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**Title:** Recommended technology to relieve oral mucositis not yet available for children or young people in England or Wales (18/50 words)

Dear Editor,

We thank Professor Dimitri of NIHR Children and Young People Medical Technology Co-operative (NIHR CYP MedTech) for sharing his insight into the future role of child health technology across the NHS.[1] We agree that there are clear roles for developing new technologies to address some of the unmet health needs of children and young people (CYP). We note that there is difficulty incorporating existing technologies into UK child health. Our research group are interested in supportive care in cancer and are exploring the role of Low-Level Laser Therapy (LLLT). This handheld tool is applied to the oral mucosa (either intra-orally or extra-orally), with the intention of preventing or treating oral mucositis in children with cancer. The LLLT tool is similar in appearance to *Doctor Who’s* *Sonic Screwdriver*, but unfortunately not as diverse in functionality.

The National Institute for Health and Care Excellence recommends LLLT for the prevention or treatment of oral mucositis.[2] Most of the evidence considered was from adult studies, but LLLT can be used in children. According to this guidance, LLLT may be administered up to five times per week during oncology treatment, with each treatment taking up to around 30 minutes.[2] However, details on administration – for example, dose, wavelength, and power are not provided.

We know that oral mucositis is an existing area of unmet need. Oral mucositis can be a highly distressing side effect of some forms of cancer treatment, affecting up to 80% of children undergoing chemotherapy.[3]

[Image 1 – picture of boy experiencing severe oral mucositis]

Additionally, the Pediatric Oncology Group of Ontario Mucositis Prevention Guideline Development Group produced guidelines in 2017 on oral mucositis prevention, providing a “weak recommendation” for LLLT, because “it is unknown whether it is feasible to deliver this therapy modality in routine clinical practice.[4]

In view of available guidance and this area of unmet need, we surveyed all treatment centres for CYP with cancer in the UK and found that LLLT is not used in England or Wales yet – it is only used in Glasgow, Edinburgh and Dublin (Personal correspondence to all 20 Children's Cancer and Leukaemia Group members. 2018). *Sheffield Children’s Hospital* will start using LLLT soon due to funding from *The Children's Hospital Charity*.

We have contacted the NIHR CYP MedTech regarding this evidence gap and are grateful for their support in obtaining further evidence about the role of LLLT in children (Personal communication, 2019).

We must ensure CYP are not left behind as technology and new tools and devices are developed.

(449/500 words)

**References**
1 - Dimitri P. Child health technology: shaping the future of paediatrics and child health and improving NHS productivity. *Arch Dis Child*2019;104:184-188.
2 - National Institute for Health and Care Excellence. Low-level laser therapy for preventing or treating oral mucositis caused by radiotherapy or chemotherapy. 2018. [Online] [Accessed 07 May 2019] Available at: https://www.nice.org.uk/guidance/ipg615/chapter/2-The-condition-current-treatments-and-procedure.
**3 - H**e M, Zhang B, Shen N, et al. A systematic review and meta-analysis of the effect of low-level laser therapy (LLLT) on chemotherapy-induced oral mucositis in pediatric and young patients. *Eur J Pediatr* 2018 Jan;177(1):7-17.
4 - Sung L, Robinson P, Treister N, et al. Guideline for the prevention of oral and oropharyngeal mucositis in children receiving treatment for cancer or undergoing haematopoietic stem cell transplantation. *BMJ Support Palliat Care* 2017;7:7-16.

[**Kudos plain language summary**](https://www.kudosresearch.com/)A handheld tool called Low-Level Laser Therapy (LLLT) is recommended to help reduce the problem of a common side effect of cancer treatment. The tool delivers a form of light therapy to the mouth, to try to reduce the ulcers and inflammation – known as oral mucositis - which are commonly caused by cancer treatment. The LLLT tool is similar in appearance to *Doctor Who’s Sonic Screwdriver*, but can’t be used in as many ways!

The guidance for healthcare professionals for using LLLT doesn’t tell us how to best use it. When we take medicines, how well it works is affected by the dose and how often you take it. For LLLT, we don’t yet know the best way to take it - there are many settings you can use, including things like dose and power, and how often LLLT is used.

Oral mucositis can be very upsetting and painful for children and young people (CYP) - one mother told us about her daughter’s experience with oral mucositis: “She struggled to swallow her own saliva – that’s how grim it was.” The girl was “not really with us ‘cos she’d had so much morphine” and required two 10-day-long stays in hospital.

We asked all treatment centres for CYP with cancer in the UK and found that LLLT is not used in England or Wales yet. Sheffield Children’s Hospital will start using LLLT soon thanks to funding from The Children's Hospital Charity.

We must ensure CYP are not left behind as technology and new tools and devices are developed.