original reports

Inhibition of WEE1 Is Effective in *TP53*- and *RAS*-Mutant Metastatic Colorectal Cancer: A Randomized Trial (FOCUS4-C) Comparing Adavosertib (AZD1775) With Active Monitoring

Jenny F. Seligmann, MD[1]; David J. Fisher, MSc[2]; Louise C. Brown, PhD[2]; Richard A. Adams, MD, MBBS[3]; Janet Graham, PhD, MBChB[4]; Philip Quirke, PhD[1]; Susan D. Richman, PhD[1]; Rachel Butler, PhD[5]; Enric Domingo, PhD[6]; Andrew Blake, MSc[6]; Emma Yates, MSc[2]; Michael Braun, PhD, MBChB[7]; Fiona Collinson, MD[1]; Rob Jones, PhD[8]; Ewan Brown, PhD[9]; Emma de Winton, MBBS[10]; Timothy C. Humphrey, DPhil[6]; Mahesh Parmar, PhD[2]; Richard Kaplan, MD, PhD[2]; Richard H. Wilson, PhD[4]; Matthew Seymour, MD[1]; and Timothy S. Maughan, MD[6] on behalf of the FOCUS4 Trial Investigators

abstract

PURPOSE Outcomes in *RAS*-mutant metastatic colorectal cancer (mCRC) remain poor and patients have limited therapeutic options. Adavosertib is the first small-molecule inhibitor of WEE1 kinase. We hypothesized that aberrations in DNA replication seen in mCRC with both *RAS* and *TP53* mutations would sensitize tumors to WEE1 inhibition.

METHODS Patients with newly diagnosed mCRC were registered into FOCUS4 and tested for *TP53* and *RAS* mutations. Those with both mutations who were stable or responding after 16 weeks of chemotherapy were randomly assigned 2:1 between adavosertib and active monitoring (AM). Adavosertib (250 mg or 300 mg) was taken orally once on days 1-5 and days 8-12 of a 3-week cycle. The primary outcome was progression-free survival (PFS), with a target hazard ratio (HR) of 0.5 and 80% power with a one-sided 0.025 significance level.

RESULTS FOCUS4-C was conducted between April 2017 and Mar 2020 during which time 718 patients were registered; 247 (34%) were *RAS/TP53*-mutant. Sixty-nine patients were randomly assigned from 25 UK hospitals (adavosertib = 44; AM = 25). Adavosertib was associated with a PFS improvement over AM (median 3.61 *v* 1.87 months; HR = 0.35; 95% CI, 0.18 to 0.68; $P = .0022$). Overall survival (OS) was not improved with adavosertib versus AM (median 14.0 *v* 12.8 months; HR = 0.92; 95% CI, 0.44 to 1.94; $P = .93$). In prespecified subgroup analysis, adavosertib activity was greater in left-sided tumors (HR = 0.24; 95% CI, 0.11 to 0.51), versus right-sided (HR = 1.02; 95% CI, 0.41 to 2.56; interaction $P = .043$). Adavosertib was well-tolerated; grade 3 toxicities were diarrhea (9%), nausea (5%), and neutropenia (7%).

CONCLUSION In this phase II randomized trial, adavosertib improved PFS compared with AM and demonstrates potential as a well-tolerated therapy for *RAS/TP53*-mutant mCRC. Further testing is required in this sizable population of unmet need.

J Clin Oncol 39:3705-3715. © 2021 by American Society of Clinical Oncology

ASSOCIATED CONTENT

Appendix

Data Supplement

Protocol

Author affiliations and support information (if applicable) appear at the end of this article.

Accepted on August 16, 2021 and published at ascopubs.org/journal/jco on September 18, 2021: DOI https://doi.org/10.1200/JCO.21.01435

INTRODUCTION

Targeting the cellular DNA damage response (DDR) has been an effective therapeutic strategy in several tumor sites, including ovarian and pancreatic cancer.[1,2] These agents can be used as monotherapy in cancers with defective DDR, where we might anticipate a synthetic lethality interaction: two pathways together perform an essential function, and the loss of one pathway (eg, because of mutation) is tolerated but the loss of both pathways leads to cell death.[3]

WEE1 is a nuclear tyrosine kinase that has a central role in cell cycle regulation, including being the key regulator of the G2/M checkpoint through actions on CDK1,[4] optimizing DNA-histone stoichiometry before mitotic entry[4] and modulation of CDK1/2 during the intra-S phase to block replication initiation.[5] Inhibition of WEE1 causes unscheduled entry into mitosis, aberrant firing of replication origins leading to dNTP (Dithiobis [5-nitropyridine]) shortage and replication stress,[4] and accumulation of DNA damage during S phase, leading to increased reliance on the G1/S checkpoint.[4] Adavosertib (AZD1775) is the first small-molecule inhibitor of WEE1 kinase and has been tested in combination with chemotherapy and radiotherapy[6,7] but more recently as monotherapy to generate synthetic lethality in tumors with DDR defects.[6]

There has been limited investigation into agents targeting the DDR in metastatic colorectal cancer

CONTEXT

Key Objective

To test if adavosertib, which is a small-molecule inhibitor of the WEE1 kinase, is effective as monotherapy in patients with *RAS/TP53*-mutant metastatic colorectal cancer (mCRC) as maintenance therapy following induction chemotherapy.

