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Title: Trial of Optimal Personalised Care After Treatment – Gynaecological cancer (TOPCAT-G): a randomised feasibility trial

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Abstract

Objective: To evaluate the feasibility of completing a parallel-group randomised controlled trial to compare usual follow-up care for women who have completed treatment for gynaecological cancer against a nurse-led telephone intervention, known as OPCAT-G (Optimal Personalised Care After Treatment – Gynaecological).

Methods: The unblinded trial aimed to recruit patients who had completed treatment for cervical, endometrial, epithelial ovarian or vulval cancer within the previous three months at three North Wales hospitals. We randomised participants to either usual hospital-based follow-up or specialist nurse-led telephone education, empowerment and structured needs assessment follow up.

The primary outcomes assessed the feasibility of running a larger trial including patient eligibility, recruitment and retention rates and outcome measure completion. Secondary outcomes were generic and health-related quality of life (QoL) and a patient self-report health service use (CSRI) data collected at three time points (baseline, three and six months).

Results: Of the 58 females screened, 44 were eligible (76%) and 24 (55%) were recruited and randomised (12:12 to control and intervention respectively). One participant was lost to follow-up. Recruited participants had a mean age of 60 years (SD=11.2) and were approximately five months from their initial diagnosis (mean=159 days, SD=58). Seventeen (71%) of participants had an endometrial cancer diagnosis. All outcome measures completion rates exceeded 96%.

Although not a core feasibility objective, analyses of outcome measures indicated positive changes in QoL and wellbeing within the OPCAT-G group; exploratory cost consequence analysis indicated that the nurse-led intervention had a mean total service use cost £27 per patient (bootstrapped 95%CI: -£290 to £240) lower than the standard care group.

Conclusions: Eligibility, recruitment and retention rates as well as outcome measure completion showed that the trial is feasible.

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Keywords: Gynaecological cancer; follow-up; nurse-led telephone intervention; randomised controlled trial; quality of life; health economics; feasibility study.

(277 words)

Introduction

There are approximately 21,000 new cases of gynaecological cancers each year in the UK and one in five female cancer patients have a gynaecological cancer [1](CRUK 2014). In Wales, over 1,000 women are diagnosed with gynaecological cancers each year [2] and in North Wales, where the feasibility study took place, just over 200 gynaecological cancers were newly diagnosed in 2014 [3].

The follow-up care currently provided after treatment for gynaecological cancer is underpinned by a largely retrospective evidence-base. Furthermore, there are no guidelines from the National Institute for Health and Care Excellence (NICE) as to what form or frequency of follow-up is appropriate in relation to either effective recurrence detection or the patient's wellbeing. The Society of Gynecologic Oncology recommends that there is a need for prospective research including cost-effectiveness calculations to help determine ideal follow-up care [4].

The most common practice is for the clinician to review a patient on a regular basis, in a hospital-based, outpatient clinic over a number of years [5] with the aim of checking for local recurrence or distant metastasis [6]. However, there is no prospective evidence that the traditional method of follow-up identifies recurrences earlier or improves overall survival as most recurrences are symptomatic [7-10]. Follow-up of women with gynaecological cancer may, therefore, be accomplished using patient-reported outcome measures [11]. A few retrospective studies reported that survival was better when recurrent cervical or endometrial cancer was detected at routine follow-up rather than when symptoms develop [12-14], however the majority of patients relapse with symptoms that would prompt reassessment even if the patient was not on routine review. There is also a worry that patients may wait for their next routine appointment to disclose symptoms [15] thus possibly delaying detection and appropriate symptom management.

In terms of psychological morbidity there is evidence that routine appointments can lead to high levels of anxiety during follow-up [16], suggesting that the patient's psychosocial needs are not being met. Within the population of cancer patients, it has been shown that women have significantly higher levels of anxiety and depression than men [17] and furthermore, one study reported that 29% of gynaecological cancer patients report depressive symptoms [18]. Studies have identified that the least met needs of cancer outpatients typically include receiving more information on genetic issues, lifestyle changes, worries regarding spread or recurrences -and parking near the treatment centres [19]. Furthermore, some patients have requested alternative models for follow-up [20].

With the lack of evidence to support medical-led hospital-based follow-up as an effective model for earlier detection of recurrence with improved outcome, and to address the anxiety associated with scheduled appointments we propose an alternative approach. This is to provide nurse-led telephone follow-up care for patients after treatment (OPCAT-G; Optimal Personalised Care After Treatment – Gynaecological). The long-term aim is to develop a national, multicentre, randomised study that will determine the effectiveness of this new approach in terms of health economics, quality of life (QoL), patient autonomy and survival for patients who have had treatment for gynaecological cancer. The current feasibility study

is designed to determine the ability to conduct a large trial according to the suggested protocol.

