PROTECTION MEANS HEALTH

Avoiding the risk of infections is always good practice.

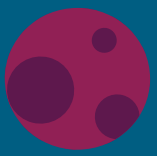
Zhermack
Dental

HYGIENE IN THE DENTAL SURGERY

When we enter a dental surgery, everything around us looks squeaky clean and uncontaminated.

But is this really true?

In actual fact, just like any other setting, a multitude of micro-organisms which are invisible to the naked eye are hiding here too. Many of these are entirely harmless for humans, but others are potentially dangerous and, if they penetrate the human body, they could cause infections and disease.

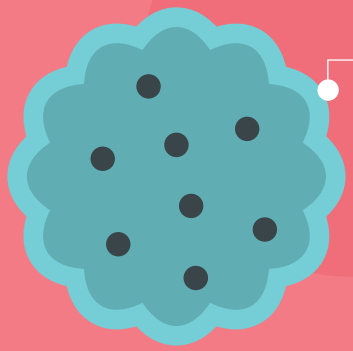


Germs: the risk you can't see

To prevent the risk posed by invisible micro-organisms, it is vital to know the characteristics of the pathogens which are harmful for humans: bacteria, viruses, fungi and spores.

BACTERIA

- Different-shaped unicellular micro-organisms (spherical, matchsticks or coils)
- They reproduce by binary fission, very quickly, giving rise to two new cells
- These can cause tuberculosis, pneumonia, Legionnaires' disease, meningitis, whooping cough, tetanus…

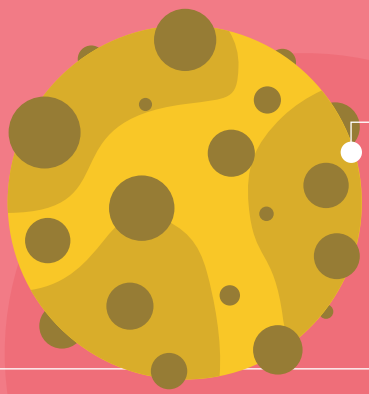


SPORES

- These are bacteria (Gram-positive) which, in adverse environmental conditions, turn into complex and resistant structures which contain a complete copy of the bacterial DNA inside them
- They are extremely resistant: they survive high temperatures, UV radiation and disinfectants

FUNGI

- These are unicellular (yeasts) or multicellular (moulds) micro-organisms commonly found in nature
- They reproduce sexually (spores), asexually (conidia) or by budding (blastic conidiogenesis) and they can also live without the presence of a host organism
- These can cause infections and fungal diseases, such as asthma, allergic bronchial pneumonia and candida



VIRUSES

- These are submicroscopic organisms of a non-cellular nature
- They do not have an independent metabolism and reproduce by exploiting the cells of the host they attack and settle in
- They can be fought using antiviral drugs and prevented by vaccines
- Some of the most dangerous viruses for humans include HIV, HBV, and HCV

Bibliography:

A.M.G.A. Laheij, J.O. Kistler et al., *Healthcare-associated viral and bacterial infections in dentistry*

