

The Use of Virtual Care in Patients with Hematologic Malignancies – A Scoping Review

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Methodology S1. Search Strategy.

PubMed

("Hematologic Neoplasms"[Majr]) OR "Leukemia"[Mesh] OR "Lymphoma"[Mesh] OR "Multiple Myeloma"[Mesh] OR ("Hematopoietic Stem Cell Transplantation"[Majr]) OR "Stem Cell Transplantation"[Majr] AND "Telemedicine"[Majr]

MEDLINE

- | # | Search Statement |
|----|---------------------------|
| 1 | exp Hematologic Neoplasms |
| 2 | exp Leukemia |
| 3 | exp Lymphoma |
| 4 | exp Multiple Myeloma |
| 5 | exp Telemedicine |
| 6 | ehealth.mp. |
| 7 | mhealth.mp. |
| 8 | virtual care.mp. |
| 9 | 1 or 2 or 3 or 4 |
| 10 | 5 or 6 or 7 or 8 |
| 11 | 9 and 10 |

EMBASE

- | # | Search Statement |
|---|----------------------------|
| 1 | exp hematologic malignancy |
| 2 | exp leukemia |
| 3 | exp lymphoma |
| 4 | exp myeloma |

- 5 telehealth/ or telemedicine
- 6 ehealth.mp.
- 7 mhealth.mp.
- 8 virtual care.mp.
- 9 1 or 2 or 3 or 4
- 10 5 or 6 or 7 or 8
- 11 9 and 10

Scopus

(TITLE-ABS-KEY (hematologic AND malignancy) OR TITLE-ABS-KEY (leukemia) OR TITLE-ABS-KEY (lymphoma) OR TITLE-ABS-KEY (myeloma) AND TITLE-ABS-KEY (virtual AND care) OR TITLE-ABS-KEY (telemedicine) OR TITLE-ABS-KEY (ehealth) OR TITLE-ABS-KEY (mhealth))

CINAHL

((virtual care or telehealth or telemedicine or telemonitoring or telepractice or telenursing or telecare) OR (virtual care or mhealth or ehealth or digital health or telehealth)) AND (S2 AND S3)

Table S1. Characteristics of articles included in the scoping review.

Source	Country	Design	Population	Main intervention	Main outcomes
Rueter et al. 2014 [23]	France	Retrospective cohort study	Diffuse large B-cell lymphoma on treatment with R-CHOP or R-CHOP-like chemoimmunotherapy <ul style="list-style-type: none"> ▪ 418 adult patients 	<i>Phone-based:</i> <ul style="list-style-type: none"> ▪ Telemedicine phone call by a coordinating nurse to proactively ask about symptoms and side-effects of treatment 	<i>Descriptive:</i> <ul style="list-style-type: none"> ▪ 143 patients (34.2%) had virtual phone-based care <i>Survival outcomes:</i> <ul style="list-style-type: none"> ▪ Use of virtual care associated with a 40% decreased risk of death
Narayanan et al. 2021 [30]	United States	Retrospective case-control study	Patients with both solid tumour and hematologic malignancies <ul style="list-style-type: none"> ▪ 842 new patients 2019 ▪ 509 new patients 2020 	<i>Mixed-methods of virtual care:</i> <ul style="list-style-type: none"> ▪ New patient integrative oncology telehealth consults ▪ Telehealth via phone-based or Facetime ▪ Zoom platform later in 2020 <i>Data assessment:</i> <ul style="list-style-type: none"> ▪ Patient questionnaire 	<i>Descriptive:</i> <ul style="list-style-type: none"> ▪ 55 patients (7%) with hematologic malignancies in 2019 ▪ 36 patients (7%) with hematologic malignancies in 2020 <i>Patient-related outcomes:</i> <ol style="list-style-type: none"> 1. For all oncology patients - decreased anxiety, depression and fatigue 2. For all oncology patients – decreased financial distress with the use of telehealth

