The Environmental Impact of a Satellite Clinic in a Veterans Health System

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INTRODUCTION:

The climate crisis has become a recognized issue in society, and healthcare has been estimated to contribute up to 10 percent of all planet-warming emissions. Surgery contributes significantly to these emissions with its variety of required resources including electricity, implant manufacture, disposable materials use and waste and anesthesia use. A less frequently recognized factor that may contribute to surgery's carbon footprint is patient travel. In this study we sought to quantify the effect of a satellite outpatient clinic (SC) on the carbon footprint produced by patient and surgeon travel.

METHODS:

We collected data for 50 consecutive outpatient visits to our SC. All patients were new or follow up visits to the senior author who treats predominantly shoulder pathology. We utilized a common online mapping program to determine the shortest driving distance from each patient's home to the SC and compared this to the distance that would be required to travel to our primary clinic (PC) location. Miles driven and minutes taken to commute are presented. We also calculated changes in commute time and miles for the treating surgeon. National average miles per gallon data was used to estimate emissions.

RESULTS:

Patients drove an average of 59 miles to our SC (4-235 miles) and would have driven an average of 90 miles to our PC. This saved 31 miles and 33 minutes on average each way. The physician drove an extra 44 miles and 48 minutes to reach the SC. An average of 20 patients were seen each week in the SC. Using national averages of 25 miles per gallon for automobiles and 0.8 pounds of carbon emitted per mile traveled, we estimated that patients saved 59,520 miles of travel and emitted 47,616 fewer pounds of carbon dioxide over the course of one year (48 weeks) of SC visits. The net decrease in emissions is decreased by 7% when factoring in the increased travel distance for the surgeon for each clinic.

DISCUSSION AND CONCLUSION:

Limited data exists to shed light on the carbon footprint that is created by our patients traveling to seek care. In the setting of a veterans healthcare system, there may be an even greater burden of travel due to the system's geographic design and limited availability of providers in some areas. When factoring in solely the travel of the patient and surgeon, we have demonstrated a clear decrease in carbon emissions created from travel when utilizing a SC that is closer to the patients' communities than the PC. When considering the benefits of establishing a SC, surgeons should be aware of the potentially significant reduction in carbon emissions that may result. Further research should also be undertaken to quantify the carbon contributions of each stage of orthopaedic care delivery so that greenhouse gas emissions can be minimized.