A. Abbinante, G. Miragliotta, *La disinfezione in ambito odontoiatrico*

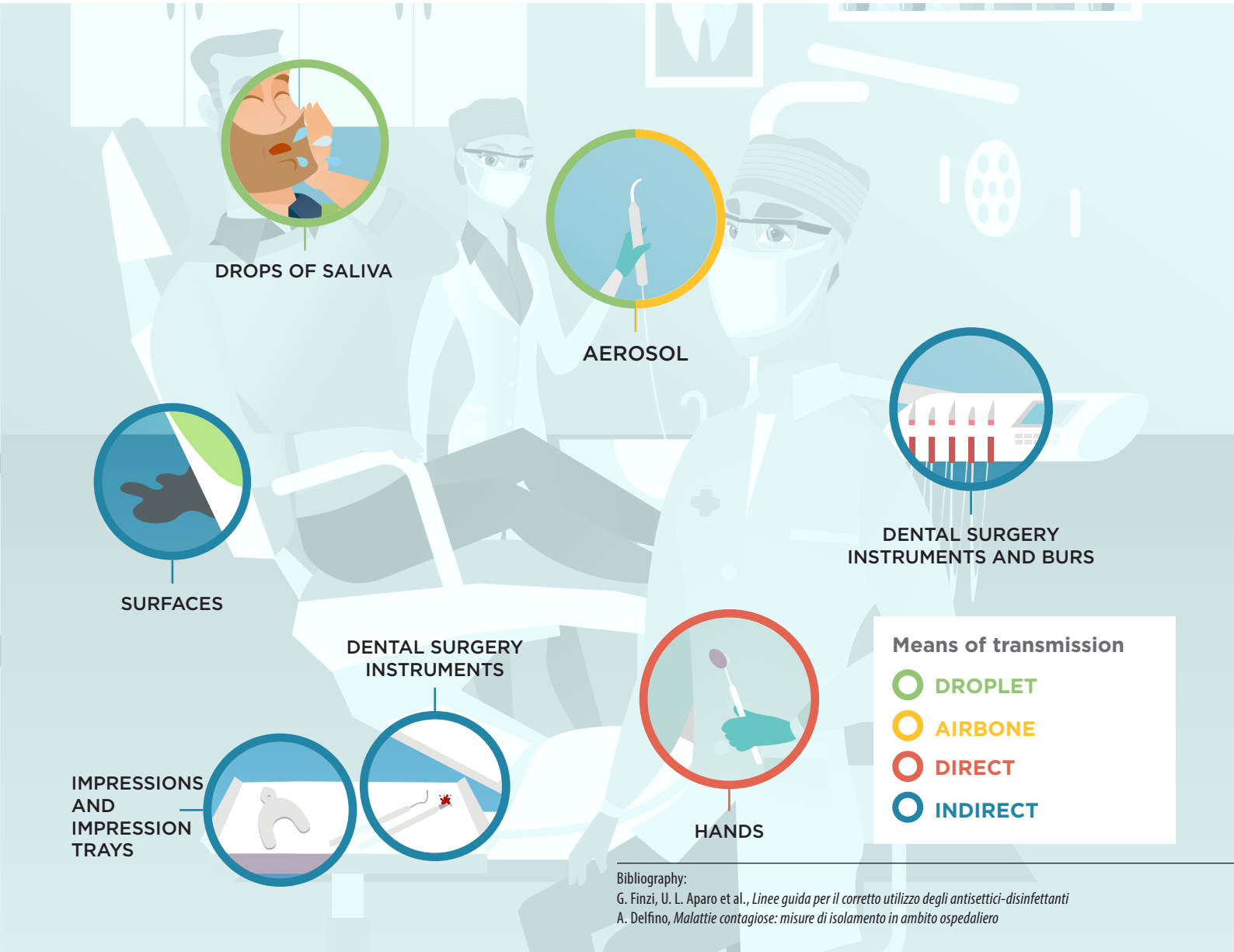
S. Kalanic, *Ruolo del laboratorio di microbiologia*

G. Agolini, A.M. Sancin, *Norme igieniche in odontoiatria*, cap.1

M. Prescott, *Microbiologia generale*

A critical environment

In a dental surgery, infections can be transmitted in different ways. In fact, micro-organisms can be transmitted directly (through physical patient to patient or patient to professional contact), indirectly (through contact with contaminated dental instruments or surfaces), via droplets (through exposure to droplets emitted by coughing or sneezing) or airborne transmission (through exposure to tiny particles which contain the contaminating agent that remain suspended in the air at length).