Dyer et al. 2016 [26]	Australia	Retrospective survey analysis	Adult patients after allogeneic stem cell transplant 1. 1475 patients	<p><i>Video-based:</i></p> <ol style="list-style-type: none"> Follow-up with a satellite clinic using telemedicine services <p><i>Data assessment:</i></p> <ol style="list-style-type: none"> Patient survey 	<p><i>Descriptive:</i></p> <ol style="list-style-type: none"> 441 patients completed the survey <p><i>Patient satisfaction:</i></p> <ol style="list-style-type: none"> 328 out of 441 patients (74%) preferred follow-up at the transplant centre or at a satellite clinic with telemedicine services 18 out of 441 (4.1%) preferred telemedicine alone
Ector et al. 2020 [20]	Netherlands	Prospective pilot test	Chronic myeloid leukemia <ul style="list-style-type: none"> 11 patients 1 caregiver 13 hematologists 	<ul style="list-style-type: none"> Website and mobile app <p><i>Data assessment:</i></p> <ul style="list-style-type: none"> Focus groups during pilot testing 	<p><i>Patient satisfaction:</i></p> <ul style="list-style-type: none"> Positive response to screen consultations, improved convenience <p><i>Provider satisfaction:</i></p> <ul style="list-style-type: none"> Good system but concerns with technical issues
Poudyal et al. 2020 [21]	Nepal	Descriptive study	Acute leukemia and other hematologic malignancies	<p><i>App-based:</i></p> <ul style="list-style-type: none"> Free call and text app used for communication during the COVID-19 pandemic 	<p><i>Patient-related outcomes:</i></p> <ul style="list-style-type: none"> No missed chemotherapy Facilitated hospital admissions
Condom et al. 2021 [24]	Spain	Retrospective cohort study	Adult patients with hematologic malignancies	<p><i>Phone-based:</i></p> <ul style="list-style-type: none"> Appointments transitioned from in-person to phone-based 	<p><i>Descriptive:</i></p> <ul style="list-style-type: none"> Number of phone visits increased by 761%
Koffman et al. 2019 [27]	United States	Retrospective cohort study	Adult patients with chronic lymphocytic leukemia <ul style="list-style-type: none"> 84 patients 	<p><i>Video-based:</i></p> <ul style="list-style-type: none"> Consults with experts using a video platform 	<p><i>Patient-related outcomes:</i></p> <ul style="list-style-type: none"> 64% were more confident in their diagnosis 82% had a better understanding of their disease and treatment course
Koffman et al. 2020 [28]	United States	Retrospective cohort study	Adult patients with chronic lymphocytic leukemia <ul style="list-style-type: none"> 105 patients 	<p><i>Video-based:</i></p> <ul style="list-style-type: none"> Consults with experts using a video platform 	<p><i>Patient-related outcomes:</i></p> <ul style="list-style-type: none"> 95% of patients found the online consultation was important for their understanding 99% of patients would recommend a virtual specialist consult
Zhang et al. 2019 [22]	China	Retrospective cohort study	Patients with lymphoma after discharge from hospital	<p><i>App-based:</i></p> <ul style="list-style-type: none"> Scheduled tasks and requests for appointments through app 	<p><i>Descriptive:</i></p> <ul style="list-style-type: none"> 218 patients had 616 side-effect symptom alerts triggered

			<ul style="list-style-type: none"> 856 individuals 	<ul style="list-style-type: none"> Oncologists given access to app data and could consult remotely to manage side-effects 	<i>Patient-related outcomes:</i> <ul style="list-style-type: none"> All patients with triggers were followed with a mobile consultation with the attending physician
Overend et al. 2008 [29]	Canada	Retrospective cohort study	Patients with indolent hematologic malignancies <ul style="list-style-type: none"> 53 patients, majority with chronic lymphocytic leukemia or follicular lymphoma 	<i>Video-based:</i> <ul style="list-style-type: none"> Teleclinic interviews conducted by an oncology nurse, reviewed with the attending physician <i>Data assessment:</i> <ul style="list-style-type: none"> Patient satisfaction questionnaires 	<i>Patient-related outcomes:</i> <ul style="list-style-type: none"> 62% preferred teleclinic visits for follow-up 20% had a neutral preference
Runge et al. 2020 [32]	United States	Retrospective cohort study	Adult patients with lymphoma on treatment who required dose modifications <ul style="list-style-type: none"> 1290 treatment cycles 	<i>Data assessment:</i> <ul style="list-style-type: none"> Review of clinical notes of charts to determine reasoning for dose reductions 	<i>Patient-related outcomes:</i> <ul style="list-style-type: none"> Dose adjustments were made for 144 cycles, and only 7 were based on physical exam findings alone
Lupo-Stanghellini et al. 2020 [25]	Italy	Retrospective cohort study	Patients after allogeneic stem cell transplant	<i>Phone-based:</i> <ul style="list-style-type: none"> Phone teleconsults during the initial phase of the COVID-19 pandemic 	<i>Descriptive:</i> <ul style="list-style-type: none"> 29 out of 50 patients with chronic graft-versus-host disease were evaluated by teleconsult 125 out of 203 visits for non-respiratory related illnesses were conducted virtually
Fattizzo et al. 2020 [31]	Italy	Retrospective cohort study	Patients with benign and malignant hematologic conditions	<i>Mixed-methods of virtual care:</i> <ul style="list-style-type: none"> Phone and video-based assessments during the initial phase of COVID-19 pandemic 	<i>Descriptive:</i> <ul style="list-style-type: none"> The number of telemedicine visits increased significantly by the middle of the first week of the pandemic, with 400-500 visits done virtually and only 200 in-person
Applebaum et al. 2012 [18]	United States	Randomized trial	Patients with clinical post-traumatic stress disorder after hematopoietic stem cell transplant <ul style="list-style-type: none"> 46 patients 	<i>Phone-based:</i> <ul style="list-style-type: none"> Randomization to phone assessment only or phone assessment with cognitive behaviour therapy delivered over the phone for 10 sessions 	<i>Patient-related outcomes:</i> <ul style="list-style-type: none"> General distress decreased with cognitive behavioural therapy Increased therapeutic alliance with cognitive behavioural therapy
Nawas et al. 2020 [19]	United States	Prospective pilot study	Patients after hematopoietic stem cell transplant	<i>Video-based:</i> <ul style="list-style-type: none"> Video visits conducted during hospital admission and as an outpatient 	<i>Patient-related outcomes:</i> <ul style="list-style-type: none"> High satisfaction with virtual visits (4.12/5 rating) <i>Provider-related outcomes:</i>

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- 20 patients post-autologous stem cell transplant
 - 5 patients post-allogeneic stem cell transplant
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- 63% of providers had technical problems during virtual physical examinations
- Low satisfaction with virtual visits (2.64/5 rating)