

e18563

Publication Only

Characterization of remote second-opinion oncology patients and associated changes in management.

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Background: The utilization of virtual second opinions in oncology has increased considerably in the last decade, driven by the increased complexity of care and desire for expert opinion, improved technologies in telemedicine, and the acceleration of virtual services due to the Covid-19 pandemic. Therefore, it is important to further understand the patient populations that currently use virtual second opinion programs and to measure their effectiveness. Virtual second opinion programs provide a platform for patients to submit their medical history and questions regarding their condition to remote specialists who then render their opinions on diagnosis and management. Currently there is a paucity of research on the types of patient populations that seek second opinions and the outcomes of these rendered opinions. Here we describe the patient characteristics and changes in management associated with utilization of a virtual second opinion service at an academic medical center. **Methods:** In this IRB-approved retrospective review, we identified 657 cancer patients that utilized a virtual digital health platform to engage in second opinions at Stanford Healthcare. Patient demographics, cancer staging, site of origin, and prior therapeutic and surgical history were collected. Physician opinions rendered were self-classified into “major change in treatment”, “minor change in treatment”, or “no change in treatment.”. **Results:** The majority of patients who utilized the virtual second-opinion platform had a diagnosis late-stage cancer (with 77.2% at Stage III or IV). Breast cancer was the most common primary tumor site (24.7% of patients) followed by GI (21.9%) and GU malignancies (14.0%). Patients diagnosed with dermatological (4.4%), head and neck (3.3%), and neurological (3.2%) malignancies were least common. Physicians providing the virtual second-opinion were primarily medical oncologists (67.6%), followed by gynecologists (6.8%), urologists (5.2%), radiation oncologists (5.0%), and surgical oncologists (4.4%). Physicians self-reported that in more than half of cases reviewed (53.8%) a minor or major treatment change was recommended. **Conclusions:** This study showed that patients access second opinion platforms at late stage of cancer disease progression. With treatment changes recommended for more than half of the cases, virtual second opinion programs can potentially have a significant impact on cancer care. Patient satisfaction and clinical outcomes from virtual second opinion programs is an area of on-going research. Research Sponsor: None.

Patient Cancer Stage at time of Second Opinion Stage	No. (% of 303 patients with known staging)
I	36 (11.9%)
II	34 (11.2%)
III	60 (19.8%)
IV	173 (57.1%)
Self-reported Degree of Change in Management of Second-Opinion	No. (% of 657 patients)
Major	131 (19.9%)
Minor	223 (33.9%)
No change	303 (46.1%)