Knowledge Generated

In this phase II randomized trial, adavosertib was well-tolerated and improved progression-free survival in *RAS/TP53*-mutant mCRC compared with active monitoring. Treatment effect may be affected by primary tumor location and *KRAS* subtype, with greater benefit seen in left-sided cancers and those with *KRAS* codon 12/13 mutations. *RAS/TP53* subgroup is a distinct moderately poor prognostic population.

Relevance

Adavosertib is a promising therapeutic agent in patients with *RAS/P53*-mutant mCRC, a poor prognostic population of unmet need, and was well-tolerated. This study demonstrates the potential of targeting the DNA damage response pathway in mCRC, which should be a research priority. Future studies of adavosertib should stratify patient outcomes according to primary tumor location and *RAS* subtype.

(mCRC), mainly because of the lack of systematic identification of alterations in DDR genes.[8] Here, we test adavosertib in *RAS*- and *TP53*-mutant (*RAS/TP53*-mut) mCRC, which we hypothesize would be sensitive to WEE1 inhibition. *TP53* is a key regulator of the G1/S checkpoint[9]; loss of function leads to dependence on the intra-S and G2/M checkpoints to detect DNA damage and initiate repair.[10] In preclinical studies, AZD1775 possessed preferential killing effect in *TP53*-deficient compared with *TP53* wild-type tumors.[11] Mutant *RAS,* as well as recognized actions through downstream mitogen-activated protein kinase B (MAPK-AKT) pathway signaling, also drives cell cycle progression leading to replication stress during S phase.[12] In preclinical studies, mutant *RAS* drives cells into S phase through regulation of the CDK4 or CDK6 complex and provides sustained mitogenic signals through sustained CDK2 activity. These effects activate the replication stress response including checkpoint activation.[13] Theoretically, *RAS/TP53*-mut tumors will be highly vulnerable to adavosertib, with G1 checkpoint failure, evidence of replication stress, and reliance on the intra-S phase and G2/M checkpoints.

The FOCUS4 trial program was an adaptive molecularly stratified umbrella platform trial that evaluated the safety and efficacy of novel treatments in targeted biomarker subgroups within a phase II/III trial setting in the interval after 16 weeks of first-line therapy of mCRC. The design has been published separately,[14] and the trial schema, registration, and biomarker methods are provided in the Data Supplement (online only). Here, we report the findings of FOCUS4-C, which tested the safety and efficacy of adavosertib in patients with *RAS/TP53*-mut mCRC compared with active monitoring (AM) and has achieved disease stability following induction chemotherapy.

METHODS

Trial Approvals, Patient Eligibility, and Recruitment

The trial and subsequent amendments were approved by the UK National Ethics Committee Oxford—Panel C (reference 13/SC/0111) and by the relevant regulatory body MHRA (CTA No. 20363/0400/001 and EudraCT No. 2012-005111-12).

Patients age more than 18 years with newly diagnosed mCRC were registered into the FOCUS4 trial program, while undergoing induction chemotherapy, from a total of 88 UK hospitals. Following registration, a tumor sample was tested using next generation sequencing platform for stratification into molecular subtypes including *BRAF*, *PIK3CA*, *TP53*, and *RAS* mutations (Fig 1 and Data Supplement). Patients were required to provide written informed consent for both tissue testing and entry into any of the randomized subtrials including FOCUS4-C.

Patients were randomly assigned into the FOCUS4-C trial in a subset of 25 hospitals between July 2017 and March 2020. Patients were eligible if their tumor had both *RAS* and *TP53* mutations and they had disease stability or response as assessed by computed tomography (CT) scan at the end of 16 weeks of induction chemotherapy, at which point the chemotherapy ceased and the patient was randomly assigned. Patients required a baseline CT scan 4 weeks before random assignment, a minimum 3-week washout period between the last dose of chemotherapy or biologic therapy and the first dose of adavosertib, adequate renal (creatinine clearance $>$ 50 mL/min) and liver function, a WHO performance status of 0-1, and no evidence of prolonged QT interval on ECG.

