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A Change of Climate for Climate Change: The Environmental Benefit of Specialist Outreach Clinics

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Abstract

Introduction
Climate change represents a devastating threat to global health. We studied the environmental benefit of dermatology outreach clinics in Bantry and Tralee from our centre in Cork. We calculated the reduction in carbon dioxide (CO2) emissions and the time saving for patients.

Methods
Outreach clinics from January to June 2019 were reviewed. The distance from patient's addresses to the outreach centre was subtracted from their distance to Cork. The reduction in CO2 emissions was calculated by subtracting CO2 emissions of doctors travelling to clinics.

Results
1,022 patients attended 44 outreach clinics. The average reduction in distance travelled was 142km per round trip. An average of 129 minutes was saved per round trip. The estimated annual reduction in carbon emissions as a result of the outreach clinics is 52.37 tonnes.

Discussion
Specialty outreach clinics reduce our carbon footprint, provide convenience to patients, and optimise access to specialty services in rural areas.

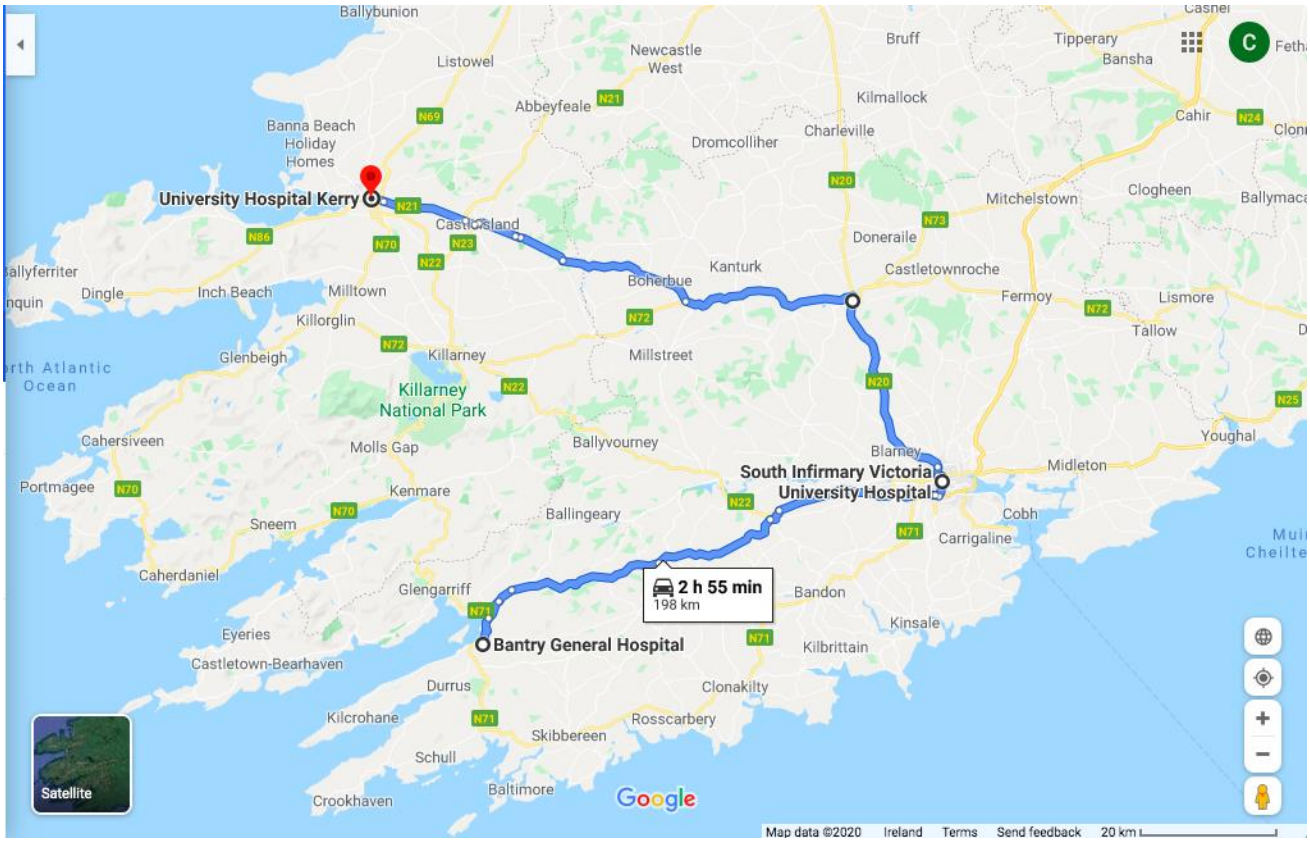
Introduction

Climate change represents a devastating threat to global health. [1] The Health Service Executive (HSE) aims to be a "leading sustainable organisation delivering low carbon quality sustainable healthcare, with the purpose of preserving natural resources, reducing carbon emissions, and mitigating the effects of climate change". [2] The main benefits of outreach clinics have previously been perceived to be patient convenience and resource efficiency. [3] No research has examined the environmental benefit of outreach specialty clinics.