Materials and methods

The feasibility of completing a randomised controlled trial (RCT) on nurse-led telephone follow-up in the gynaecology cancer setting (OPCAT-G) has been assessed in terms of several specific objectives: eligibility, recruitment, and retention rates of patients to the trial, along with completion rates of outcome measures. Secondary aims were to gain details to inform the design of a future trial by completing a process evaluation, an exploratory analysis to evaluate effect sizes and an exploratory cost consequence analysis.

This parallel-group randomised controlled feasibility trial compared OPCAT-G (intervention arm) with standard care (control arm). Participants were randomised, using dynamic allocation to balance for the numbers of each cancer type that occur in the recruited population [21], on a 1:1 basis using site (three hospital sites) and disease type (endometrial, ovarian, cervical and vulva) as stratification variables. A full description of the trial design is detailed within the published protocol paper [22].

Inclusion criteria for participation in the study were:

i. the patient had completed treatment for cervical, endometrial, epithelial ovarian or vulval cancer,
ii. treatment had been completed within the last three months and
iii. in the view of the treating consultant, there was no need for continued hospital-based care.

The exclusion criteria were:

i. previous treatment for sarcoma, germ cell tumour, borderline tumours, melanoma or choriocarcinoma as follow-up schedules usually requires a series of tests,
ii. a need for ongoing treatment,
iii. a lack of capacity to give informed consent and
iv. an inability to take part in the trial (e.g. severe learning/ mental disability, severe mental health or hearing problems, not able to understand Welsh or English).

Patients were recruited from three hospitals in North Wales, UK, by the research nurse (RN) and clinical nurse specialists (CNSs). Potential patients were given a participant information sheet at their end of treatment visit and had until their first follow-up appointment to consider the study (on average 56 days apart) where they gave consent and completed the baseline questionnaire before being randomised.

The participants, RN and CNSs and trial management were unblinded during this trial. All other members of the team (including the research officer, chief investigators and the trial statistician), were blinded. The blinded members would have had access to a coded breakdown of treatment group assignments which was only broken post-analysis.

Patients randomised to standard care continued to have their hospital-based consultant-led medical reviews at three and six-months post baseline and were followed-up according to an agreed protocol with the regional gynaecological cancer multidisciplinary team that represented current practice.

Patients randomised to the OPCAT-G intervention arm received an information booklet at baseline, which included information on:

i. patterns of relapse, possible warning symptoms and how to respond to these,
ii. possible long-term physical and psychological side effects of treatment and how these can be managed,
iii. how patients could contact the clinical team if they have concerns or symptoms,
iv. treatment, diagnosis and disease-specific information,
v. needs assessment measures made up from the Macmillan Concerns Checklist [23], CancerCAN-22 [19] and the Distress Thermometer [24].

These participants did not attend the hospital for their follow-up appointments but instead received a scheduled nurse-led telephone follow-up, firstly within four weeks of randomisation and again six-months post baseline. Patients were asked to complete the needs assessment measures prior to each scheduled telephone call to inform a structured discussion with the CNS. Any issues identified in these calls were referred to the most appropriate source of help. Additional phone calls could be instigated at any time by the patient, where their completed needs assessments would be discussed as with scheduled calls.

A process evaluation was included to reflect upon the recruitment strategy of the trial and explain any differences present between the recruiting sites. Assessment of key variables that influenced recruitment to this feasibility trial should facilitate improved recruitment into a future RCT. All of the nurses (three CNSs and one RN) who were part of the trial took part in process evaluation interviews after the follow-up period was completed. The interviews were either face-to-face or by telephone, lasted 30-45 minutes (see Appendix 1 for the interview schedule) and were recorded, transcribed and checked afterwards.

To evaluate the appropriateness of measures and potentially identify a primary outcome for a future RCT, the following outcome measures were collected. EORTC QLQ-C30 [25], EQ-5D-3L [26], ICEpop CAPability measure for Adults (ICECAP-A) [27] and a Client Service Receipt Inventory (CSRI) [28, 29]. All outcomes were aiming to assess the QoL and wellbeing of the participants (see Appendix 2 for further details). All of these were completed at three time-points: baseline, three-months and six-months post baseline. Additionally, patient demographics relating to their characteristics, cancer disease type and treatment were collected at baseline.