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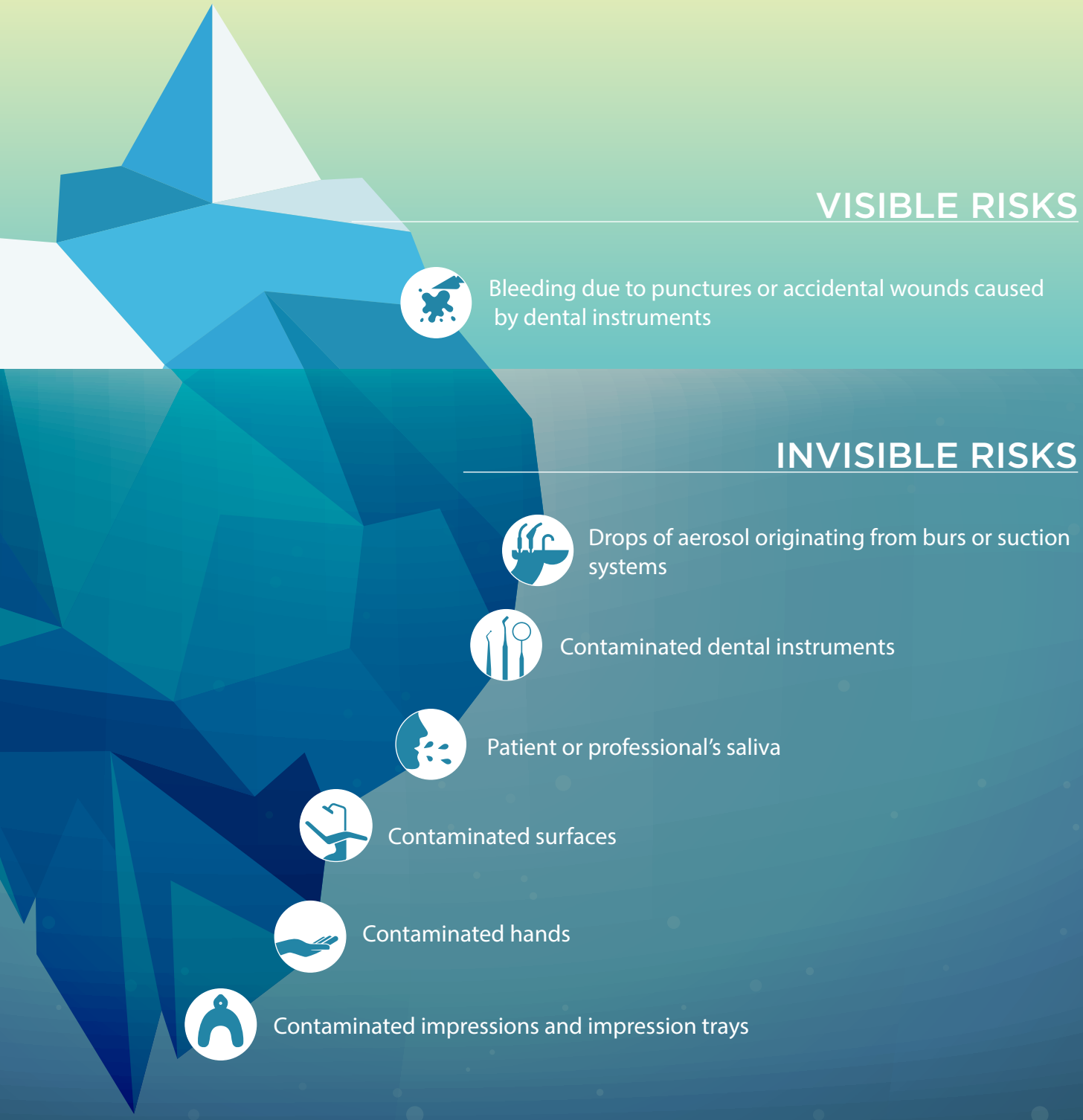
A. Delfino, *Malattie contagiose: misure di isolamento in ambito ospedaliero*


VISIBLE RISKS
Bleeding due to punctures or accidental wounds caused by dental instruments
INVISIBLE RISKS
Drops of aerosol originating from burs or suction systems
Contaminated dental instruments
Patient or professional's saliva
Contaminated surfaces
Contaminated hands
Contaminated impressions and impression trays

INVISIBLE MICRO-ORGANISMS, REAL RISKS

In everyday dental surgery, the risk of transmitting infections is very high and, like an iceberg, sometimes what the naked eye can't see can be truly as dangerous as what it can see.

