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A Shared Electronic Health Record in a Rural Setting Maintains Hematological Cancer Services Remotely during the COVID-19 Pandemic

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Introduction

The COVID-19 pandemic has had drastic effects on healthcare provision across Australia and the world. Rural hematology patients who may rely on visiting medical officers from larger cities or long distance travel for reviews are particularly vulnerable to having their treatment affected by the recent changes to healthcare delivery given severe travel restrictions.

The Griffith Hematology/Oncology Unit is based in Griffith Base Hospital, a regional hospital in New South Wales, Australia. It is serviced by consultant hematologists from St Vincent's Hospital at the capital city of Sydney, Australia, who visit fortnightly to run hematology outreach clinics and supervise chemotherapy delivery. Griffith is located 575km from Sydney and has an estimated population of over 26,000(1). The COVID-19 pandemic imposed significant travel restrictions, such that visiting hematologists have been
unable to travel to continue in-person clinics since April 2020. This has led to the exclusive reliance on telemedicine (telehealth and telephone reviews) and remote chemotherapy delivery supervision. Having an electronic health record (EHR) containing all relevant patient information which is remotely accessible to treating physicians has been integral to the continuity of comprehensive specialist cancer care in this rural setting via telemedicine.

Methods

The previously reported shared EHR between Griffith and St Vincent's Hospital, Sydney was used to review the impact of COVID-19 on service delivery in Griffith(2). All rural patient information was accessible from the metropolitan location including comprehensive documentation of a patient's clinical findings, routine observations, diagnostic pathology and radiology results, and details of treatment at the Griffith site. Remote chemotherapy prescribing and telemedicine notes were documented through the EHR.

Results

The number of new referrals, follow ups and total patients over the four months prior to the COVID-19 related changes (December 2019 to March 2020) and the four months following (April to July 2020) were compared. From April 2020 onwards, the Griffith clinic patients underwent reviews via telemedicine or telephone with no in-person reviews able to be conducted in Griffith due to the travel restrictions. The number of new referrals, follow up visits and the total number of patients seen following the change to telemedicine had all increased with no reduction in service delivery seen (Table 1). The total number of patient reviews was 167 visits over the four months prior to the change, which increased to 186 reviews after the travel restrictions were applied.

Despite the travel restrictions, the hematology outreach services to Griffith were maintained through telemedicine reviews in a similar manner to the metropolitan service. Griffith rural hematology patients continue to undergo regular telemedicine reviews with monitoring of laboratory and imaging results through the EHR, receiving the same level of care as metropolitan patients.

Chemotherapy is still able to be prescribed, adjusted and reviewed from the Sydney location for all patients. The total number of chemotherapy treatment cycles delivered in Griffith only slightly decreased despite the changes to service provision, which was attributed to normal variation in patients requiring treatment over 2020 (Table 2). 32 chemotherapy treatment cycles were delivered prior to the change compared to 26 cycles following, for the primary indications of lymphoma and myeloma.

Conclusion
In recent months, the centralised EHR has proven critical in minimising clinical service disruptions caused by the COVID-19 pandemic by facilitating telemedicine links and remote patient management. We demonstrate how the shared EHR has been integral to the continuation of complex rural patient management during the COVID-19 pandemic due to the availability of remotely accessible patient information and chemotherapy prescribing. No significant change in clinical service activity was seen following the drastic travel restrictions due to the pandemic. Given these travel restrictions are expected to continue, it is encouraging that the shared EHR will allow rural Griffith patients continued access to appropriate specialist hematology care over the coming months. This work demonstrates how an EHR is fundamental to the sustainability of vital cancer services for rural communities.

Table 1: Griffith Hematology Clinic Outpatients prior to and after COVID-19 changes

|                          | Pre COVID-19 changes (December 2019-March 2020) | Post COVID-19 changes (April-July 2020) |
|--------------------------|------------------------------------------------|----------------------------------------|
| Number of new referrals  | 32                                              | 37                                     |
| Number of follow ups     | 135                                             | 149                                    |
| Total number of patients | 167                                             | 186                                    |

Table 2: Chemotherapy treatment cycles delivered at Griffith Hematology/Oncology Unit prior to and after COVID-19 changes

|                          | Pre COVID-19 changes (December 2019-March 2020) | Post COVID-19 changes (April-July 2020) |
|--------------------------|------------------------------------------------|----------------------------------------|
| Number of chemotherapy treatment cycles | 32                                              | 26                                     |
| Number of bisphosphonate and intravenous immunoglobulin treatments | 40                                              | 41                                     |

Disclosures

Hamad: Abbvie: Honoraria; Novartis: Honoraria.

Author notes

* Asterisk with author names denotes non-ASH members.

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