nature portfolio

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Reporting Summary

Nature Portfolio wishes to improve the reproducibility of the work that we publish. This form provides structure for consistency and transparency in reporting. For further information on Nature Portfolio policies, see our Editorial Policies and the Editorial Policy Checklist.

Statistics

For all statistical analyses, confirm that the following items are present in the figure legend, table legend, main text, or Methods section.

n/a	Confirmed
☐	☒ The exact sample size (*n*) for each experimental group/condition, given as a discrete number and unit of measurement
☐	☒ A statement on whether measurements were taken from distinct samples or whether the same sample was measured repeatedly
☐	☒ The statistical test(s) used AND whether they are one- or two-sided *Only common tests should be described solely by name; describe more complex techniques in the Methods section.*
☐	☒ A description of all covariates tested
☐	☒ A description of any assumptions or corrections, such as tests of normality and adjustment for multiple comparisons
☐	☒ A full description of the statistical parameters including central tendency (e.g. means) or other basic estimates (e.g. regression coefficient) AND variation (e.g. standard deviation) or associated estimates of uncertainty (e.g. confidence intervals)
☐	☒ For null hypothesis testing, the test statistic (e.g. *F*, *t*, *r*) with confidence intervals, effect sizes, degrees of freedom and *P* value noted *Give P values as exact values whenever suitable.*
☒	☐ For Bayesian analysis, information on the choice of priors and Markov chain Monte Carlo settings
☐	☒ For hierarchical and complex designs, identification of the appropriate level for tests and full reporting of outcomes
☐	☒ Estimates of effect sizes (e.g. Cohen's *d*, Pearson's *r*), indicating how they were calculated

Our web collection on statistics for biologists contains articles on many of the points above.

Software and code

Policy information about availability of computer code

Data collection	Research data and patient questionnaires were collected in an encrypted Oracle research database developed by PRO Core and hosted at University of North Carolina. Data transmitted between the server and end-users were also encrypted using SSL. More information about PRO Core services and systems is available at https://pro.unc.edu/about.
Data analysis	Statistical analysis was carried out using no custom algorithms within SAS v9.4.

For manuscripts utilizing custom algorithms or software that are central to the research but not yet described in published literature, software must be made available to editors and reviewers. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Portfolio guidelines for submitting code & software for further information.

Data

Policy information about availability of data

All manuscripts must include a data availability statement. This statement should provide the following information, where applicable:

- Accession codes, unique identifiers, or web links for publicly available datasets
- A description of any restrictions on data availability
- For clinical datasets or third party data, please ensure that the statement adheres to our policy

Researchers can submit a request for data from this trial by completing an Alliance Data Sharing Request Form at the following link and submitting it to DataSharing@AllianceNCTN.org: https://www.allianceforclinicaltrialsinoncology.org/main/public/standard.xhtml?path=%2FPublic%2FDatasharing.

Research involving human participants, their data, or biological material

Policy information about studies with human participants or human data. See also policy information about sex, gender (identity/presentation), and sexual orientation and race, ethnicity and racism.

Reporting on sex and gender	Sex was obtained from patients using fixed categories. Patients were eligible regardless of sex and the study design did not depend on sex. Sex is reported in the baseline table (Table 1) and heterogeneity of effect on the primary outcome (overall survival) is reported in eFigure 1.
Reporting on race, ethnicity, or other socially relevant groupings	Race and ethnicity were obtained from patients using fixed categories. Patients were eligible regardless of race and ethnicity although patients were required to understand English, Spanish, or Mandarin Chinese to enroll, and the study design did not depend on race or ethnicity. Race and ethnicity is reported in the baseline table (Table 1) and heterogeneity of effect on the primary outcome (overall survival) is reported in eFigure 1.
Population characteristics	See above.
Recruitment	This was a cluster randomized trial. Practices were recruited for participation through standardized recruitment communications sent to practices within the Alliance Foundation network. Each practice could enroll patients meeting eligibility criteria. The enrollment approach may have been biased towards practices and patients interested in electronic patient-reported outcome interventions which may limit the generalizability of results to a broader population, and there is some indication that practices that were randomized to the control condition enrolled patients with less advanced disease relative to the intervention practices which may have biased results towards the control group.
Ethics oversight	This study was approved by a central IRB designated by the funder and by individual IRBs at each of the 52 participating sites.

Note that full information on the approval of the study protocol must also be provided in the manuscript.

Field-specific reporting

Please select the one below that is the best fit for your research. If you are not sure, read the appropriate sections before making your selection.

☐ Life sciences ☒ Behavioural & social sciences ☐ Ecological, evolutionary & environmental sciences

For a reference copy of the document with all sections, see nature.com/documents/nr-reporting-summary-flat.pdf

Behavioural & social sciences study design

All studies must disclose on these points even when the disclosure is negative.

