An additional advantage of the bilaminar histo-anatomical technique is that there is minimal risk of making visual mistakes when grinding in the occlusion.

2. ***Selection of the composite materials for dentin and enamel replacement***
   A highly filled flowable composite resin should be selected as the dentin replacement. This type of material readily adapts to the cavity margins, the cavity floor and the overlaying conventional composite layer (Fig. 2).

   In addition, flowable composites show low shrinkage stress because of the elastic bonding effect. A flowable composite is easy to apply as a dentin replacement, since it automatically assumes the concave shape of the dentin. Very deep cavities are quickly filled with a product such as Tetric EvoFlow Bulk Fill, for example. This flowable composite resin has a high filler content of 52 vol %. The patented light initiator Ivocerin in combination with the Aessencio Technology enables you to apply this flowable composite in 4-mm thick layers, which nevertheless can be reliably cured.

   During the polymerization process the translucency of the flowable composite drops from 28 % to a low < 10 % which is very similar to that of natural dentin. Furthermore, the material has convenient self-levelling properties, and it optimally adapts to cavity walls.

   Finally, Tetric EvoFlow Bulk Fill shows low shrinkage stress, as the material contains an elastic resinous filler known as a shrinkage stress reliever, in addition to the standard fillers. The dental enamel is replaced using a medium-translucency material (A2/A3) that imitates the optical properties of natural dental enamel. The esthetic IPS Empress Direct materials and the clinically proven Tetric EvoCeram composite are suitable for this purpose.

   As described, the enamel material must be applied in a convex way, according to the successive cusp build-up technique: that is, the cusps are built up in individual steps. An enhanced esthetic effect can be attained by characterizing the occlusal fissures with a brown stain (IPS Empress Direct Color Brown). This results in the optical separation of the cusps. In addition, the stain seals the fissures, thereby decreasing the possibility of plaque accumulation and simplifying the polishing of the occlusal surface.

3. ***Layering protocol for Class II restorations***
   When the proximal box of a Class II cavity is filled, the layering process starts with the placement of a highly filled flowable composite in the cervical part of the cavity.

   This layer should be at least 2 mm in thickness (Fig. 3). The aim is to improve the marginal adaptation in the cervical area of the preparation. The proximal enamel wall is built up with conventional nanohybrid enamel composite in order to obtain the best possible physico-mechanical properties within the marginal ridge area.

   Once the Class II cavity has been transformed into a Class I cavity further layering can take place as described above. The layering procedure is further simplified and accelerated by using Tetric EvoFlow Bulk Fill as the dentin replacement, since this material is applied in one step (in the box and the occlusal part). Nevertheless, the maximum thickness of this layer must not exceed 4 mm.

In the last step of this clinical procedure the functional requirements are checked and the restoration is finished and polished. These steps can be simplified by ensuring the following points:

- A precise evaluation of the occlusion and articulation of the initial situation will prevent any over-contouring of the occlusal surface.
- In the treatment of Class II cavities, the correct selection and positioning of the matrix band will avoid the use of excessive amounts of composite material.
- When the cusps are modelled according to the successive cusp build-up technique, attention must be paid to giving the cusps the correct inclination and to leaving enough space for the antagonist cusp.

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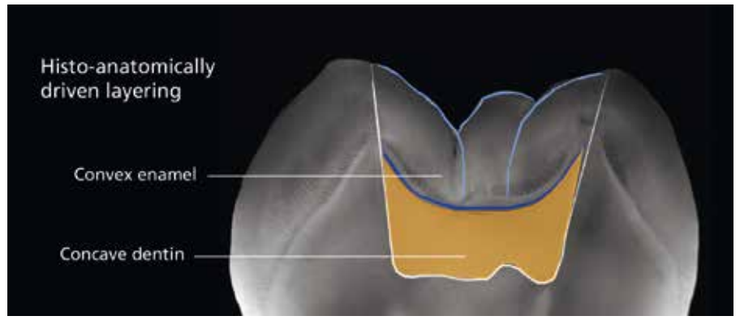
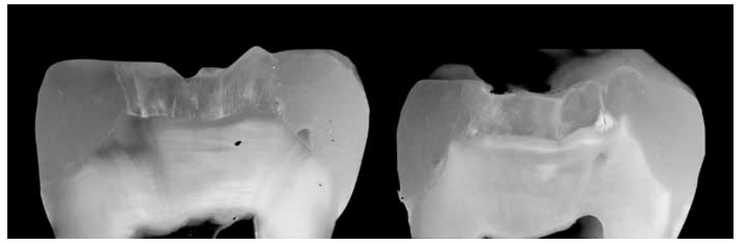
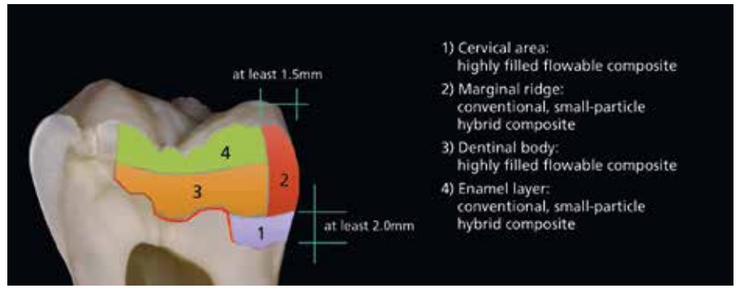



01 — The natural occlusal dentin layer has a concave shape, while the enamel layer is convex.



02 — Treatment of two molars with Class II cavities: flowable composite (1) and conventional composite (2). The flowable composite shows better adaptation.




03 — Layering scheme for a Class II restoration. The flowable Tetric EvoFlow Bulk Fill can be applied in one step (layer 1 and 3) with a maximum increment thickness of 4 mm.

# SIMPLIFIED LAYERING TECHNIQUE FOR SUPERIOR-QUALITY POSTERIOR RESTORATIONS

*Continues from page 7.*

This will significantly reduce the time needed for adjusting the occlusion as well as finishing and polishing.

The restorations are easy to finish and polish to a high surface gloss with the three silicone polishers of the Astropol set. The polishers must be used in the correct order: that is, in decreasing grit size. The grey polishers are suitable for finishing the occlusal surfaces and the margins.

They are operated at a speed of 10,000 rpm with water-cooling. These polishers remove the scratches that were created by the diamond bur when the occlusion was ground in. Subsequently, the green and then the pink polishers are used to polish the restoration to a high gloss shine.

## CASE 1

A 35-year-old patient requested us to replace the amalgam restorations in her first and second lower molars. She complained of pain in the last molar when she chewed. The clinical pictures showed unacceptable restorations in both of the teeth (Fig. 4). After having applied the universal adhesive system Adhese Universal, we replaced the dentin with Tetric EvoFlow Bulk Fill (Fig. 5).

This flowable composite resin has very good self-levelling properties and automatically assumes a concave shape. In the second molar, the flowable bulk-fill material was applied in one increment in the occlusal part and in the proximal area of the preparation and subsequently polymerized with the Bluephase light curing device (light output 1200 mW/cm2) for 20 seconds. The manufacturer recommends light curing of 10 seconds. The layer did not exceed 4 mm in thickness.

Due to the Aessencio Technology, the opacity of the flowable material increased significantly during the light curing process (Fig. 5). Next, we replaced the enamel with the medium-translucency Tetric EvoCeram A3 material using the successive cusp build-up technique. We stained the fissures with IPS Empress Direct Color Brown (Fig. 6).

Once we had removed the rubber dam, we checked the occlusion. As the cusps had been built up in the correct way, only minimal adjustments were required. We finished and polished the composite restorations using the three polishers from the Astropol composite polishing kit.

The surfaces of the completed restorations were attractive in their simplicity and blended in seamlessly with the surrounding tooth structure (Fig. 7).

## CASE 2

A thirty-year-old patient presented with defective restorations in two lower molars (Fig. 8). We placed a rubber dam and removed the old restorations. In the process, we found numerous carious lesions (Fig. 9). We removed the infected dentinal tissue with a round tungsten carbide bur at a low speed.