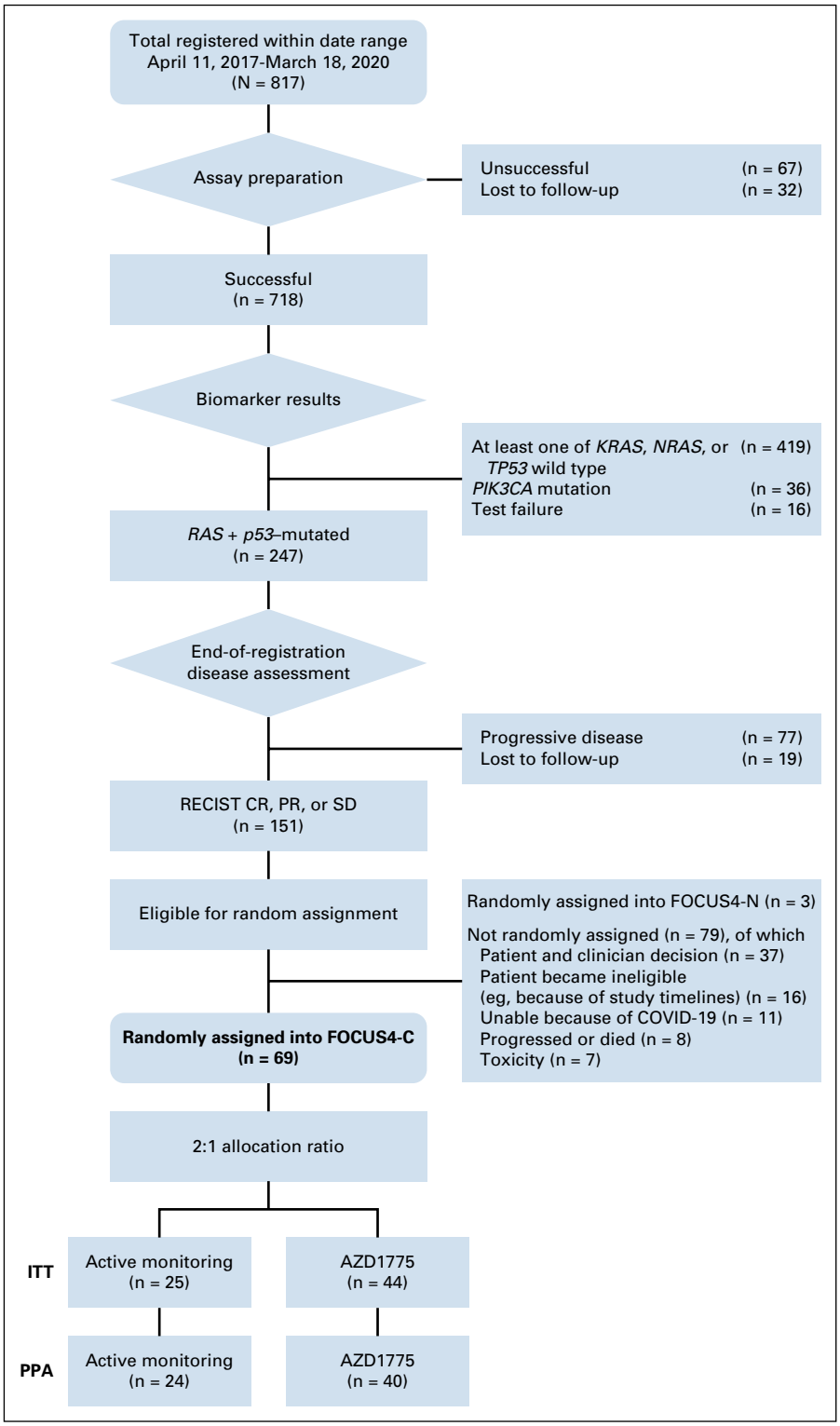


FIG 1. Flowchart of patients through the trial. CR, complete response; ITT, intention-to-treat; PPA, per-protocol analysis; PR, partial response; SD, stable disease.

Trial Procedures

Adavosertib was supplied by AstraZeneca Ltd (Cambridge, UK); packaging, labeling, and distribution were undertaken by Fisher Services (Horsham, UK). Patients randomly assigned to adavosertib continued the drug until disease progression, death, or intolerable toxicity. The first 21 patients received adavosertib 250 mg once daily, on days 1-5 and 8-12 of a 3-week cycle. The next 23 patients received

adavosertib 300 mg once daily, on the same schedule. Patients took an oral 5HT3 antagonist with each dose, and oral dexamethasone 4 mg was given on day 1 and day 8 of each cycle unless clinically contraindicated.

Because of the mandatory supportive medication for nausea and vomiting for which a placebo was not available, blinding was not possible, and AM was used as the control arm. Patients randomly assigned to AM followed the same follow-up schedule and remained off any other anticancer treatment until clinical or radiologic evidence of disease progression.

Patient tumor status was assessed at the treating hospital every 8 weeks by CT scan, according to RECIST, version 1.1.[15] Toxicities and symptoms were assessed locally every 4 weeks, using the National Cancer Institute's Common Terminology Criteria for Adverse Events (version 3.0). