

# Microbiological evaluation in oral health units: detection of antibiotic resistant bacteria

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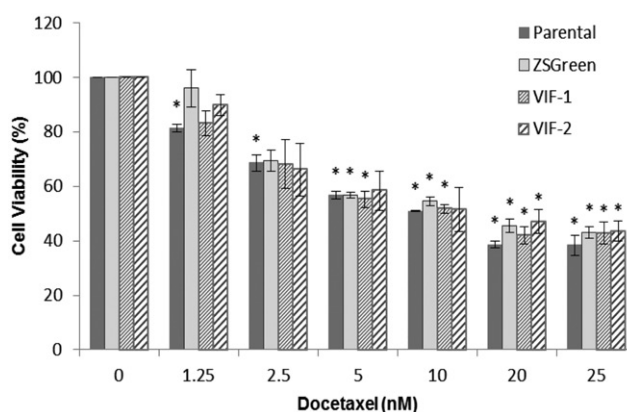
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**Figure 1.** Viability of cells treated with docetaxel for 48 h. Untreated cells are considered to have 100% of viability. Values are present as average  $\pm$  SEM of three independent MTT assays. \* $p$ -value  $<.05$  in relation to untreated cells within the same cell line.

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## Microbiological evaluation in oral health units: detection of antibiotic resistant bacteria

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### ABSTRACT

**Introduction:** The environment in oral health care units can represent an important source of transmission of infections, which can be acquired through aerosols, bleeding, saliva and respiratory secretions [1]. It is increasingly important to prevent cross-infection in dental clinics [2]. Resistance to antibiotics is a serious public health problem. Presence of resistant microorganisms in health care units is a worrying reality, but little is known about oral health care units [3]. The aim of this study was the detection of microorganisms resistant to antibiotics at the Clínica Dentária Egas Moniz, in the dentist's chair, trays and lamp handles.

**Materials and methods:** Environmental samples were collected at the dental clinic with a swab. Sampling was made at trays, chairs and lamp handles, at the end of the appointments. All samples were inoculated in Trypticase soy agar (TSA), Mannitol salt agar (MSA) and MacConkey agar. All the bacteria that grew in MSA and were mannitol positive were inoculated in chromogenic agar, because we wanted to detect Methicillin resistant *Staphylococcus aureus* (MRSA).

**Results:** Of the 123 samples obtained in 41 working stations, only two (1.6%) lactose negative bacteria were found. One was isolated from a tray and the other from a lamp handle, in two different working stations.

We found 51 mannitol positive *Staphylococcus* samples (41.5%), were isolated from 36 different working stations, being 14 samples identified as MRSA (11.4%). These MRSA were isolated from 13 different working stations. In our study, we cannot identify if there was a preferential location for the presence of MRSA, but we found it mainly at trays and dentist's chairs.

**Discussion and conclusions:** There was a low contamination by *Enterobacteriaceae*. However, a percentage of MRSA isolation of 11.4% was obtained. There are few similar studies. Although, in a study where 95 surfaces from 7 different university dental clinics were evaluated, 8 MRSA were found, which corresponds to 8.4%. Comparing to our study, we obtained a slightly higher percentage.

These results demonstrate that oral health care units are also sites of contamination, where bacteria with resistance to

antibiotics can circulate. They also reinforce the need for good hygiene and disinfection of the site between appointments.

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## A teaching tool for nursing procedure with oxygen therapy

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### ABSTRACT

**Introduction:** Oxygen therapy is applied in a variety of clinical situations where patients have low levels of oxygen in the blood and is part of one of the procedures in nursing care. Knowing that home care is more beneficial for the patient, because it promotes a faster recovery and guarantees comfort and safety, preserving its autonomy [1], it is pertinent to train (enable) both patients and informal caregivers (e.g. family, friends), with the correct knowledge (empowerment) and procedures to follow. Nurses have a fundamental role in the training of patients and/or informal caregivers, knowing their difficulties and realities, thus enabling caregivers to be autonomous in-home care [2–4]. This work presents an original educational tool that uses pictograms to teach and empower patients and/or caregivers to use oxygen therapy materials correctly at home.

**Materials and methods:** An Educational Tool for Health purposes was originally designed using pictograms, which illustrates/anticipates the therapeutic procedures, destined for patients who need oxygen therapy with regularity. The instrument is made up of a set of pictograms that complement the clinical nursing procedure on oxygen therapy (teaching step by step the therapeutic) and a good practice manual (helps to understand oxygen therapy and serves as a record and monitoring of the difficulties experienced).

**Results:** The use of pedagogic tools for health using pictograms can be a strategy to improve interpersonal communication between nurse and the patient and/or informal caregiver [5]. They can also be used as complementary learning tools, because of their universal character, the pictograms constitute an effective way to overcome individual constraints, such as literacy level, familiarity with the images, interpretation, and perception of what is being pictorially represented [6]. The suggested good practice manual is interactive and dynamic, enabling both patient and informal caregiver to focus and actively participate.

**Discussion and conclusions:** The Strategies for Health Education are increasingly relevant on what concerns the change in health behaviour. Pedagogical materials of this nature facilitate the understanding and use of therapeutic procedures used daily, allowing to reduce the excessive dependence of professionals and health services and are fundamental contributions for a greater autonomy and adherence to the health behaviours of the patient and/or informal caregiver.

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