Next, we cleaned the prepared cavities by air-abrading them with aluminium oxide particles (30 µm). We did not reduce the slightly undermined buccal cusp of the first molar, as it was not exposed to heavy loading during occlusion and articulation (Fig. 10). The composite was placed using a bilaminar approach. The concave dentin layer was replaced with Tetric EvoFlow Bulk Fill.

After the polymerization step, the composite showed a significant increase in opacity, and the material effectively masked the discoloured bottom of the cavities (Fig. 11). We used IPS Empress Direct Enamel in shade A2 to replace the enamel. Subtle staining of the fissures with IPS Empress Direct Color Brown created an optical separation of the cusps. The finished and polished restorations looked very attractive and could not be distinguished from the natural tooth structure (Fig. 12).

## CONCLUSION

Superior-quality composite restorations can be placed in posterior teeth in a normal time frame. The bilaminar histo-anatomical layering protocol significantly simplifies the treatment process.

A highly filled flowable bulk-fill composite showing a dentin-like opacity and an enamel composite resin exhibiting medium translucency are key elements of this protocol.

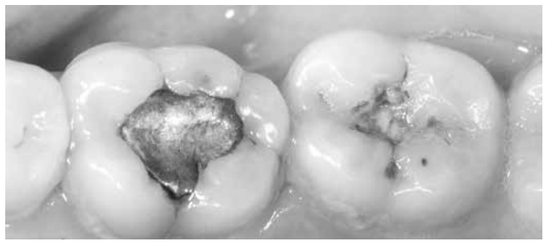
04 — Case 1: Defective restorations in two lower molars

05a — Replacement of the dentin layer using Tetric EvoFlow Bulk Fill

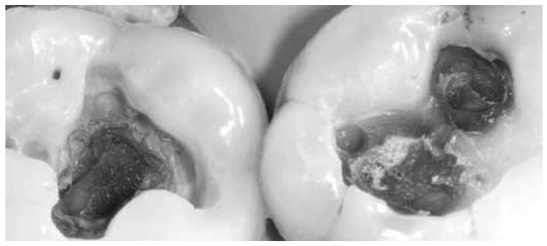
05b — Due to the Aessencio Technology, the opacity of the composite increases during the polymerization process.

06 — Replacement of the enamel with a medium-translucency composite (Tetric EvoCeram A3) using the successive cusp build-up technique. The fissures were characterized with IPS Empress Direct Color Brown.

07 — Result after finishing and polishing



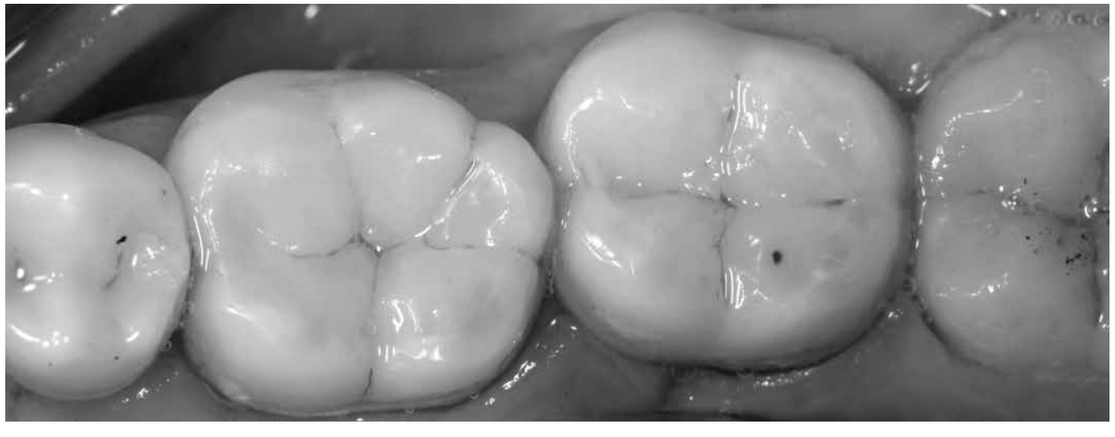
08 — Case 2: The two molars required direct composite restorations.



09 — When the old restorations were removed, numerous caries lesions were revealed.

10 — Prepared cavity after air-abrasion with aluminium oxide

11 — Reconstruction of the dentin layer with Tetric EvoFlow Bulk Fill (after curing)



12 — Result after finishing and polishing. The enamel layer was rebuilt one cusp at a time with IPS Empress Direct Enamel (A2).

# ENDODONTICS IN THE AGE OF COVID-19

By Daniel M Keir, DDS, FICD, DiplomateAmerican Board of Endodontics.

Aerosols are inherent in the practice of dentistry due to the environment in which the dental professional works.

It is known that aerosols and splatter generated during dental treatment are laden with microorganisms(1). In light of the current pandemic, COVID-19, there is an increased awareness and concern about the generation of these aerosols in dentistry and how to reduce, prevent, or eliminate these aerosols.

The concept and use of the rubber dam in dentistry has been around for quite some time (2).

Just as an aseptic surgical field is maintained in the operating room, the rubber dam can provide an effective means to achieve an aseptic operating environment in which to perform many dental procedures by isolating the teeth from the rest of the oral cavity(3).

Once the rubber dam is in place and appropriately sealed against leakage of saliva and fluid from the oral cavity, the isolated teeth and rubber dam can be disinfected to greatly reduce the number of potentially infectious agents originating from the patient in the dental operating field.

Endodontics is one specialty where the generation of aerosols can be controlled but unfortunately not eliminated. It is highly recommended the rubber dam be used for restorative dental procedures. The use of the rubber dam in endodontics is considered the standard of care during the nonsurgical treatment of the root canal system(4).

Therefore, the use of the rubber dam should be mandatory for endodontic treatment for both the protection of the patient as well as the dental professional.

It is inevitable that some patients will require emergency endodontic treatment for the relief of pain and swelling that cannot be controlled by analgesics and antibiotics alone. Presented here is a suggested protocol for endodontic treatment.

This is a short summary with some minor additions/modifications to the position papers from the British Endodontic Society and the American Association of Endodontics. It is highly suggested to review these position statements for guidance on how to proceed with different endodontic emergency treatment scenarios.

**DIAGNOSIS AND MANAGEMENT OF ENDODONTIC EMERGENCIES DURING COVID-19 PANDEMIC**
(23 April 2020)
***https://britishendodonticsociety.org.uk/wp-content/uploads/2020/04/BES-Emergency-Protocol-v3-April-23-1.pdf***
Ather A, Patel B, Ruparel N, Diogenes A, Hargreaves K.
*Coronavirus Disease 19 (COVID-19): Implications for Clinical Dental Care.*
*Journal of Endodontics 2020; 46: in press.*
***https://www.aae.org/specialty/clinical-resources/coronavirus-disease-19-covid-19-implications-for-clinical-dental-care/***

**SUMMARY OF THE PROTOCOL FOR TREATING ENDODONTIC PATIENTS**

1. Follow all current health policydirectives concerning patient triage prior to dental treatment and the use of PPE in the dental practice.

2. Have the patient use a mouthrinse prior to treatment with 1% hydrogen peroxide or 0.2% povidone-iodine mouthrinse.

3. Proceed with rubber dam isolation, single tooth preferred. Use some type of rubber dam sealant to ensure a more fluid resistant seal.

4. Decontaminate the whole operative field (rubber dam and tooth) with sodium hypochlorite, preferably 1.5% or higher.

5. Remove as much decay or weakened tooth structure as possible manually with sharp hand instruments.

6. Complete endodontic access with high speed handpiece with minimal water spray andhigh-volume evacuation- HVE. Have sharp burs so as to minimize cutting time. Work in short bursts to minimize aerosol.

7. When the pulp chamber is accessed, remove pulp tissue with sharp hand instruments.

8. After pulp removal, any refinements to the access cavity can usually be accomplished with slow speed handpiece or high-speed handpiece with no water spray.

9. Prepare glide path manually or with rotary instruments with irrigant in the access to help with disinfection of the pulp chamber. 1.5% sodium hypochlorite or higher concentration recommended.