The sample size was estimated based on the assumption of screening 150 patients during a six-month recruitment period, with approximately 30% of these being ineligible and 50% acceptance into the trial. This resulted in a provisional estimate of recruiting 50 patients to the trial.

Calculating effect sizes for the relevant outcome measures was completed using analysis of covariance (ANCOVA) models on the six-month follow-up data adjusting for the participant's baseline scores, site and disease type (stratification variables). Normality of the outcomes has been evaluated to ensure appropriate use of this analysis. All statistical analyses were undertaken using IMB SPSS Statistics 22 [30] and completed on an intention-to-treat basis.

All analyses relating to health economics were undertaken using Microsoft Excel 2010 and IBM SPSS Statistics 22 [30].

Ethical approval was granted for the full feasibility trial by NRES Committee London – South East on the 22nd May 2015 (Ref: 15/LO/0716, IRAS number: 167879). Research and Development (R&D) approval was granted on the 26th August 2015 by the R&D internal panel board, Betsi Cadwaladr University Health Board. For the additional process evaluation, ethical approval was granted on 7thNovember 2016 (Ref: 15/LO/0716). Local research governance processes were followed.

Results

Fifty-eight women were screened to take part in the study during a period of six months between September 2015 and February 2016. Those deemed eligible to take part in the study accounted for 76% of the screened population (44 patients) with the main reason for ineligibility was that the patient required on-going hospital care (64%). Of the 44 eligible women, 24 consented to take part in the study, giving a recruitment rate of 55%. The main reason for non-recruitment was that patients did not want to be randomised (70%) and the main basis for this was due to wanting to see a doctor for their follow-up (10 out of 14 patients). Only one patient was lost to follow-up during the study, giving a retention rate of 96%. The CONSORT flowchart in Figure 1 provides a further breakdown of these data.

The desired thresholds defined in the protocol and statistical analysis plan a priori were at least 50% eligibility, recruitment and retention rates. These criteria have been satisfied.

All three sites within the study were successful at recruiting participants, but to varying degrees. The results of the process evaluation showed that the differences in recruitment success at the three trial sites were mainly due to the lack of early CNS involvement in the feasibility trial, lack of sufficient training and a lack of research network support due to the limited funding available to the feasibility trial. A CNS response to poor recruitment was:

> "I do personally feel I should have been involved a lot sooner. And I know they didn't want to involve too many people but actually …. we were quite crucial in it all, and especially because of local knowledge, so I did feel …… we didn't have enough preparation for it and then there was a lot of pressure to get …recruitment up …."

Research network support in terms of research nurse time, and additional training would have increased the CNSs' understanding of the protocol.

The participants that were recruited into the study had a mean age of 59.8 years and had received their initial diagnosis a little over five months (mean=159 days) prior to randomisation. Eligibility criteria stipulated at baseline were that the participant must be within three months of their last treatment and this was confirmed by the mean of 84 days post treatment found in the study sample. One person was 109 days from their end of treatment due to unforeseen appointment rescheduling but with Chief Investigator agreement this person was included within the study. The majority of participants (71%) had treatment for endometrial cancer (21% ovarian, 8% cervical, none had vulval carcinoma). All patients received surgery as part of their treatment, 46% combined this with either chemotherapy or radiotherapy (see Table 1 for further details).

Completion rates of the QoL and wellbeing measures were evaluated based on the final scores for the measures collected within the study. Four outcomes (nausea and vomiting subscale, appetite loss subscale, diarrhoea subscale and EQ-5D-3L index) had one data point missing at baseline, giving a minimum completion at the time point of 96%. All outcomes three- and six-month follow-up achieved completion rates of 100%.

Assumptions of normality were met based on scrutiny of distributions of composite variables, single or dual item variables are treated as categorical. The appropriate descriptive statistics

(means and standard deviation for normally distributed subscales and the modal class for the remaining subscales) of the EORTC-QLQ-C30 are presented in Table 2. Differences were noted at baseline between the two treatment allocations on several outcome measures outlining the importance of baseline adjustments where possible. For all subscales, the OPCAT-G intervention had equal or better scores at six-month follow-up compared to the standard care arm of the study.

ANCOVA models on the four appropriate subscales have evaluated all effect sizes in a positive direction for the OPCAT-G intervention (Table 2). The largest effect was identified on the physical functioning subscale but the QoL and fatigue subscales also identified changes of four points. All effects have large confidence intervals due to the small sample size and so should be taken as indicative only.