We performed a study assessing the environmental benefit of dermatology outreach clinics from our regional centre of excellence in the South Infirmary Victoria University Hospital (SIVUH) in Cork to Bantry General Hospital (BGH) in West Cork (86.5km from Cork) and University Hospital Kerry (UHK)

in Tralee (112km from Cork) (Figure 1). We aimed to estimate the reduction in carbon dioxide (CO2) emissions from outreach clinics in Tralee and Bantry, and to estimate the time saving for patients attending the clinics.

Figure 1: Map of Cork and Kerry showing routes from SIVUH to UHK and BGH.



Methods

A retrospective review was performed of all dermatology outreach clinics in Bantry General Hospital and University Hospital Kerry from January to June 2019. Patients' addresses were obtained and input to three different mapping services (Google Maps, Apple Maps, and maps.me). The distance from the patient's address to the outreach centre was subtracted from the distance from the patient's address to the lead regional centre in Cork to calculate the distance saved per round trip. The reduction in CO2 emissions was calculated using an algorithm supplied by the Irish Environmental Protection Agency, [4] subtracting the CO2 emissions of the doctors travelling to the clinics from Cork. For the CO2 emission calculation, travel in an average car, of average size and value, with unknown fuel consumption (petrol/diesel), was assumed.

Results

1,022 patients attended 44 outreach clinics in total. In BGH there were an average of 2.83 clinics a month, with an average of 25.6 patients seen per clinic. In UHK there were an average of 4.5 clinics a month, with an average of 21.7 patients seen per clinic.

In BGH there was a total reduction in travel of 50,057km return, with an average of 115km per patient per round trip. This equated to a saving of 9.05 tonnes of CO2 emissions over six months.

In UHK there was a total reduction in travel of 103,758km return, with an average of 177km per patient per round trip. This equated to a saving of 18.7 tonnes of CO2 emissions over six months. The average drive for the consultant dermatologist to BGH and UHK was 173km return and 224km return respectively, with a total travelling distance of 9,026km over the period. This accounted for 1.63 tonnes of CO2 emissions over six months.

The data from BGH and UHK were combined and the consultant data were subtracted to calculate the overall saving. In total, there was a reduction of 144,789km of travelling (142km average per round trip), with 26.18 metric tonnes of CO2 saved. The average time saving was 129 minutes per round trip per patient. Extrapolating the results, the annual potential reduction in carbon emissions as a result of the outreach clinics is 52.37 tonnes.

Discussion

This study shows that provision of dermatology outreach clinics significantly benefits the environment, with large potential reductions in annual CO2 emissions. Limitations of the study include the assumption of travel by car, some imprecise addresses (rural townlands over a large area), and failure to capture non-attendance at clinic. Surgical procedures and phototherapy were not captured, although attendance in the lead centre for three times weekly phototherapy would not be feasible for almost all patients seen in the outreach clinics.

Speciality outreach clinics reduce our national carbon footprint, provide convenience to patients, and optimise access to dermatology services in rural areas. This model of care could be adopted by many specialties in Ireland to optimise the sustainability of medical care.

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Declaration of Conflicts of Interest:
None declared.

References:

1. Gilding P. Why I welcome a climate emergency. Nature 2019;573:311. 10.1038/d41586-019-02735-w 31530929
2. Sustainability Strategy for Health 2017-2019. Health Service Executive. Available at https://www.hse.ie/eng/about/who/healthbusinessservices/national-health-sustainability-office/files/sustainability-strategy-for-health.pdf
3. Gruen RL, Weeramanthri TS, Knight SS, Bailie RS. Specialist outreach clinics in primary care and rural hospital settings. Cochrane Database of Systematic Reviews 2003, Issue 4. Art. No.: CD003798. 10.1002/14651858.CD003798.pub2.
4. Carbon Footprint Ltd. https://www.carbonfootprint.com/calculator.aspx. Accessed 19th September 2019.