10. Use hand or rotary instrumentation with adequate irrigant in the endo access to clean and shape the root canal.

11. Proceed with endo treatment limiting the use of the air/water syringe and using it in conjunction with high volume evacuation--HVE.

12. Recommend the use of Electronic Apex Location for establishing the working length so as to limited exposure to the oral cavity during the endodontic procedure.

By following the recommendations in the listed position statements, the dentist and staff should be relatively safe in treating the endodontic patient.

In theory, the use of the rubber dam and decontamination of the whole operative field and teeth should provide an environment in which the exposure to the COVID-19 virus is minimal.

The dental professional will need to make both a professional and personal decision as to how to proceed in this uncertain and ever-changing environment of COVID-19.

As is quoted from Benjamin Franklin, the only two things that are certain in life are death and taxes.

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2. *2. Elderton R.J. A modern approach to the use of rubber dam–1. Dent. Pract. Dent. Rec. 1971;21:187–193.*

3. *Cochran M.A., Miller C.H., Sheldrake M.A. The efficacy of the rubber dam as a barrier to the spread of microorganisms during dental treatment. J. Am. Dent. Assoc. 1989;119:141–144.*

4. *Loest C. Quality guidelines for endodontic treatment: Consensus report of the European Society of Endodontology. Int. Endod. J. 2006;39:921–930.*

***Disclaimer: The statements/opinions expressed in this article are solely those of the author.***

# CBCT History

*Continues from page 5.*

Until the Saturday before the course, we were still not 100% sure that it would happen.

One incident was that one of the experts got a call from the IAEA on Friday afternoon before the course, that he had to furnish them with a health certificate, without which he would not be cleared to travel.

Anyway, the first course was finally started. As mentioned previously, we had 2 international experts
Dr. Ruben Pauwels, Doctor in Biomedical Sciences, and Dr. Jimmy Makdissi, Consultant Dental and Maxillofacial Radiologist from the UK.

Both experts have vast experience in their areas of expertise, with Dr. Pauwels tackling the physics and safety aspect, whilst Dr. Makdissi focused on the clinical aspect.

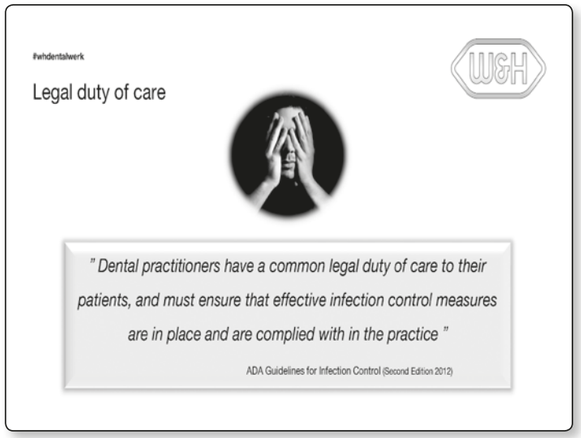
Both lecturers showed that they are true experts in their fields both the delivery of their presentations and with answering any query that was put to them.

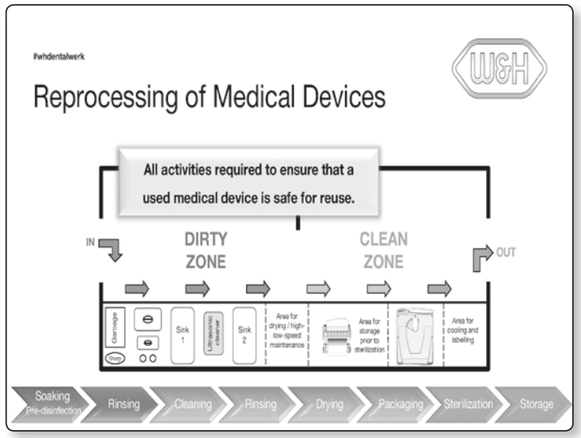
From the feedback received, both courses were well received by the dentists, and I am sure most of the dentists present gained additional knowledge, in the referral, setup, delivery and reporting of a CBCT exposure.

It was also beneficial for participants to understand more of the legal implications when carrying out exposure.

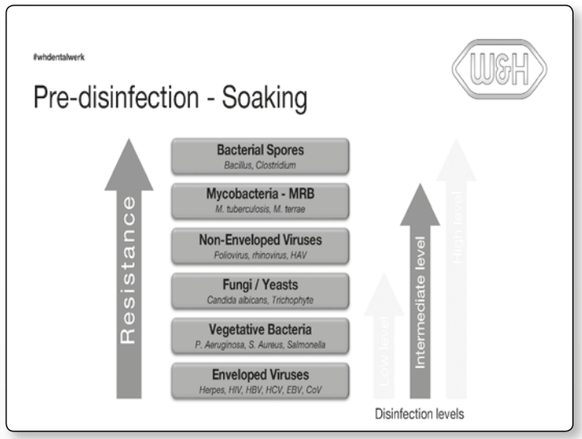
# REPROCESSING MEDICAL DEVICES

By Christian Stempf, Hygiene Advisor

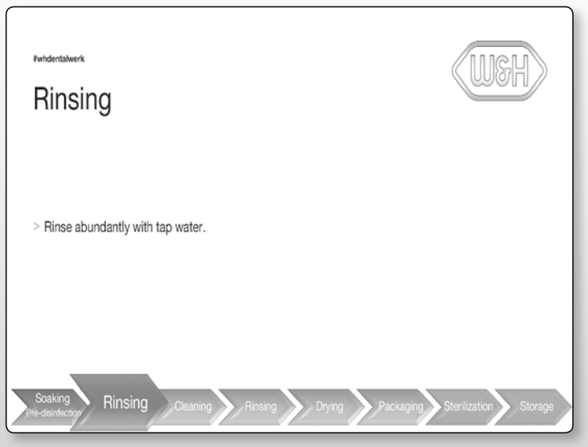








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# REPROCESSING MEDICAL DEVICES

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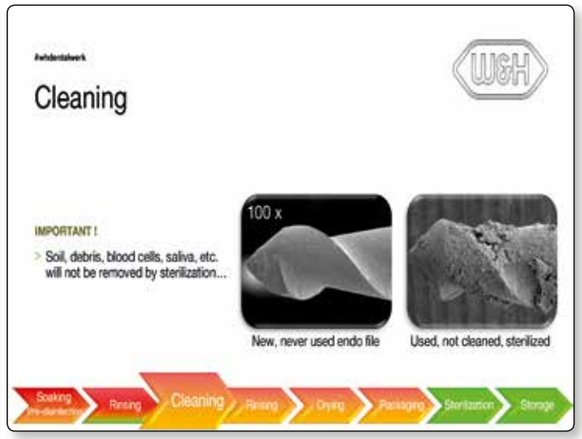






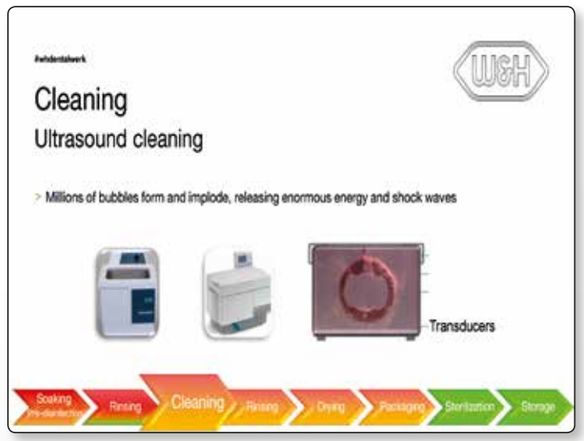



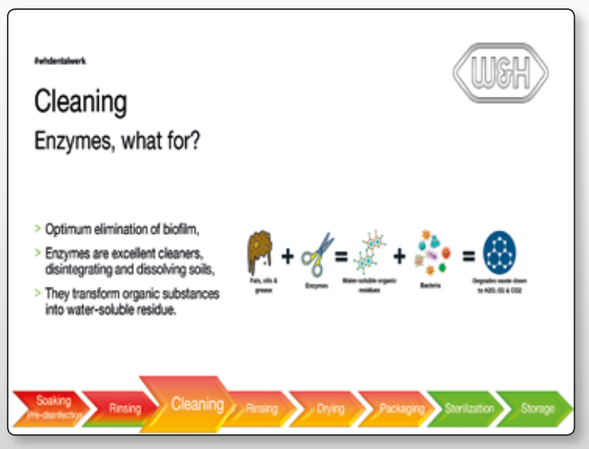





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# REPROCESSING MEDICAL DEVICES