For this reason, it is vital to prevent cross contamination caused by the presence of blood, but it is just as important not to underestimate more devious and hidden carrier of transmission, which are equally dangerous.

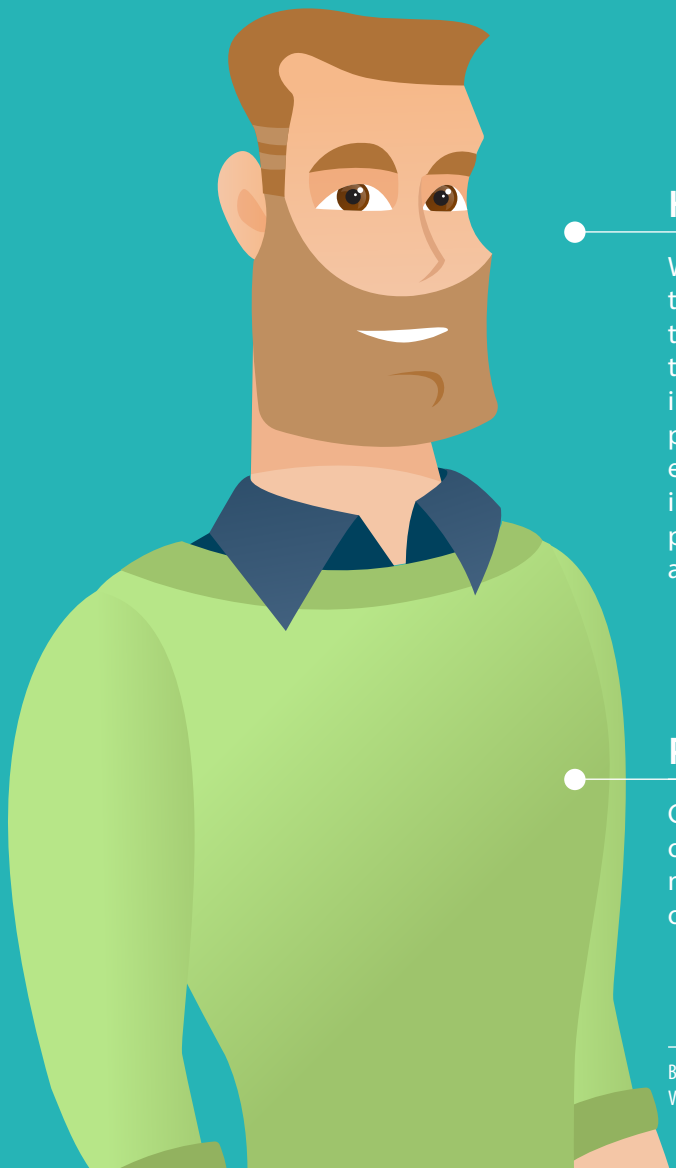
HOW CAN INFECTION BE AVOIDED?

Infections in a dental surgery are a real risk for both patients and surgery operatives: this risk needs to be minimised by implementing appropriate prevention measures, scrupulously following the procedures and making use of effective and safe products, which guarantee the highest level of protection possible.


Patient
Dental surgery staff
Dental surgery environment

Patient

To protect patients against infections effectively, it is important to know their state of health, without forgetting that each one should always be treated like a potentially contaminated person.



HISTORY

When covering the patient's history, the latter will provide useful information to assess his or her overall health and their level of exposure to the risk of infection. Sometimes, however, the patient may omit some details or even involuntarily provide incorrect information: for this reason, every patient should always be considered as potentially contaminated.

RINSING

Consecutive 30-second rinsing of the oral cavity with chlorhexidine 0.2% makes it possible to reduce the amount of germs by 90%.

Bibliography:
Veksler et al., *Journal of Periodontology*

Dental surgery staff

The risk of infection involves all professionals working in the dental surgery (dentists, dental hygienists, assistants…), who are therefore responsible for implementing the necessary prevention measures.

USE OF PERSONAL PROTECTIVE EQUIPMENT

Staff should always wear all personal protective equipment correctly (mask, goggles, cap, gloves, buttoned up lab coat).