For the purposes of the economic analysis, this feasibility took an NHS and voluntary sector perspective. An exploratory cost consequences analysis was conducted on the participants that had complete cost and outcome data (n=21: 10 in Intervention arm, 11 in Control arm). The frequency of contacts with primary and secondary care health services and other cancer services use at six-months post-baseline can be found in supplementary material table 1. Results show that there is no significant difference between the two groups in the frequency of contacts with primary care and other cancer services. For secondary care, no significant difference between groups was shown for all secondary care service contacts except telephone contacts with the CNSs in which the OPCAT-G intervention group had, on average, higher usage (mean frequency=1.70) than the standard care group (mean frequency=0.27).

Table 3 shows intervention delivery cost details for the OPCAT-G intervention and standard care. Results show that mean intervention cost per patient for delivering the OPCAT-G intervention and standard care was £76.02 and £52.99 per patient, respectively; a difference of £23.03. Table 4 shows mean costs of all contacts with NHS primary and secondary care services and other cancer services by participants in the OPCAT-G intervention and standard care groups over the six-month follow-up period. These included primary care consultations, secondary care consultations and other cancer services (e.g. voluntary sector support). Results show that the mean total cost per patient was £388.84 (SD=£320.11) for the OPCAT-G intervention group and £415.44 (SD=£329.08) for the standard care group over the six-month follow up period. The difference in mean total cost between the two groups was -£26.60 (bootstrapped 95% confidence interval (CI): -£290.37 to £240.42). Although this difference is not statistically significant, the mean total costs of service use were lower in the OPCAT-G intervention group.

Table 5 shows participants in the OPCAT-G intervention group had, on average, a smaller quality of life years (QALY) gain compared to participants in the standard care group with a mean difference of -0.06 QALYs (bootstrapped 95% CI: -0.18 to 0.05); this difference was not statistically significant. Table 5 shows change in mean ICECAP-A score between baseline and six-months post baseline for participants in the intervention group (mean=0.01 (SD=0.09)) and standard care group (mean=-0.04 (SD=0.16)). The difference in mean change scores between the two groups was 0.05 (bootstrapped 95% CI: -0.05 to 0.16) and this difference was not statistically significant.

Two adverse events were reported during the trial, one relapse and one pulmonary embolism, neither were deemed to be trial related and both continued in the trial.

Discussion

We have demonstrated the feasibility of TOPCAT-G as a trial in terms of acceptable eligibility, recruitment and retention rates related to rates defined a priori. Additionally, all outcome measures were completed to a high standard and there is no concern about including these in a future definitive RCT.

The trial had the potential to include a range of difference tumour types; however, the sample recruited was highly biased towards early stage endometrial cancer patients. There were no vulval cancer cases recruited during the limited recruitment window. A future study needs to ensure a sufficiently representative population of gynaecological patients to enhance the generalisability of findings. The process evaluation showed that involvement of the local CNSs is important for their recruitment with training and regular contact including site visits from the central TOPCAT-G research team members. There were implications for the CNSs in terms of screening clinics to increase the number of patients approached and then in terms of conducting the actual intervention, as telephone reviews had not previously been conducted at two of the sites prior to the trial. The study did impact on the CNS work and they felt they had not been consulted about it soon enough.
These issues could have been resolved with a formal 'training day' explaining the aims and objectives as well as the work required rather than an informal discussion. It is essential for those involved to understand the rationale of why the study is being conducted. For the full trial, sites will need to go through a feasibility check to open and see if they have the resources to take part in terms of network support and CNS involvement. The CNSs would need to feel at ease conducting the intervention and would need to be consulted and involved early on in assessing suitability as a site for trial recruitment.

The current study may have been limited by requiring recruitment within three months following the end of treatment. A participant was included from outside the recruitment window. With appointment cancellations and changes, this proved a strain for the nurses to ensure this time window was met. From a clinical point of view, this timeline was not essential. It is, however, important that treatment be completed in order for the 'follow-up phase' of care to begin and so recruitment should be as soon as is reasonable after completing treatment to eliminate any treatment related problems experienced at this time requiring specialist help [5]. This recruitment window will be re-considered within a full trial and the most appropriate time limits allocated to the inclusion criteria.

One major operational issue for the study was finding appropriate dedicated time for each of the CNSs to complete their telephone follow-up interviews with the participants. Gaining information on issues such as this is a vital part of the shaping the design of a future RCT. Each telephone follow-up took on average 34.7 minutes for the CNSs to complete.