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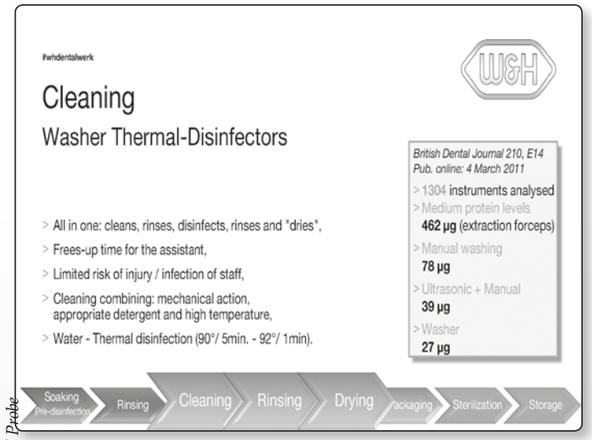


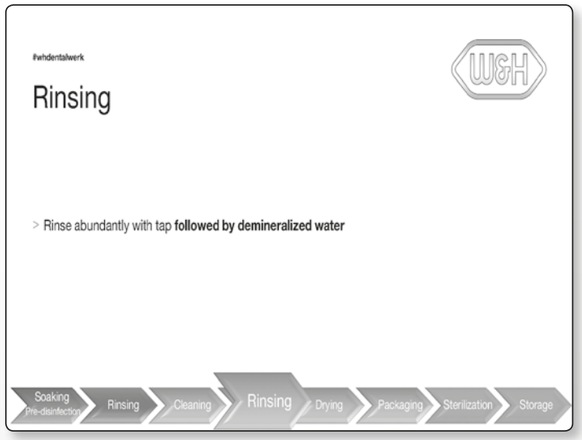


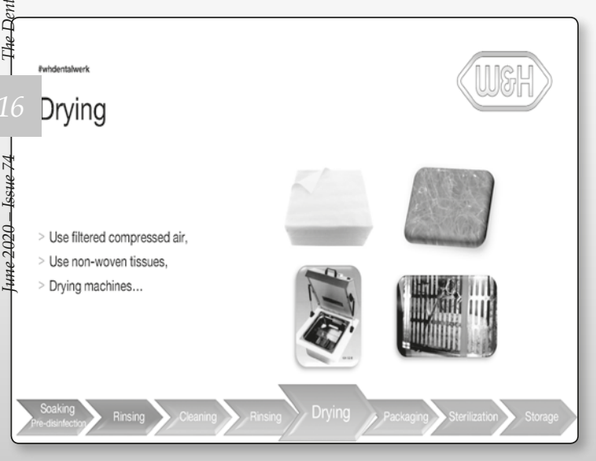



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## PAYMENT FORM

Please cut out this section and send with a cheque for 50 euro payable to **Dental Association of Malta** for your 2020 DAM membership – the best 50 euro investment ever!

**TO:**

The Treasurer, Dr Noel Manche,
The Dental Association Of Malta,
Federation Of Professional Associations,
Sliema Road,
Gzira.

**NAME:** _____

**ADDRESS:** _____

_____

_____

# REPROCESSING MEDICAL DEVICES

*Continues from page 16.*

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## Packaging

- Adapt the size of the bag to the instrument,
- Do not fold / pile-up pouches,
- Paper side up or down ? Vertically on the edge ?
  → Follow sterilizer's instruction for use !

Soaking (Pre-disinfection) · Rinsing · Cleaning · Rinsing · Drying · **Packaging** · Sterilization · Storage

#whdentalwerk

## Sterilization

Set of methods and means used to eliminate **ALL** living micro-organisms in any form including **spores**

The acceptable Sterilization Assurance Level for a sterilised product is one in a million
→ SAL $10^{-6}$

*"The survival of a micro-organism can be expressed in terms of probability reduced to a very low number...*

*... It can never be reduced to zero." EN 13060*

Soaking (Pre-disinfection) · Rinsing · Cleaning · Rinsing · Drying · Packaging · **Sterilization** · Storage

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## More to sterilization...


*Chamberland 1880*

**June 2004**

**EN 13060:** Small steam sterilizers

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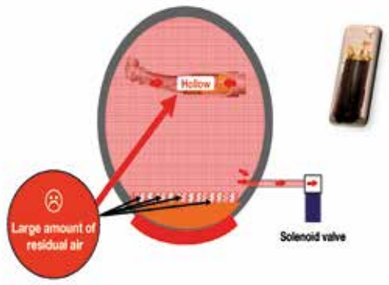
## Technology improved !

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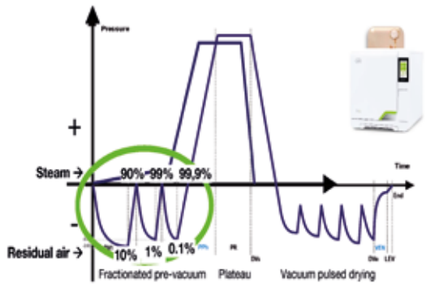
## B-type cycle profile

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## Is drying really important?

Non dried loads are
NOT releasable as sterile!

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## EN13060: Cycle types


**N**o vacuum, **N**ot wrapped, **N**ot hollow
→ **ONLY** for solid instruments

Cycles designed for **S**pecific products
→ For those declared by the manufacturer

**Medical grade cycle** (**B**ig sterilizer -*EN 285*)
→ Designed for ALL load types

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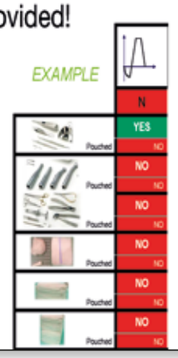
## Cycle table to be provided!

*EXAMPLE*

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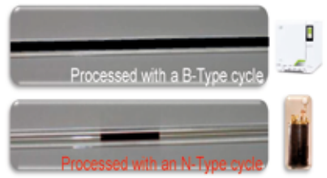
## N type cycle...

- 30 cm pipette filled with coffee, and...




Cycles without adequate air removal phases are
**NOT DESIGNED FOR HOLLOW INSTRUMENTS !!**

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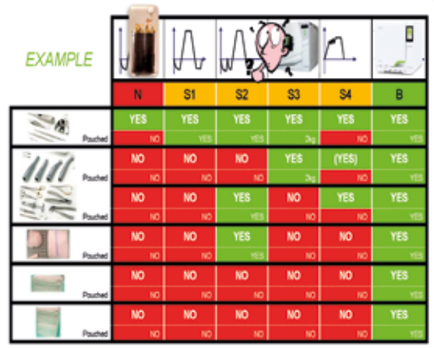
*EXAMPLE*

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## Cycle table to be provided

- *100% SAFE !*

| | B 134° | B PRION 134° | B 121° |
|---|---|---|---|
| Pouched | YES | YES | YES |
| Pouched | YES | YES | YES |
| Pouched | YES | YES | YES |
| Pouched | YES | YES | YES |
| Pouched | YES | YES | YES |
| Pouched | YES | YES | YES |

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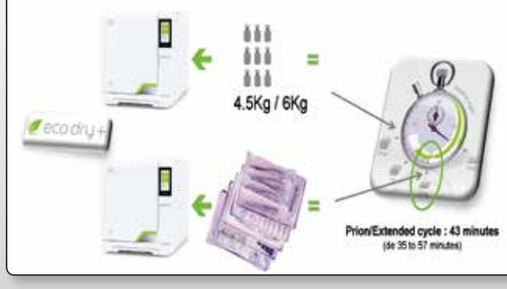
## Cycle made to measure




*Continues on page 20.*

# REPROCESSING MEDICAL DEVICES

*Continues from page 19.*



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## EN13060: Works test

#whdentalwerk

## EN13060: Works test

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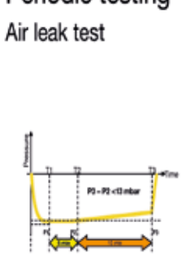
## Periodic testing

### Air leak test





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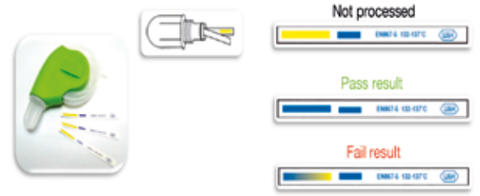
## Periodic testing

### PCD Helix test

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## ISO 11140-1 Chemical indicators

### Class 1: Process indicators

> Indicate the **units** have been **exposed to heat...**
> ... to distinguish between processed and non-processed units.
> These indicators **do not show** sterilization was achieved !