CORRECT STAFF TRAINING

Staff must be aware of the risks of infections and motivated to prevent it. All staff members must be trained and informed about indispensable vaccinations and the related operating protocols and procedures which must scrupulously be observed every day.

HAND CLEANING

Normal hand washing significantly reduces the quantity of bacteria present, and the use of suitable antimicrobial products generates a persistent bacteriostatic effect, which prevents bacteria reproduction.

Bibliography:
G. Agolini, M.Gatti, A. Raitano, M.S. Rini, A.M Sancin, G. Sandonà, *Norme Igieniche in odontoiatria, Indicazioni, Tossicologia ed Aspetti medico-legali*
A. Abbinante, G. Miragliotta, *La disinfezione in ambito odontoiatrico*

Dental surgery environment

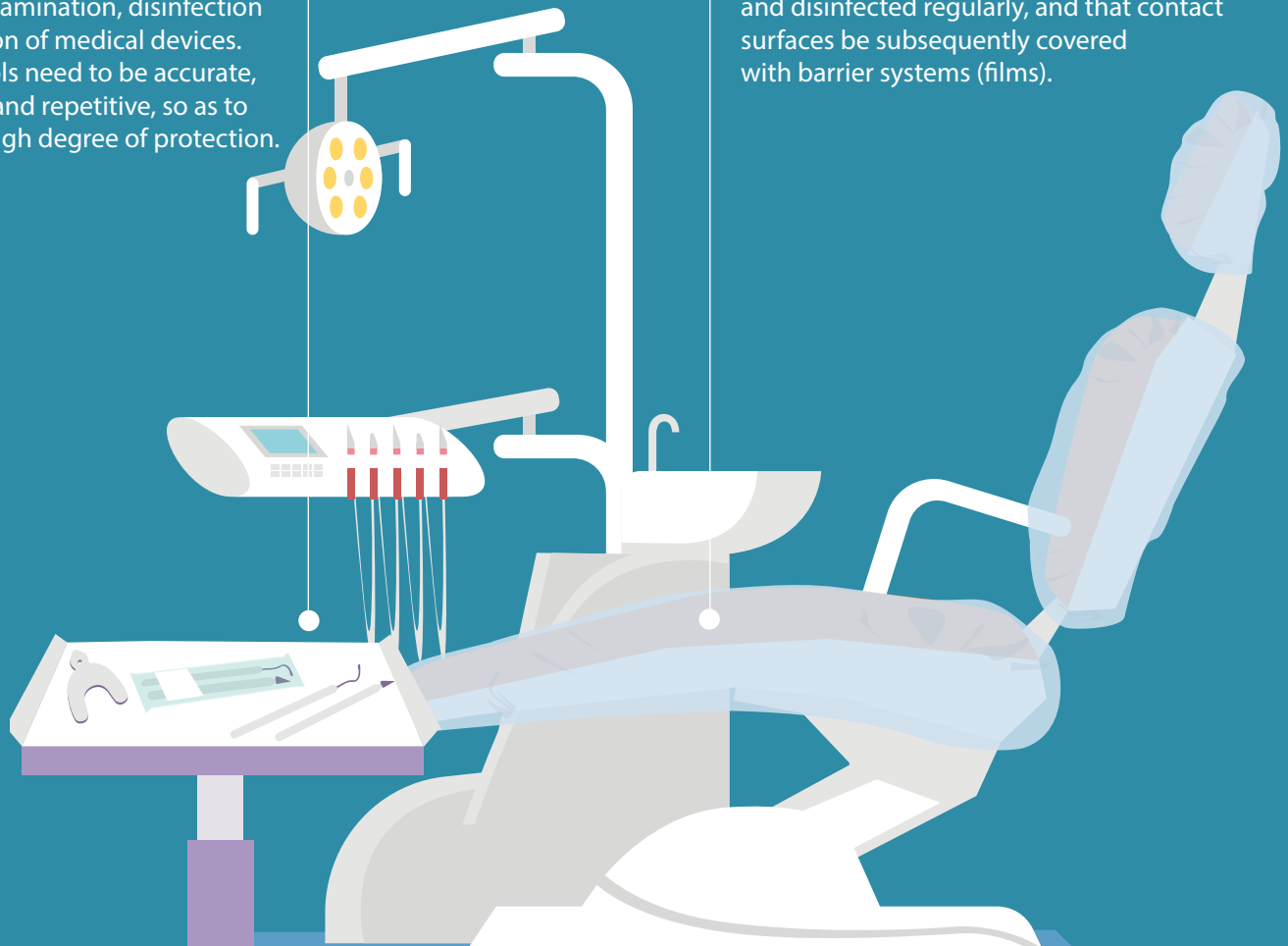
To minimise the risk of infection, accurate operating protocols need to be implemented for the decontamination, disinfection and sterilisation of the dental surgery instruments, cleaning and disinfection of environments, use of specific products, capable of accommodating various requirements.