The mean overall total time spent by CNSs for delivering the nurse-led intervention (95.2 minutes) was shown to be higher than the average overall total time spent by outpatient doctors for delivering the routine clinic follow-up (23.6 minutes). This difference was perhaps due to all time spent by outpatient doctors not being collected in this feasibility trial, leading to a possible underestimation of outpatient doctor time. Additional time was required for doctors looking through patients' hospital notes before and after seeing patients. For consistency and accuracy, the preparation, contact time and subsequent time spent by

outpatient doctors should be recorded within a future definitive RCT. Despite this, the exploratory cost consequences analysis results demonstrate that the intervention group had a mean total service use cost £27 per patient (bootstrapped 95%CI: -£290 to £240) lower than the standard care group.

In conclusion the feasibility trial demonstrated that the study protocol demonstrated satisfactory eligibility, recruitment and retention rates as well as satisfactory outcome measure completion. Analyses of outcome measures indicated positive changes in QoL and wellbeing within the OPCAT-G group; exploratory cost consequence analysis indicated that the nurse-led intervention had a mean total service use cost £27 per patient lower than the standard care group.

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Authors' contributions

VM: Study concept, study design, development of intervention, development of study protocol, health psychology oversight, review of manuscript. LHS: Trial management (May 2016-January 2017), preparation drafting and review of manuscript. NT: Development of study protocol, data management, statistical analysis and interpretation of results, drafting and review of manuscript. KP: Study design, development of intervention, development and writing of study protocol, trial management (July 2014-October), review of manuscript. STY: Study design, development of intervention, development of study protocol, design and development of health service use questionnaire, health economic analysis and interpretation of results, drafting and review of manuscript. CB: Development of study protocol, screening and recruitment of participants, data collection, review of manuscript. LH: Development of study protocol, screening and recruitment of participants, implementation of intervention, data collection, review of manuscript. RhW: Study concept, study funding, study design, development of intervention, development of study protocol, patient representative, review of manuscript. RTE: Study design, development of intervention, development of study protocol, health economic oversight, review of manuscript. LJT: Development of study protocol, Tenovus PhD student on related study, review of manuscript. ZH: Statistical oversight, review of manuscript. RDN: Study design, development of study protocol, review of manuscript. CW: Study design, development of study protocol, review of manuscript. SL: Study concept, study design, development of intervention, chief investigator, development of study protocol, study oversight, review of manuscript.

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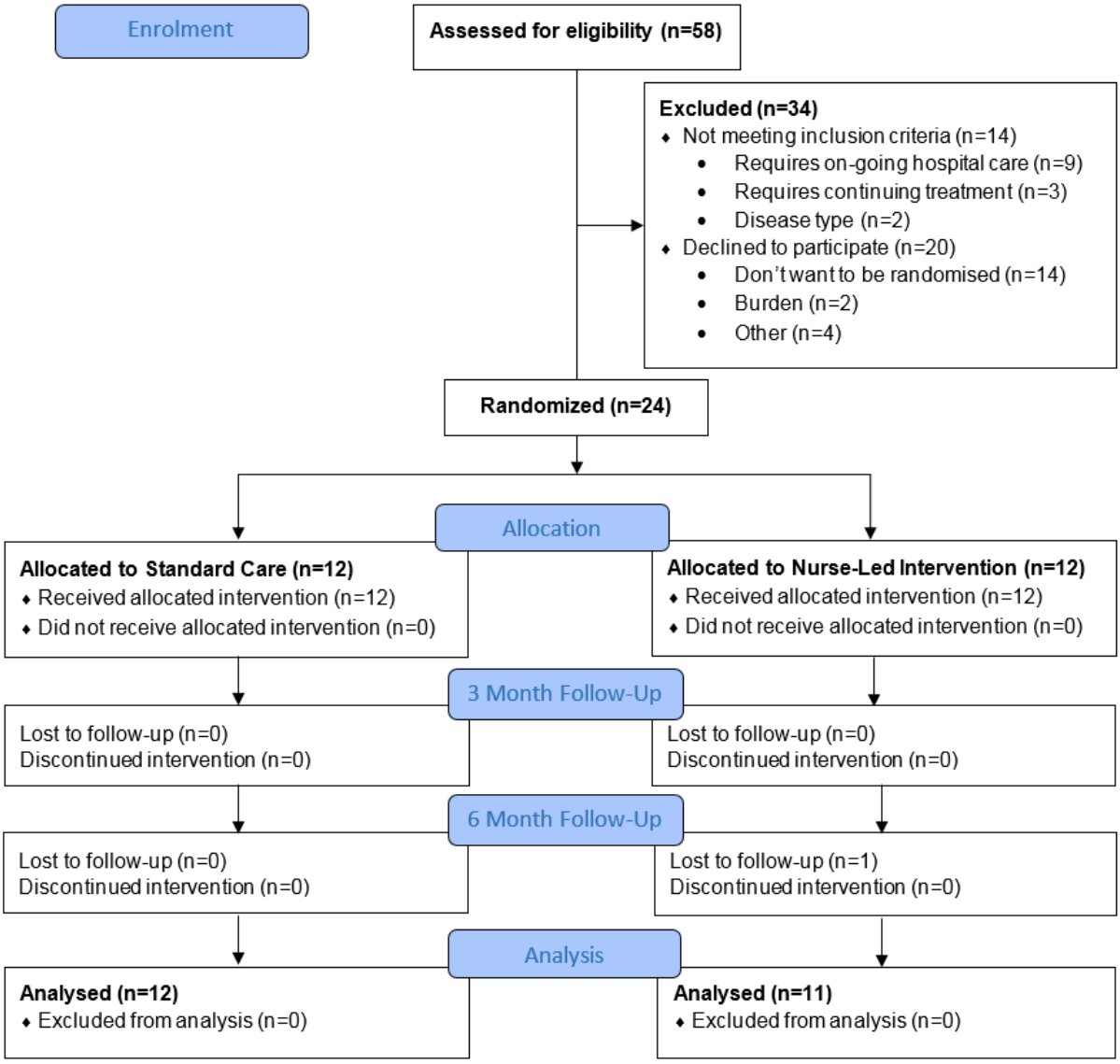