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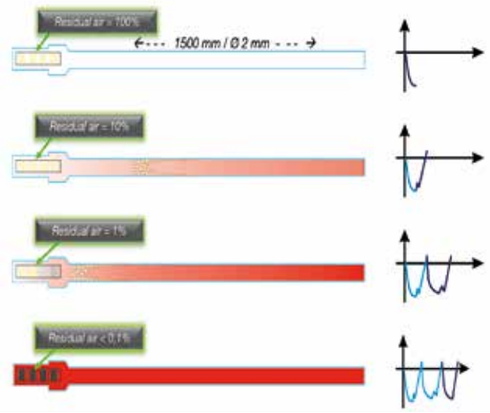
## ISO 11140-1 Chemical indicators

### Class 6: Emulating indicators

> Designed to react to **all** critical process parameters,
> Change colour **only when** all critical variables are achieved,
> Most widely used indicators for steam sterilizers,
> To be used inside packages, cassettes or containers,
> Accuracy **1°C** and **6%** on time.

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## Process Challenge Device

### Bowie & Dick test


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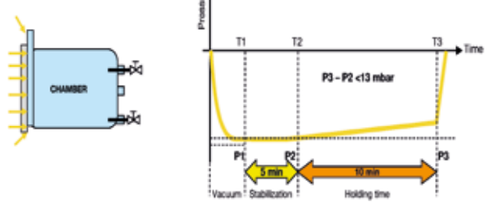
## Periodic testing

### Air leak test

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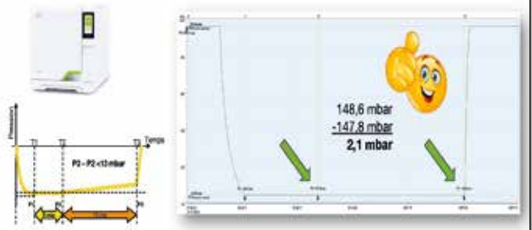
## Periodic testing

### Air leak test

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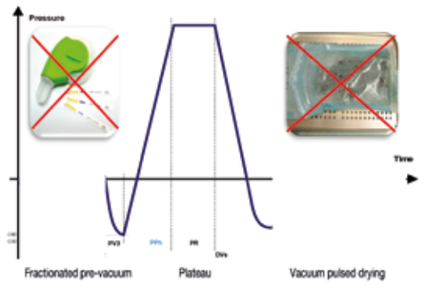
## "Quick" or "flash" cycles!

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## Sterilizer maintenance


*Continues on page 22.*

# REPROCESSING MEDICAL DEVICES

*Continues from page 21.*

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## Storage

- Store in drawers/cabinets in a clean and dry area,
- Avoid high humidity.

Soaking / pre-disinfection → Rinsing → Cleaning → Rinsing → Drying → Packaging → Sterilization → **Storage**

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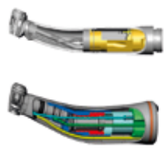
## Reprocessing handpieces

- HPs are challenging to clean and sterilize without efficient and validated processes,
- After use, microbial contamination of internal components of HPs was assessed.



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## Reprocessing handpieces

**Report on average contamination**

- *Turbine:* ***200*** *cfu (0-1.9 x10⁶)*
- *Spray channel:* ***400*** *cfu (0-1.0 x10⁶)*
- *Surgical instrument* ***1000*** *cfu (0-3.7 x10⁶)*

Including oral **Streptococci** and **Staphylococcus aureus**

*(Am J Infect Control. 2014 Sep;42(9):1019-21. doi: 10.1016/j.ajic.2014.06.008)*

| HP type and component | Number tested | Aerobic counts, CFU/component, median (range) | Anaerobic counts, CFU/component, median (range) |
|---|---|---|---|
| TA-98; turbine | 40 | 200 (0-1.9 × $10^6$) | 30 (0-8.5 × $10^5$) |
| W/98; spray channel | 40 | 400 (0-1 × $10^6$) | 200 (0-3.3 × $10^5$) |
| S11; surgical gear | 20 | 1 × $10^3$ (0-3.7 × $10^6$) | 2713 (175-6 × $10^5$) |

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## Reprocessing handpieces

- Handpieces are complex to clean and to sterilize without specific and validated processes,

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## Reprocessing handpieces
## Restrictions

- Cannot be soaked !
- Cannot be ultrasonic cleaned !

**ISO 17664**

*Processing of health care products — Information to be provided by the medical device manufacturer for the processing of medical devices*

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## Reprocessing handpieces

Soaking / pre-disinfection → Rinsing → Cleaning → Rinsing → Drying → Packaging → Sterilization → Storage

Pre-disinfection → Rinsing → Internal Cleaning → External Cleaning → Rinsing → Drying → Lubrication → Packaging → Sterilization → Storage

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## Manual reprocessing

- Remove burs / files,
- Disconnect the instrument from the drive,
- Wipe with a disinfectant cloth without aldehydes and chlorine.

Pre-disinfection → Internal Cleaning → External Cleaning → Rinsing → Drying → Lubrication → Packaging → Sterilization → Storage

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## Manual reprocessing

- Cannot be ultrasonic cleaned !


Pre-disinfection → Rinsing → **Internal Cleaning** → External Cleaning → Rinsing → Drying → Lubrication → Packaging → Sterilization → Storage

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## Manual reprocessing

- Clean under running water (<45°C),
- Use soft brushes.

Pre-disinfection → Rinsing → Internal Cleaning → **External Cleaning** → Rinsing → Drying → Lubrication → Packaging → Sterilization → Storage

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## Manual reprocessing

- Rinse with **demineralized** water,
- Dry internal parts, spray tubing and nozzles with gentle filtered compressed air,
- Dry external surfaces with absorbent cloth.

Pre-disinfection → Rinsing → Internal Cleaning → External Cleaning → **Rinsing** → **Drying** → Packaging → Sterilization → Storage

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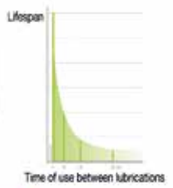
## Manual reprocessing

- Lubricate prior to sterilization (...),
- ..., or lubricate every 30 minutes of use,
- Test run for 30° with the head downwards.




Pre-disinfection → Rinsing → Internal Cleaning → External Cleaning → Rinsing → Drying → **Lubrication** → Packaging → Sterilization → Storage

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## Manual reprocessing

- Sterile storage ?
- Sterile instruments at the point of use ?