EFFECTIVE OPERATING PROTOCOLS

Operating protocols need to be established in the dental surgery for the decontamination, disinfection and sterilisation of medical devices. These protocols need to be accurate, standardised and repetitive, so as to guarantee a high degree of protection.

CLEANING AND DISINFECTION

It is vital that all dental surgery instruments and surfaces be cleaned and disinfected regularly, and that contact surfaces be subsequently covered with barrier systems (films).



Correct choice of product

Different products are designed for different situations, and the choice of the right product is essential to making the operating protocols applied truly effective.

DECONTAMINATION	CLEANING	DISINFECTION	STERILISATION
Reducing the number of pathogen micro-organisms to a level that will ensure safe handling of all instruments.	Mechanical removal of dirty and organic material using water and cleaner.	Destruction, neutralisation or removal of pathogen micro-organisms present in a setting or substrate. It is not effective on spores.	Total elimination of all forms of micro-organisms (including spores) and other biological agents.
DISINFECTANT	CLEANER	DISINFECTANT	AUTOCLAVE or COLD CHEMICAL STERILIZERS*

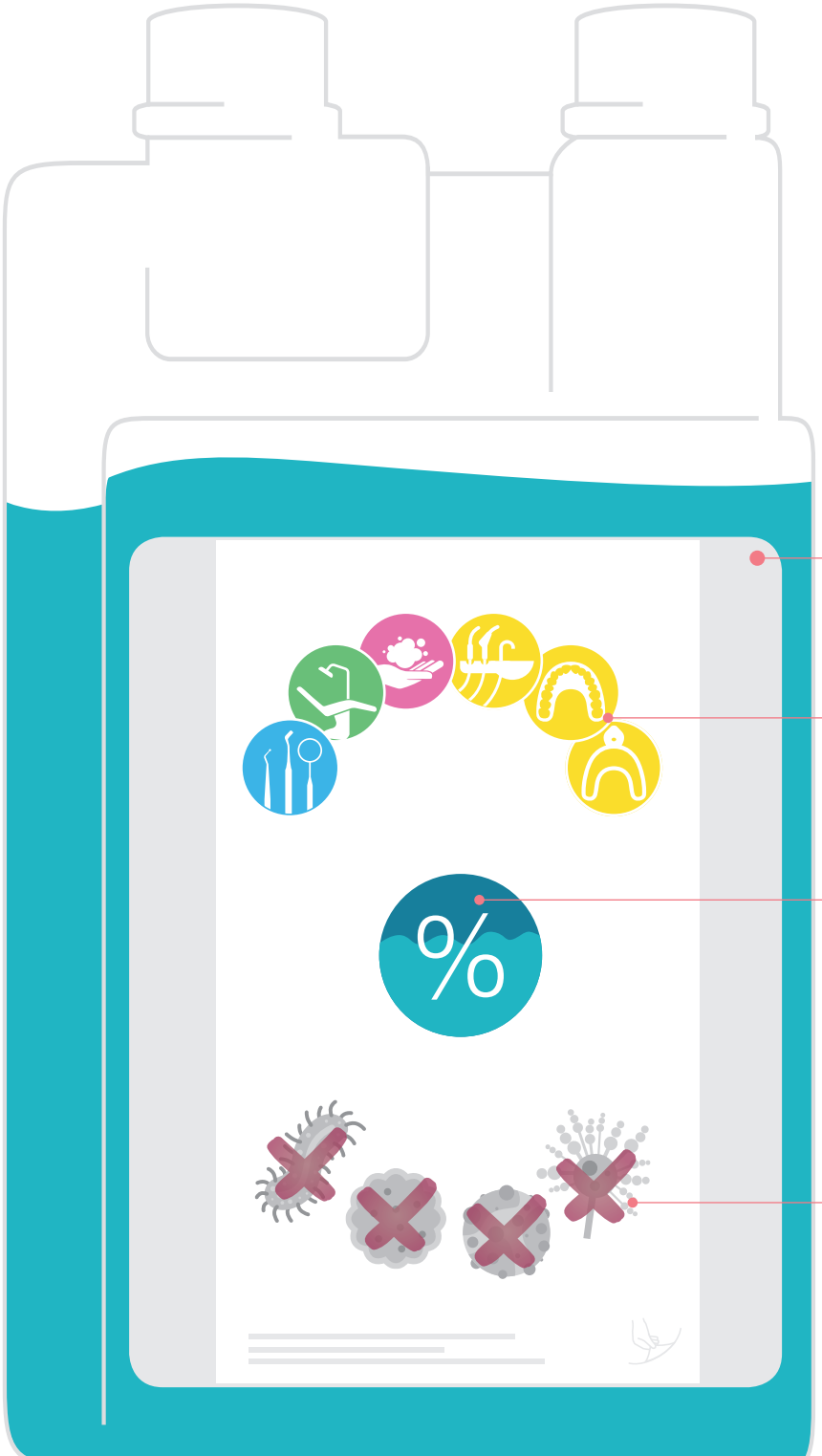
* only in the case of heat-sensitive micro-organisms that cannot be sterilised in an autoclave

