

Reactive Oxygen® therapy officially recognised by NHS through Public Health England (PHE) guidance for common infections

October 2, 2017

Matoke Holdings, the British biotech company developing a new generation of antimicrobials, is delighted to announce its patent-protected Reactive Oxygen® technology is officially recognised in the latest Public Health England (PHE) guidance, 'Management and Treatment of Common Infections Antibiotic Guidance For Primary Care' ⁽¹⁾@ <https://www.gov.uk/government/publications/managing-common-infections-guidance-for-primary-care>

Professor Jonathan Cooke, Clinical and Chief Pharmaceutical Advisor for Matoke, said: "This is an extremely important development for Reactive Oxygen® as it is now recommended in NHS guidance for common infections in primary care where most antibiotics are used and misused.

"It is a niche recommendation (for venous leg ulcers) but as more and more evidence is published this will be able to be widened to include other areas of infections of skin and soft tissues."

Published in September 2017 and updated every three years, the guidance is targeted at doctors, nurses and pharmacists. It aims to provide: "a simple, effective, economical and empirical approach to the management and treatment of common infections; minimise antimicrobial resistance in the community and lead to more appropriate antimicrobial use."

Under the section on venous leg ulcers, the summary table states: "Antimicrobial reactive oxygen gel may reduce bacterial load and infection."

The accompanying written report cites two peer-reviewed research papers on Reactive Oxygen therapy published in *Current Opinion on Infectious Diseases* and the *Journal of Global Antimicrobial Resistance* ^(1a, 1b)

The rationale describes how the use of Reactive Oxygen® therapy in leg ulceration can reduce unnecessary antibiotic prescribing for colonisation and the amount of time community nurses currently spend dressing and treating non-healing leg ulcers. Its use is supported by five *in vitro* and one large observational study.

Ian Staples, Founder and Chief Executive of Matoke Holdings, commented: “We have more antimicrobial products in the pipeline to extend the use of Reactive Oxygen® technology to other areas where antibiotics are increasingly failing. There are multiple clinical applications.”

REFERENCES

1. ‘Management and Treatment of Common Infections Antibiotic Guidance For Primary Care’ papers cited
 - a) Dryden M. Reactive oxygen therapy: a novel therapy in soft tissue infection. *Curr Opin Infect Dis*. 2017 Apr; 30(2):143-149. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/28225711>.
RATIONALE: An editorial, stating that many chronic, poorly healing lesions get treated with antibiotics, despite the lack of evidence for long-term antimicrobial treatment. One of the only novel agents to reach clinical use is one using reactive oxygen species (ROS), oxygen radicals, as an antimicrobial mechanism. This editorial outlines the following five key points: reactive oxygen species is highly active against Gram-positive and negative organisms, with some viral and fungal activity; ROS can prevent biofilm formation and reduce existing biofilm activity; ROS has significant therapeutic implications for topical treatment of wounds, surgical cavities, respiratory tract and urinary mucosa; ROS is delivered by topical and local application; ROS can support infection prevention and antimicrobial stewardship. The author concludes that early clinical data supports ROS treatment in skin and soft tissue lesions to reduce bacterial bioburden and biofilm in critical colonisation, and in preventing surgical site infection. The approach is that the use of ROS in leg ulceration can reduce unnecessary antimicrobial prescribing for colonisation, and reduce the amount of time community nurses currently spend dressing and treating non-healing leg ulcers.
 - b) Dryden M, Cooke J, Salib R, Holding R, Pender SLF, Brooks J. Hot topics in reactive oxygen therapy: Antimicrobial and immunological mechanisms, safety and clinical applications. *J Glob Antimicrob Resist*. 2017 Mar; 8:194-198. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/28219826>.
RATIONALE: An editorial, stating that reactive oxygen species, when combined with various delivery mechanisms, has the potential to become a powerful novel therapeutic agent against difficult-to-treat infections, especially in those involving biofilm. ROS is rapidly active *in vitro* against all Gram-positive and Gram-negative bacteria tested, and also has antifungal and antiviral properties. ROS has successfully

been used in infection prevention, eradication of multi-resistant organisms, prevention of surgical site infection, and intravascular line care. For skin and soft tissue infections, one large observational study and five in vitro studies have recorded a reduction in bacterial load and biofilm, and healing has been promoted with the use of ROS. The authors conclude that this antimicrobial mechanism

About Matoke Holdings

Matoke Holdings is focused on developing new antimicrobial products based on its patent-protected Reactive Oxygen® technology to improve patient care.

The ground-breaking technology provides a real solution to the threat of global antibiotic resistance and the search for novel antimicrobial agents. It acts via oxygen radicals that attack bacteria and stimulate new tissue growth.

Research has shown Reactive Oxygen®

- Rapidly and universally destroys bacteria - Gram-positive and Gram-negative - including MRSA, *Pseudomonas aeruginosa* & *E.Coli*.
- Antifungal and antiviral properties
- Prevents and destroys biofilms, or colonies of bacteria, linked to chronic infection
- Promotes healing

About Public Health England

Public Health England (PHE) exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. It does this through world-class science, knowledge and intelligence, advocacy, partnerships, and the delivery of specialist public health services. PHE is an executive agency of the Department of Health, and is a distinct delivery organisation with operational autonomy to advise and support government, local authorities, and the NHS, in a professionally independent manner.

The guidance has been produced in consultation with the Association of Medical Microbiologists, general practitioners, nurses, specialists, and patient representatives. The guidance is in agreement with other publications, including NICE, SIGN and CKS. The guidance is fully referenced and graded

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