Sustainable oculoplastic surgery

Introduction
Cataract surgery is very standardised as a rule. Each step is predictable and the surgeon knows the outcome of every step of the pathway. Outcomes are excellent and complication rates are minimal. (1,2). Because the operation is standardised to a high degree, life cycle analysis is straightforward. The NHS is committed to a net zero healthcare delivery (14), and oculoplastics has to contribute.

In contrast to cataract surgery, oculoplastic surgery is more diverse, with more procedures available for a particular clinical problem. Entropion surgery, for example, has many different types of operations to solve the problem. (3,4, 5, 6) as is ptosis surgery,: anterior approach, posterior approach, white line advancement, Muller resection techniques (7,8,9).

Whereas there is a paucity of evidence at this point, in relation to the carbon footprint of oculoplastic care, there are some general principles that would help us reducing the carbon footprint in oculoplastics.

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Telemedicine
The main advantage in using remote consultations is in travel: both patient and healthcare professional do not need to travel. It can be done by phone or video consultation, and in doing so, reducing carbon emissions.(10, 11, 12, 13)
Areas of use:

- Diagnosis (lumps, entropion, ectropion, ptosis, dermatochalasis)
- Results of investigations (scans , histology)
- Post op
- Follow up

Place of surgery. Air handling systems account for more than 90% of the theatre's energy use (15). Oculoplastic surgery does not require this level of sterility. Clean rooms are an appropriate place for oculoplastic surgery, and do not require an implant standard of sterility.
Instruments sets and material:

- Refuse single use instruments
- Standardise sets
- Use a little sutures as possible
- Consider dissolvable sutures so that post op removal is not required, and virtual follow up is possible
- Use re-usable gowns instead of once-only use gowns (16)
- Markers: do they need to be plastic and single use, or can wooden markers be used, dipped in dye
- Masks are not required in all procedures, only in procedures where facial exposure to blood is expected.

Prophylactic antibiotic use
Great variation exists in use of post operative use of systemic antibiotics. Regular post operative use ranges from 2.9% (UK) to 86.7% (India). There can be no justification for such variation, and one has to ask if this prophylaxis is actually effective.(17) Hunt followed this up with a study into the use of topical antibiotics following eyelid surgery. The authors found no statistically significant difference in patients treated with or without post operative topical

chloramphenicol. (18) There is therefore evidence that using the standard chloramphenicol ointment post op is not required.

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