Bibliography:
P. Zunino, *La disinfezione in ambito odontoiatrico*
A. Abbinante, G. Miragliotta, *La disinfezione in ambito odontoiatrico*
G. Finzi, U. L. Aparo et al., *Linee guida per il corretto utilizzo degli antisettici - disinfettanti*, p.63

HOW TO CHOOSE THE RIGHT PRODUCT?

Every product is developed for a specific application, in order to be effective and, at the same time, compatible with the materials on which it is used.

Once the right product for your requirements has been picked, it is important to use it correctly. Before using the product, it is in fact useful to read the instructions for use and subsequently scrupulously follow the concentrations and usage times indicated. In fact, incorrect product use could lead to unsuitable disinfection.



The product's ID

USAGE ENVIRONMENT

This indicates the type of application on which the product is effective.

CONCENTRATION

This indicates whether the product is ready for use or concentrated. In this latter case, the percentage usage concentration at which the product proves effective is indicated.

SPECTRUM OF ACTION

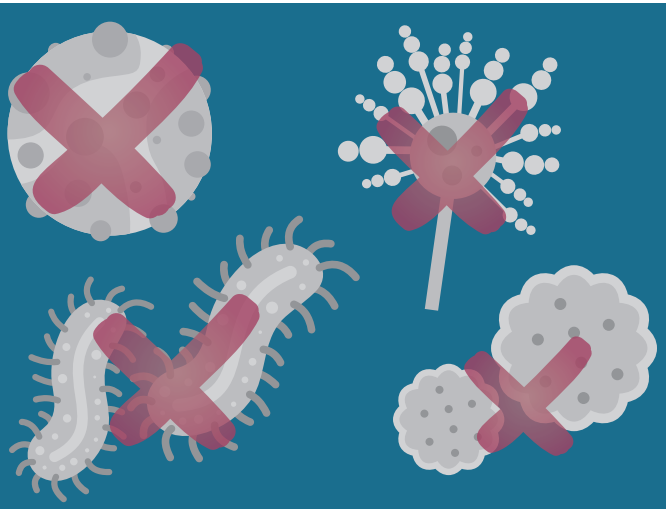
This indicates the type of micro-organisms and the level of effectiveness of the product against them, in compliance with European regulations.