Pre-disinfection → Rinsing → Internal Cleaning → External Cleaning → Rinsing → Drying → **Packaging** → **Sterilization** → **Storage**

*Continues on page 24.*

# REPROCESSING MEDICAL DEVICES

*Continues from page 23.*

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## Manual reprocessing

> ... This is why internal cleaning if of highest importance !
> **Can this instrument be sterile ???**

Pre-disinfection · Rinsing · Internal Cleaning · External Cleaning · Rinsing · Drying · Lubrication · Packaging · Sterilization · Storage

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## Automated reprocessing

Internal Cleaning · External Cleaning · Drying · Lubrication · Packaging · Sterilization · Storage

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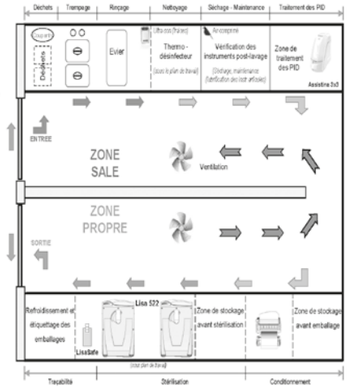
## Dr Tonnot – Seltz
France (3,80m x 3,00m)

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## Dr Tonnot – Seltz
France (3,80m x 3,00m)

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## Reprocessing areas

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## Reprocessing area
(3,50m x 1,80m)


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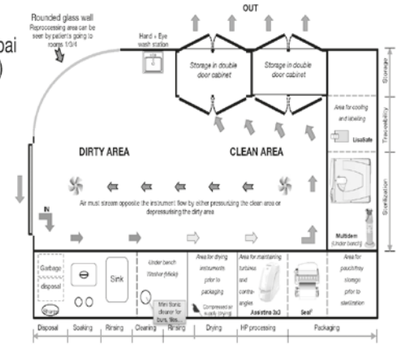
## The dome - Dubai
(4,10m x 2,40m)

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## The dome - Dubai
(4,10m x 2,40m)

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## Clinique du sourrire - Six-four - France

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## Reprocessing area
(4,00m x 2,50m)


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wh.com

## Traceability

**Christian Stempf**
*Hygiene Adviser*

Member of CEN-TC102 wg5 + wg8
*European Committee for Normalization*

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## Traceability

Traceability of the sterilization protocol is required to ensure patient safety and to legally protect your practice.


The aim is to link an **instrument** and a **sterilization cycle** to the **patient** by labelling loads with the following information:

> Sterilizer type and serial number,
> Cycle (batch) number,
> Sterilization date,
> Load expiry date,
> Person who released the load.

*Continues on page 28.*

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# REPROCESSING MEDICAL DEVICES

*Continues from page 25.*

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## Traceability

Recording of:

- Sterilizer S/N,
- Cycle (batch) number,
- Date / Use by date.

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## Traceability

Recording of:

- Sterilizer S/N,
- Cycle (batch) number,
- Date / Use by date
- To the patient records.

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## Traceability with *LisaSafe*

### Step 4: Easy labeling

- After load release bar code labels are printed and placed on the pouches.

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## Traceability with LisaSafe-W&H

### Step 5: Storage

- Once labelled, the instruments are stored, preferably in drawers or cabinets.

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## Traceability with *LisaSafe*

- A plug and play solution,
- Avoids unnecessary handling and risk of error,
- The bar code reader is compatible with all computers.

*The pack contains:*

- *a label printer*
- *6 300 labels*
- *USB bar code reader*

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## Traceability with *LisaSafe*

### Step 1 : Risk-free cycle selection

- Traceability begins by demonstrating the cycle is compatible with all load types,
- Lisa uses exclusively B-type cycles.

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## Traceability with LisaSafe-W&H

### Step 6: Transfer to the patient file

- Labels from the instruments used are scanned into the patient file,
- Labels can also be removed and transferred to the patient's card.

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## Traceability with LisaSafe-W&H

### Bar code scanning makes the link


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## Traceability with *LisaSafe*

### Step 2: Totally safe cycles

- Lisa software* monitors all cycle parameters in real time,
- Exclusive Air Detection system ensures full exposure to saturated steam.

** Process Evaluation System in compliance with EN 13060*

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## Traceability with *LisaSafe*

### Step 3: Control and load release

- The user identify themselves and enter their 4-digit pin,
- Their name is on the cycle records and saved on the USB stick,
- Load release is only possible if the cycle has completed successfully.

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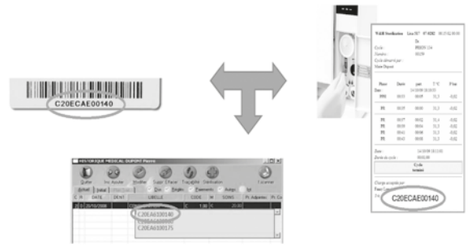
## Traceability with LisaSafe-W&H

### Link is made

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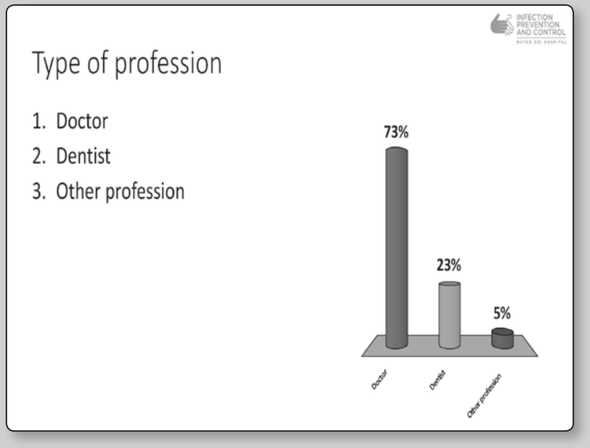
## CSSD

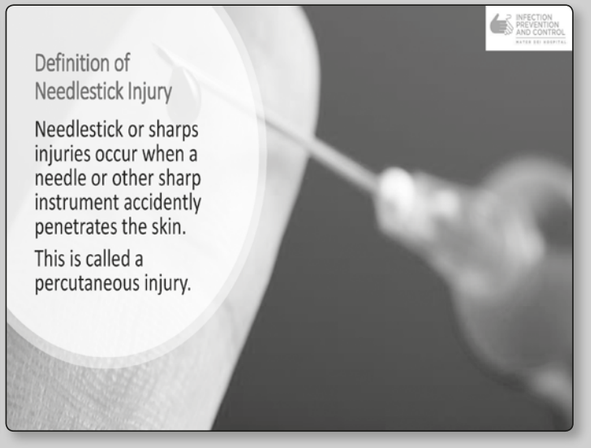
### CHU Strasbourg-France

# THE EYE OF THE NEEDLE

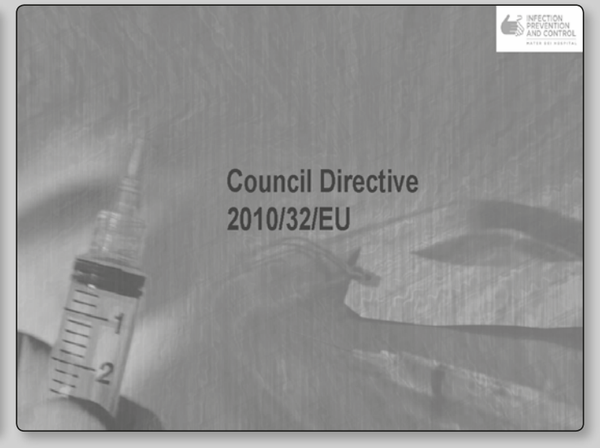
## PREVENTION OF NEEDLESTICK INJURIES AMONG HEALTHCARE WORKERS

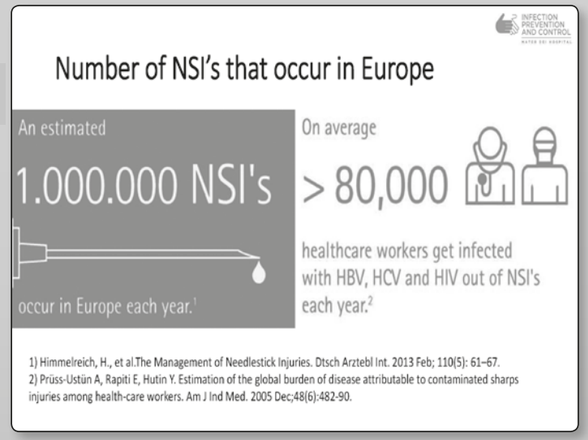
By Noel Abela
Senior Practice Nurse, Infection Control Unit, Mater Dei Hospital

