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Comprehensive, patient-tailored, and flexible cancer follow-up is possible through digitally-enabled patient-reported outcome measures

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Heathcote et al.<sup>1</sup> suggest that follow-up cancer care should go beyond clinical recurrence indicators by considering patients' symptoms. This can be done efficiently through patient-reported outcome measures (PROMs). They increase quality of life and survival<sup>2</sup> as clinicians address patients' needs in a tailored manner.

In aggressive lymphoma more relapses were detected through patient symptoms than through physical and biomedical examinations<sup>3</sup>. The low yield of clinical examinations in asymptomatic patients was also demonstrated in germ cell tumours<sup>4</sup> (GCT).

Digitally-enabled PROMs can facilitate relapse identifications and psychosocial care provision for the growing number of follow-up patients. GCT patients in our service wanted care that detected recurrence early, holistic monitoring and management of treatment effects, with flexibility in timing.

After treatment, patients enter Standard Follow-up. It involves intensive surveillance that reduces treatment intensity/toxicity while ensuring quick access to curative treatment when necessary. Clinical investigations (i.e. blood markers, X-rays) and symptom assessments are performed during GCT outpatient appointments. Our service caters for an average of 1250 appointments/year which have a scheduled frequency, based on risk-stratified algorithms<sup>5</sup>.

Building upon our centre's expertise in integrating PROMs<sup>2</sup> in clinical practice, we implemented a Shared Community Follow-up model. Face-to-face appointments are replaced by scheduled, online PROMs fed securely into the patients' hospital record. Patients monitor symptoms, the oncology team monitors their status and acts or reassures as needed. When due, patients are reminded to report symptoms online and to organise blood and radiological work within a 2-week window at any competent provider (i.e. primary care). PROMs and clinical results are interpreted by the patients' oncology team.

Over two years of implementing Community Follow-up alongside Standard Follow-up (2015-2017) we evaluated uptake, safety, and satisfaction in consecutive patients using these services. Uptake to Community Follow-up doubled (10% to 21%), online PROMs replaced three appointments/patient, non-attendance decreased, and more investigations were on time. During evaluation one relapse was identified in each service - in Community Follow-up based on tumour markers, in Standard Follow-up through self-examination. Treatment commenced within a week for both. Patients

choosing Community Follow-up were better educated, employed, and lived farther from the hospital. Patients were equally satisfied with their follow-up choices.

Heathcote recognises the challenges of interpreting patient-reported symptoms, advocating for patient education. Digitally-enabled PROMs guide this, informing on education needs for specific populations.

However, novel follow-up models warrant testing. Clinical trials and implementation research can describe where face-to-face follow-up remains necessary across clinical and geographical settings.

- 1 Heathcote LC, Goldberg DS, Eccleston C, *et al.* Advancing shared decision making for symptom monitoring in people living beyond cancer. *Lancet Oncol* 2018. DOI:10.1016/S1470-2045(18)30499-6.
- 2 Holch P, Warrington L, Bamforth LCA, *et al.* Development of an integrated electronic platform for patient self-report and management of adverse events during cancer treatment. *Ann Oncol* 2017. DOI:10.1093/annonc/mdx317.
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- 4 Cunniffe NG, Robson J, Mazhar D, Williams M V. Clinical examination does not assist in the detection of systemic relapse of testicular germ cell tumour. *Clin Oncol* 2012; **24**: 39–42.
- 5 Albers P, Albrecht W, Algaba F, *et al.* Guidelines on Testicular Cancer: 2015 Update. *Eur Urol* 2015; **68**: 1054–68.

**Author contributions**

All authors contributed to the writing and editing of this paper. OCL was the primary writer, GL and DPS edited and offered comments throughout.

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**Declaration of interests**

We declare no competing interests