Background
Oxygen is recognised as an essential element in the wound healing process and, it is suggested that the topical application of oxygen may be a promising therapy in wound care. Thus, the importance of oxygen in the tissue healing process is evident, namely in ATP synthesis; production of reactive oxygen species, which stimulate vascular endothelial growth factor synthesis; and microbial growth inhibition through the promotion of macrophage chemotaxis and increase of leukocyte activity. Moreover, oxygen increases the rate of collagen deposition, an important step in healing, which supplies the matrix for angiogenesis and tissue maturation. Thus, according to the P.I.C.O. review model for clinical questions, this systematic review intends to answer the research question "*In chronic wounds, how does topical oxygen therapy affects wound healing?*". It was considered chronic wounds for "patient population or disease of interest", topical oxygen therapy for "intervention or issue of interest" and wound healing for "outcome". However, a "comparison intervention or group" and a "time frame" were not applicable.
Objective
The aim of this study was to conduct a systematic review of the current evidence for this therapy through the analysis of primary research studies published between January 2006 and December 2016.
Methods
Published literature was identified using Scopus, B-On, Scielo, Pubmed, Ebsco Host and Medline databases. Exclusion criteria and quality indicators were applied and a total of 11 articles with different designs were included in the review.
Results
The studies analysed emphasise the evidence of additional O_2 usage in wound care, since it reduces hypoxia and it allows triggering mechanisms which are essential for the healing process. The analysed literature presents the results of its effects in its various forms: pressurized, continuous and dissolved. Although there are still questions about the exact mechanisms of this treatment and it is necessary to carry out randomised studies, the current results suggest that this therapy plays an important role in restoring the O_2 balance in the wound bed, necessary for healing.
Conclusions
These findings show the potential of this therapy in promoting healing of chronic wounds and improving people's quality of life. In addition, there are many other potential advantages related to its usage, such as low cost, apparent safety, no associated adverse effects and the possibility to submit a diversified population to this care at any health organisation or even at the patient's home.
Keywords
Oxygen, Topical administration, Wound Healing, Wounds and Injuries.

P11

Microbiological characterization of bathing areas of a county in the Northern region

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Background
The management of bathing water aims at the protection of human health and the preservation, protection and improvement of the quality of the environment [1, 2]. In order to control the quality of these same waters for recreational use, microbiological indicators of faecal contamination are monitored, according to Decree-Law 135/2009 of June 3rd [1]. The microbiological indicators of faecal contamination used are *Escherichia coli* and *Enterococcus spp*. since they are commensals of the gastrointestinal flora of humans and most animals [3].
Objective
This study aimed to characterize the results of intestinal *E. coli* and *Enterococcus* parameters of inland bathing waters of a county in the northern region of Portugal during 2016.
Methods
A retrospective descriptive study was performed using database records from a northern laboratory. The microbiological parameters studied to characterize the inland bathing waters included CFU/100mL of *E.coli* and CFU/100mL of intestinal *Enterococcus*. The results were classified as "Bad", "Acceptable", "Good" or "Excellent", according to the Decree-Law 135/2009 of June 3rd [1].
Results
We verified that in the total of 26 inland bathing waters under study, 6 (23.1%) obtained a quality equal to or greater than "Acceptable". The remaining 20 bathing waters (76.9%) were classified as "Bad". This result, in 17 samples was due to both parameters, intestinal *Enterococcus* and *E. coli*. In the other three, the "Bad" classification was only due to the *Enterococcus* results. The months with the highest counts of *E. coli* were September (45.69%), June (43.30%) and May (39.62%), and for *Enterococcus* were May (52.83%), June (52.58%) and July (32.35%).
Conclusions
In an initial study and applying criteria that will then have to be more extended in terms of time, there is a first tendency for most of the inland bathing waters under study to present "Bad" quality (76.90%). Since all bathing waters should have at least "Acceptable" quality and provisional data, these results indicate an urgent need to take measures in order to counteract this and increase the number of bathing waters classified as "Excellent" or "Good." The different *E.coli* and intestinal Enterococcus counts observed in different months showed that climatic, environmental, social and urban factors could be involved in this differences and deserves attention in future studies [2, 4]. The quality of bathing water is fundamental in terms of public health. In this sense, the results of this study are worrisome, however these studies should be conducted in a longer time perspective.

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Keywords
Inland bathing water, Fecal contamination indicators, Escherichia coli, Enterococci intestinal.

P12

Microbiological characterization of food handlers in school canteens

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