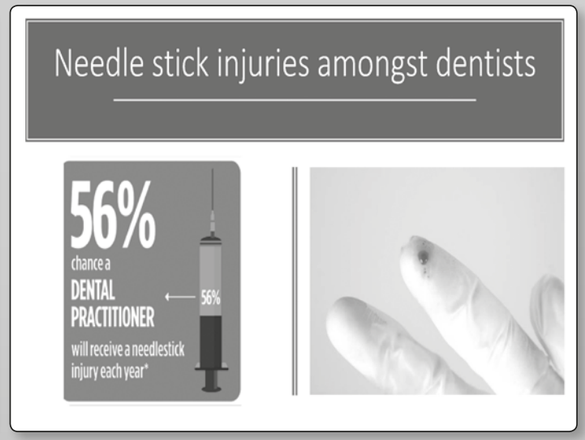


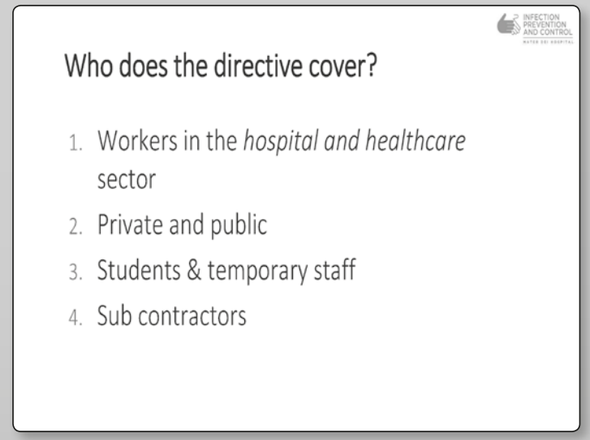



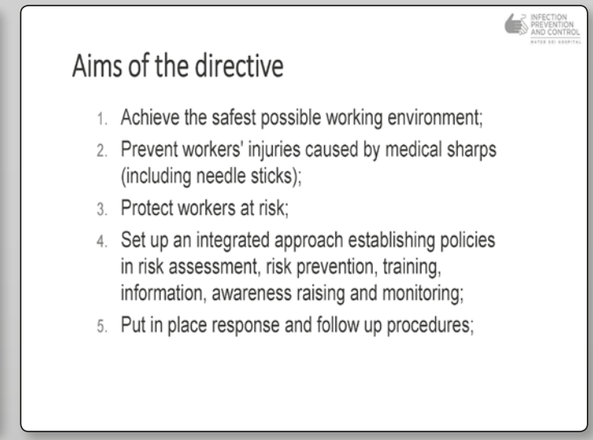


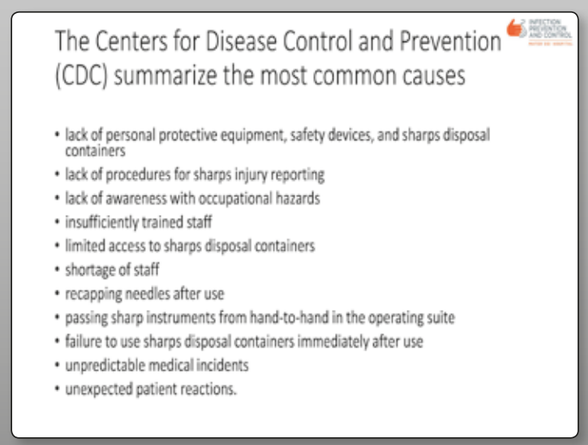


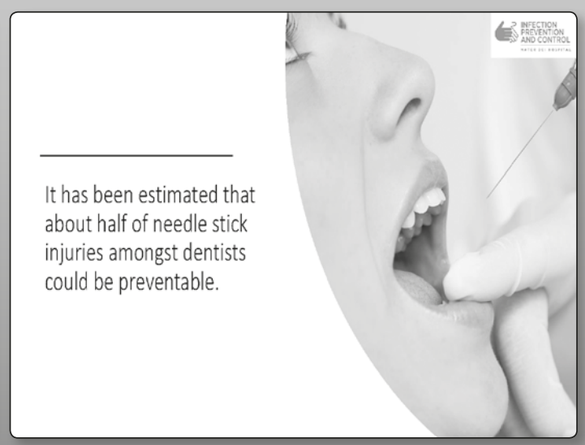



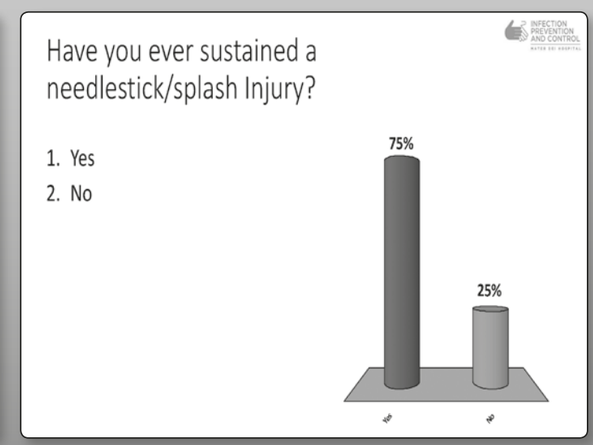







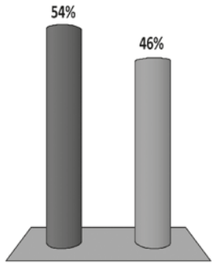

*Continues on page 32.*

# BLOOD-BORNE VIRAL INFECTIONS

*Continues from page 31.*

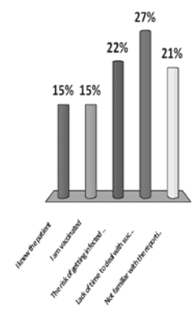
If you sustain or have sustained a needlestick/splash injury would/have you report it?

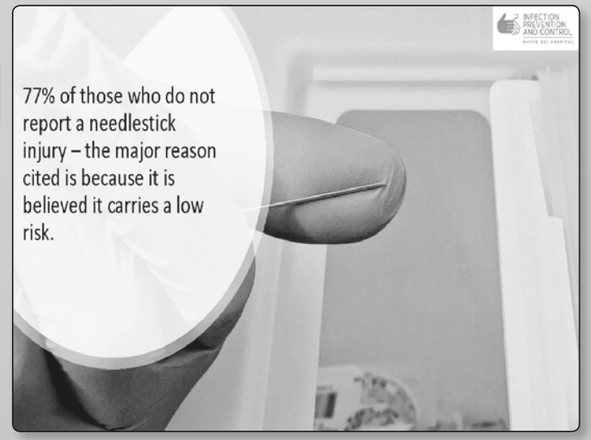
1. Yes
2. No




If the answer is no, why?

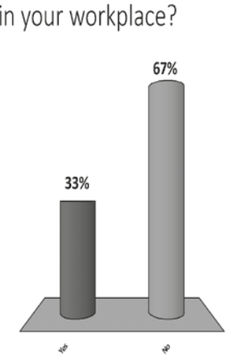
1. I knew the patient
2. I am vaccinated
3. The risk of getting infected is low
4. Lack of time to deal with such incidents
5. Not familiar with the reporting process



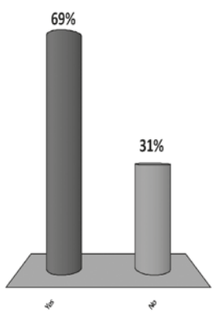

Have you ever received training on the prevention of sharps/splash injuries within your workplace?

1. Yes
2. No




Does your practice/clinic have a sharps safety policy?