Figure 1: CONSORT diagram for the TOPCAT-G feasibility trial

Table 1: Descriptive statistics of the demographic variables (n=24)

Characteristic	Overall Mean (SD); range	Standard Care Mean (SD); range	OPCAT-G Intervention Mean (SD); range
Age (years)	59.8 (11.2); 40-77	60.0 (11.9); 42-77	59.5 (11.1); 40-75
Time from diagnosis (days)	158.5 (58.3); 46-287	154.8 (75.2); 46-287	162.3 (37.9); 118-230
Time from last treatment (days)	84.3 (13.4); 46-109	80.1 (14.1); 46-97	88.5 (11.7); 66-109
	Overall N (%)	**Standard Care** N (%)	**OPCAT-G Intervention** N (%)
Cancer			
Endometrial (Uterine)	17 (71%)	8 (67%)	9 (75%)
Ovarian	5 (21%)	4 (33%)	1 (8%)
Cervical	2 (8%)	0 (0%)	2(17%)
Uterine Staging			
IA	10 (59%)	5 (63%)	5 (56%)
IB	6 (35%)	2 (25%)	4 (44%)
II	1 (6%)	1 (12%)	0 (0%)
Ovary Staging			
IA	2 (40%)	2 (50%)	0 (0%)
IIIC	3 (60%)	2 (50%)	1 (100%)
Cervical Staging			
IA1	1 (50%)	0 (0%)	1 (50%)
IB1	1 (50%)	0 (0%)	1 (50%)
Treatment			
Surgery	13 (54%)	7 (58%)	6 (50%)
Combination Therapy	11 (46%)	5 (42%)	6 (50%)
Combination Therapy:			
Surgery & Chemo	3 (27%)	2 (40%)	1 (17%)
Surgery & Radiotherapy	8 (73%)	3 (60%)	5 (83%)
Comorbidities			
Diabetes	1 (4%)	0 (0%)	1 (8%)
Cardiac Disease	1 (4%)	0 (0%)	1 (8%)
Musculoskeletal	1 (4%)	1 (8%)	0 (0%)
Hypertension	1 (4%)	0 (0%)	1 (8%)
Skin Conditions	1 (4%)	0 (0%)	1 (8%)
Other	7 (29%)	3 (25%)	4 (33%)

Table 2: Descriptive statistics of the EORTC QLQ-C30 subscales, the adjusted mean difference from ANCOVA analysis and related effect size.