Study description	This is a cluster randomized controlled clinical trial that collected quantitative data including longitudinal patient surveys, clinical data, and patient outcomes. This trial also collected qualitative data from patients and site staff which has been reported in other publications. A cluster-randomized design was selected to avoid potential spillover of enhanced attention to symptom management in control group patients.
Research sample	52 practices meeting eligibility criteria were recruited and randomized from the Alliance Foundation network. Each practice could enroll up to 50 consecutively approached eligible patients. The sample is representative of US community oncology practices.
Sampling strategy	Participating practices were randomly assigned 1:1 to electronic patient-reported outcome symptom monitoring (intervention) or usual care (control) using permuted blocks with block sizes of 2 or 4 and stratified by rural/urban based on US Census Bureau criteria.
Data collection	Patients completed questionnaires either on paper or electronically via the web; patient questionnaire data were stored in a central research database. Electronic case report forms were housed in the same central research database and were completed by data coordinators at each site based on source data in the Electronic Health Record for clinical data such as emergency room visits. Date of death was extracted from the US National Death Index matched for patient name, sex, race, social security number (last four digits), date of birth, and last known state of residence. Dates were reconciled with data from the electronic case report forms.
Timing	First patient was enrolled on 10/31/2017, last patient was enrolled on 3/23/2020, and data were frozen for statistical analysis on 10/4/2022.
Data exclusions	54 practices were excluded during screening for not meeting inclusion criteria (n=2) or declining to participate (n=52); and 253 patients were excluded from practices for not meeting eligibility criteria after registration (n=6) or declining to participate (n=247). Data for all above practices and patients were excluded from analysis as planned.
Non-participation	54 practices were excluded during screening for not meeting inclusion criteria (n=2) or declining to participate (n=52); and 253 patients were excluded from practices for not meeting eligibility criteria after registration (n=6) or declining to participate (n=247).
Randomization	Participating practices were randomly assigned 1:1 to electronic patient-reported outcome symptom monitoring (intervention) or usual care (control) using permuted blocks with block sizes of 2 or 4 and stratified by rural/urban based on US Census Bureau criteria. Primary statistical analysis (comparison of overall survival) adjusted for prespecified covariates of line of systemic cancer treatment,

months since first diagnosis to metastatic cancer, months since first diagnosis to initial treatment, and months since metastatic cancer to study enrollment, and a random effect to account for site clustering.

Reporting for specific materials, systems and methods

We require information from authors about some types of materials, experimental systems and methods used in many studies. Here, indicate whether each material, system or method listed is relevant to your study. If you are not sure if a list item applies to your research, read the appropriate section before selecting a response.

Materials & experimental systems

n/a	Involved in the study
☒	☐ Antibodies
☒	☐ Eukaryotic cell lines
☒	☐ Palaeontology and archaeology
☒	☐ Animals and other organisms
☐	☒ Clinical data
☒	☐ Dual use research of concern
☒	☐ Plants

Methods

n/a	Involved in the study
☒	☐ ChIP-seq
☒	☐ Flow cytometry
☒	☐ MRI-based neuroimaging

Clinical data

Policy information about clinical studies

All manuscripts should comply with the ICMJE guidelines for publication of clinical research and a completed CONSORT checklist must be included with all submissions.

Clinical trial registration	ClinicalTrials.gov NCT03249090
Study protocol	Submitted to ClinicalTrials.gov and pending public posting. Also published with Basch E, et al. JAMA. 2022 Jun 28;327(24):2413-2422.
Data collection	52 US community oncology practices participated by enrolling patients. Patient surveys and electronic case report forms were collected in a central research database housed at the University of North Carolina. The first patient was enrolled on 10/31/2017, the last patient was enrolled on 3/23/2020, and data were frozen for statistical analysis on 10/4/2022.
Outcomes	The primary outcome was overall survival. Patients were followed for 2 years after registration and vital status was reported in electronic case report forms by local practice data coordinators. Date of death was also extracted from the US National Death Index matched for patient name, sex, race, social security number (last four digits), date of birth, and last known state of residence. Death dates from the US National Death Index were reconciled with death dates from the electronic case report forms. Secondary outcomes included emergency room/hospital utilization at 1 year reported in electronic case report forms by local practice data coordinators. Secondary outcomes reported in prior publications include patient-reported Physical Function, Symptom Control, and Health-related Quality of Life at 3 months measured by the European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30; Basch E, et al. JAMA. 2022 Jun 28;327(24):2413-2422) and Patient Satisfaction/Communication at 3 months as measured by feedback surveys (Basch E, et al. JCO Clin Cancer Inform. 2020 Oct;4:947-957).