Spectrum of action:
effectiveness of the disinfectant

The spectrum of action provides very important information on the real effectiveness of the disinfectant. The name of the organisms against which the disinfectant is effective (viru-; bacteri-; fungi-; tuberculo-…) is normally used as the root, to which a suffix is added to explain in what way the product acts against it.

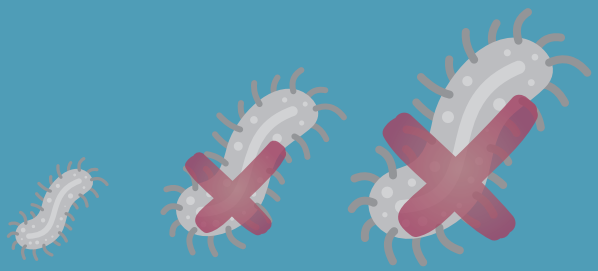
-CIDAL

The suffix "-cidal" indicates agents capable of killing the micro-organisms identified by the prefix (e.g. bacteriCIDAL: eliminates bacteria)



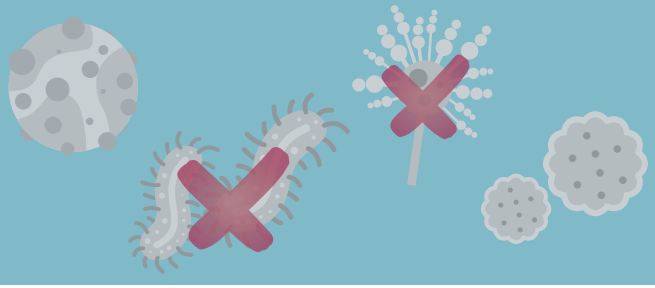
-STATIC

The suffix "-static" indicates agents capable of inhibiting the growth of the micro-organisms identified by the prefix (e.g. bacterioSTATIC: interrupts bacterial reproduction)



-ACTIVE AGAINST

The term "active against" indicates agents capable of partially eliminating the specific type of micro-organisms (e.g. ACTIVE AGAINST bacteria, it eliminates certain types of bacteria)



Bibliography:
G. Finzi, U.L. Aparo et al., *Linee guida per il corretto utilizzo degli antisettici-disinfettanti*

Spectrum of action:
5-digit effectiveness

The manufacturer indicates the regulations with which the product complies to confirm the effectiveness of the disinfectant against a given micro-organism. Reference to the regulation consists of the acronym "EN" plus a series of four or five digits that depend on the accuracy of the test carried out on the disinfectant. Zhermack products are tested according to the more updated European "EN" five-digit regulations, which are more accurate and thorough than the four-digit regulations.

4-DIGIT REGULATIONS
EN XXXX

Products featuring the acronym EN followed by 4 digits:
- Have been tested only in clean conditions
- Establish whether the product is active against bacteria and fungi
- Evaluate the activity of the product towards micro-organisms without considering other parameters which may affect the reaction between micro-organisms and the product (interfering substances such as blood, cotton and organic residue)

5-DIGIT REGULATIONS
EN XXXXX

Products featuring the acronym EN followed by 5 digits:
- Have been tested in both clean and dirty conditions
- Establish whether the product has a bactericidal, microbactericidal, fungicidal, virucidal or sporicidal action
- Evaluate the activity of the product against micro-organisms, simulating the practical conditions of use

Zeta Hygiene line

Zeta Hygiene is the ideal solution for the most demanding professionals, that guarantees excellent safety and protection for users and patients.
All the products in the line are specific for a given application, effective against the main types of micro-organisms, in compliance with the most recent European regulations.

ZETA 1 LINE
ZETA 2 LINE

ZETA 3 LINE

ZETA 5 LINE

ZETA 6 LINE

ZETA 7 LINE

FEEL SAFE

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Fulfilling your needs

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