EORTC QLQ-C30 Subscales	Baseline		3-Month Follow-up		6-Month Follow-up		Adjusted mean difference at 6 month follow-up	Cohen's D Effect Size (95% CI)
	Standard Care N=12 Mean (SD)	OPCAT-G Intervention N=12 Mean (SD)	Standard Care N=12 Mean (SD)	OPCAT-G Intervention N=12 Mean (SD)	Standard Care N=12 Mean (SD)	OPCAT-G Intervention N=11 Mean (SD)		
Global Health Scale/QoL	70.1 (16.7)	63.2 (20.6)	68.1 (27.4)	63.8 (17.2)	67.3 (26.8)	68.2 (18.9)	4.2	0.20 (-0.62, 1.02)
Physical functioning	83.3 (14.4)	73.9 (16.8)	81.0 (21.2)	75.0 (19.0)	76.9 (23.5)	84.3 (12.8)	14.3	0.98 (0.11, 1.84)
Emotional functioning	72.3 (22.3)	84 (20.0)	81.3 (17.7)	71.5 (26.9)	68.1 (21.5)	80.3 (25.2)	1.6	0.10 (-0.72, 0.92)
Fatigue*	35.2 (20.8)	36.9 (24.0)	34.2 (28.7)	42.5 (25.6)	36.0 (31.2)	33.2 (22.9)	-4.1	-0.20 (-1.02, 0.62)
	Modal Class	**Modal Class**	**Modal Class**	**Modal Class**	**Modal Class**	**Modal Class**		
Role functioning	100	100	100	67	100	100		
Cognitive functioning	100	100	83	100	83	100		
Social functioning	100	100	100	100	100	100		
Nausea and vomiting*	0	0	0	0	0	0		
Pain*	0	0	0	0 & 17	0	0		
Dyspnoea*	0	33	0	33	0	0		
Insomnia*	33	0	33	33	67	33		
Appetite loss*	0	0	0	0 & 33	0	0		
Constipation*	0	0	0	33	0	0		
Diarrhoea*	0	0	0	0	0	0		
Financial difficulties*	0	0	0	0	0	0		

SUPPLEMENTARY MATERIAL

Supplementary table 1: Frequency of contacts with primary and secondary care health services and other cancer services use by participants (n=21) over the 6-month study period

	Nurse-led (n=10) Mean, median (min, max)	Standard Care (n=11) Mean, median (min, max)	Mann Whitney p-value[1]
NHS PRIMARY CARE SECTOR AND OTHER CANCER SERVICES			
GP consultations:			
Surgery	1.00, 0.00 (0, 5)	1.36, 0.00 (0, 6)	1.000
Home visit	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Telephone	0.20, 0.00 (0, 2)	0.36, 0.00 (0, 4)	1.000
Total (Surgery, home visit and telephone)	1.20, 0.00 (0, 5)	1.73, 0.00 (0.10)	1.000
GP out-of-hours consultations:			
Surgery	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Home visit	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Telephone	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Total (Surgery, home visit and telephone)	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Practice nurse consultations:			
Surgery	0.00, 0.00 (0, 0)	0.73, 0.00 (0, 5)	0.314
Home visit	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Telephone	0.00, 0.00 (0, 0)	0.09, 0.00 (0, 1)	0.756
Total (Surgery, home visit and telephone)	0.00, 0.00 (0, 0)	0.82, 0.00 (0, 5)	0.314
District nurse consultations:			
Surgery	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Home visit	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Telephone	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Total (Surgery, home visit and telephone)	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Community nurse consultations:			
Surgery	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Home visit	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Telephone	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Total (Surgery, home visit and telephone)	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
NHS Direct Wales:			
Telephone	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Counsellor:			
Clinic	0.30, 0.00 (0, 3)	0.00, 0.00 (0, 0)	0.705
Home visit	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Telephone	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Total (Surgery, home visit and telephone)	0.30, 0.00 (0, 3)	0.00, 0.00 (0, 0)	0.705
Psychologist:			
Clinic	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Home visit	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Telephone	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Total (Surgery, home visit and telephone)	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000