A. Yes
B. No




VERIFIABLE CPD PAPER | RESEARCH

## Cross-sectional survey of a sample of UK primary care dental professionals' experiences of sharps injuries and perception of access to occupational health support

K. M. A. Trayner,*[1] L. Hopps,[2] M. Nguyen,[2] M. Christie,[2] J. Bagg[3] and K. Roy[3]

Aim: To estimate the prevalence of sharps injuries and under-reporting

Findings : Prevalence of sharp injuries was 20.8%
Under-reporting rate of 35%

*Continues on page 34.*

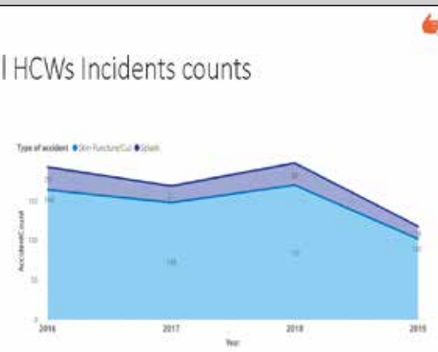
# BLOOD-BORNE VIRAL INFECTIONS

*Continues from page 32.*

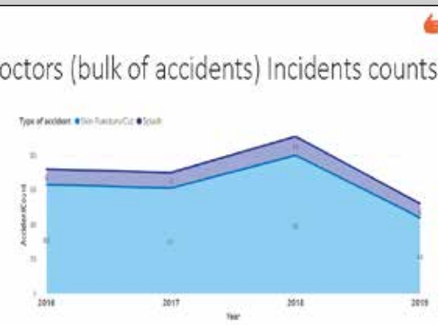
## Reasons for not reporting sharps injuries

| Reasons for not reporting | No. of non-reporters (%) |
|---|---|
| Did not consider patient to be high risk | 55.2 |
| Sterile or clean needle stick | 43 |
| Low perception of risk | 22.4 |
| Lack of time | 11% |
| Excessive paperwork | 17.2 |
| Not familiar with reporting process | 6.9% |
| Concern about the consequences of the injury | 3.4 |
| Concerns about confidentiality and professional discrimination | 3.4% |
| Other | 1.9% |

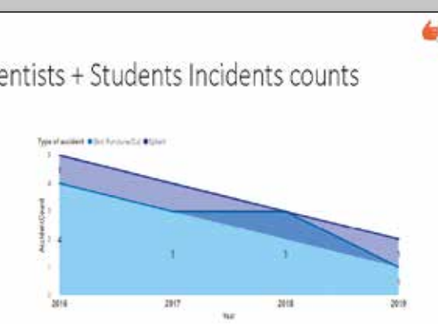

## All HCWs Incidents counts




## Doctors (bulk of accidents) Incidents counts




## Dentists + Students Incidents counts

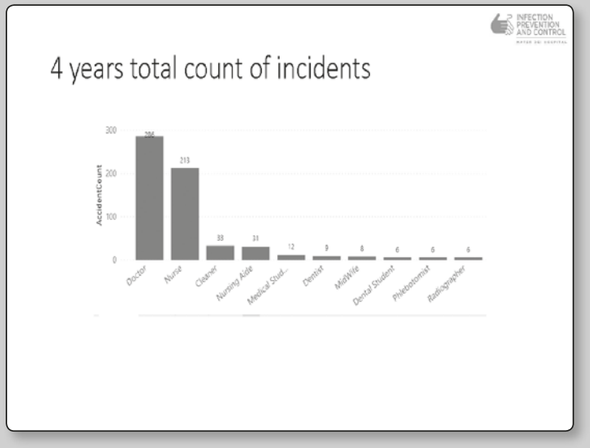


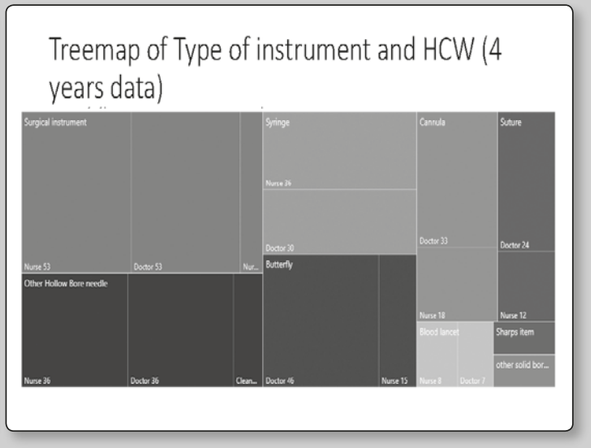

## Time of Accidents Incidents counts


*Continues on page 36.*

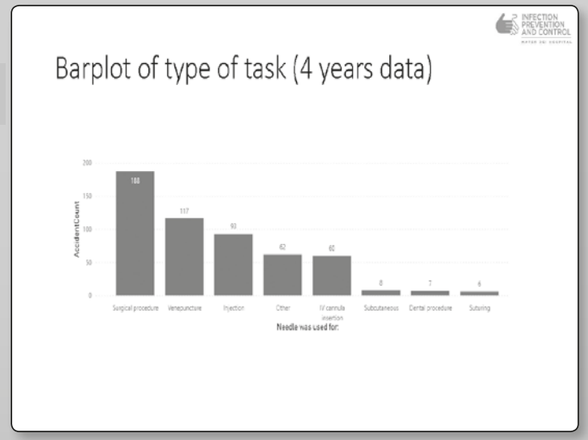
# BLOOD-BORNE VIRAL INFECTIONS

*Continues from page 34.*



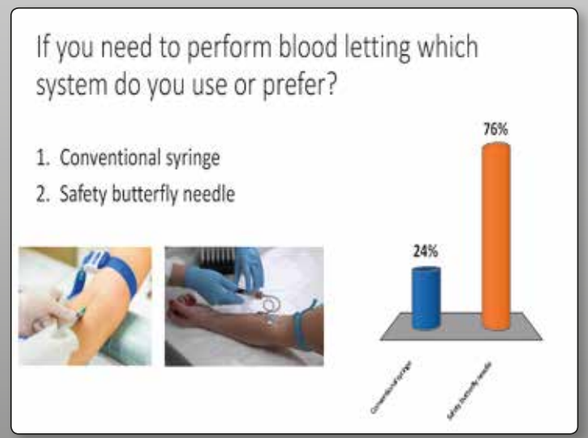



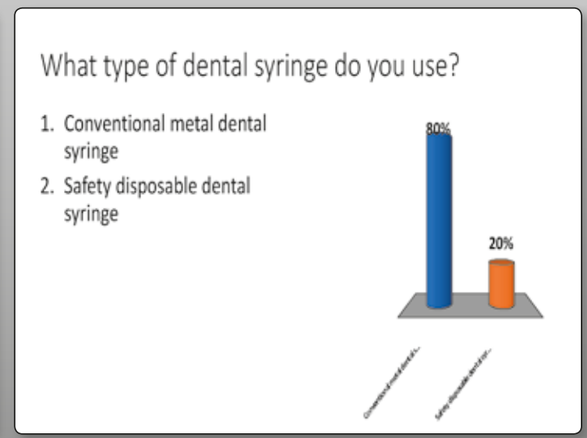








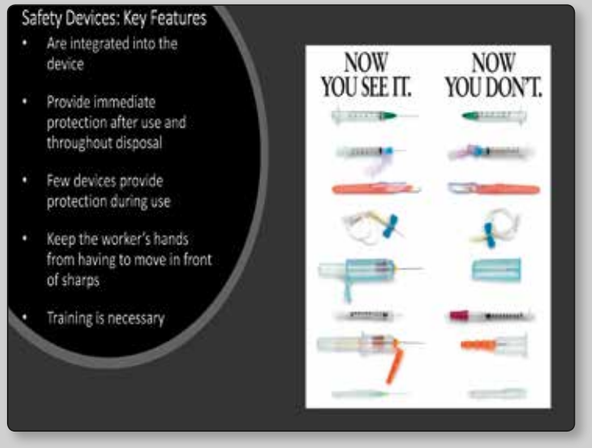



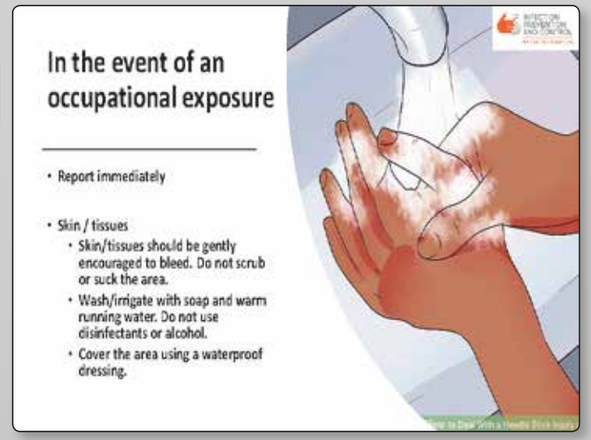

*Continues on page 38.*

# BLOOD-BORNE VIRAL INFECTIONS

*Continues from page 37.*







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# THANKING ALL *Dental Professionals* FOR THEIR CONTRIBUTION DURING THE COVID-19 PANDEMIC

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