Physiotherapist:			
Clinic	0.40, 0.00 (0, 2)	0.00, 0.00 (0, 0)	0.468
Home visit	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Telephone	0.10, 0.00 (0, 1)	0.00, 0.00 (0, 0)	0.705
Total (Surgery, home visit and telephone)	0.50, 0.00 (0, 3)	0.00, 0.00 (0, 0)	0.468
Occupational Health Therapist:			
Clinic	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Home visit	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Telephone	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Total (Surgery, home visit and telephone)	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Dietician:			
Clinic	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Home visit	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Telephone	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Total (Surgery, home visit and telephone)	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Social worker:			
Clinic	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Home visit	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Telephone	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Total (Surgery, home visit and telephone)	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Social services support worker:			
Clinic	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Home visit	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Telephone	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Total (Surgery, home visit and telephone)	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Other cancer services e.g. charity:			
Clinic	0.10, 0.00 (0, 1)	0.00, 0.00 (0, 0)	0.705
Home visit	0.00, 0.00 (0, 0)	0.00, 0.00 (0, 0)	1.000
Telephone	0.80, 0.00 (0, 8)	0.00, 0.00 (0, 0)	0.705
Total (Surgery, home visit and telephone)	0.90, 0.00 (0, 9)	0.00, 0.00 (0, 0)	0.705
NHS SECONDARY CARE SECTOR			
Consultant:			
Face-to-face	1.00, 1.00 (0, 2)	1.45, 1.00 (0, 4)	0.468
Telephone	0.40, 0.00 (0, 2)	0.00, 0.00 (0, 0)	0.468
Total (face-to-face and telephone)	1.40, 1.00 (0, 4)	1.45, 1.00 (0, 4)	0.654
Gynaecological cancer specialist nurse:			
Face-to-face	0.70, 0.50 (0, 3)	0.64, 0.00 (0, 2)	0.809
Telephone	1.70, 1.50 (0, 4)	0.27, 0.00 (0, 1)	**0.002***
Total (face-to-face and telephone)	2.40, 2.00 (0, 5)	0.91, 0.00 (0, 3)	**0.029***
Accident and emergency:			
Face-to-face	0.10, 0.00 (0, 1)	0.18, 0.00 (0, 2)	1.000
Other hospital services:			
Face-to-face	0.30, 0.00 (0, 2)	0.09, 0.00 (0, 1)	0.654

Telephone	0.20, 0.00 (0, 2)	0.36, 0.00 (0, 4)	1.000
Total (face-to-face and telephone)	0.50, 0.00 (0, 4)	0.45, 0.00 (0, 4)	0.973

[1] = significant at 5% significance level

Appendix 1: Process Evaluation Question Schedule

Questions

1. Can we start off with you describing how do you feel about being involved in research? *(Warm-up question).*
2. When did you become involved in the TOPCAT-G project?
3. Can you describe your involvement in the TOPCAT-G project?
4. Can you tell me about the training you received with regards to information about the project and recruitment?
5. How did you describe the aims of the trial to the patient?
6. What do you think were the biggest challenges with regards to recruitment?
7. What do you think was the main reason or main reasons for patients declining to participate?
8. What you think facilitated recruitment at your site?
9. What do you think could be improved in the TOPCAT-G trial, for example, recruitment strategy?
10. How do you feel about the TOPCAT-G trial administration?
11. Is there anything you would change to the TOPCAT-G recruitment strategy for a future funded randomised controlled trial?
12. What are your thoughts on how the intervention itself went?
13. Did you receive any feedback about the nurse led telephone calls?
14. How would you feel about participating in the TOPCAT-G trial in the future?
15. Do you have anything else you would like to say regarding your involvement in the TOPCAT-G feasibility trial?
16. Do you have any questions for me?
17. Would you like a copy of the final trial paper arising from this trial?

Thank you for your involvement in the TOPCAT-G feasibility trial.

Prompt questions

1. Can you tell me more about that?
2. Can you give me an example of that?
3. Is there anything more you would like to say about that?
4. How?
5. Why?

Appendix 2: Quality of life and wellbeing outcome measures used in the TOPCAT-G feasibility trial

i. EORTC QLQ-C30

This is a validated measure to assess the quality of life of cancer patients. It comprises a 30-item questionnaire incorporating five functional scales (physical, role, cognitive, emotional, and social), three symptom scales (fatigue, pain, and nausea and vomiting), a global health status/quality of life scale, and a number of single items assessing additional symptoms commonly reported by cancer patients and perceived financial impact of the disease.

ii. EQ-5D-3L

This is a validated generic, health-related, preference-based measure comprising five domains: mobility; self-care; usual activities; pain and discomfort; anxiety and depression. Each domain has three levels (no problems, some problems, and a lot of problems). The EQ-5D-3L scoring system defines 243 possible health states. The questions are complemented by a visual analogue scale (VAS), on which respondents are asked to indicate their current health.

iii. ICECAP-A (ICEpop CAPability measure for Adults)

This is a measure of capability for the general adult population. The ICECAP-A covers five attributes of wellbeing: attachment, stability, achievement, enjoyment and autonomy.

iv. Client Service Receipt Inventory (CSRI)

This is an adapted version of a standardised measure using self-report service user data to evaluate and cost service use, including all GP visits and unscheduled secondary care in both arms of the study.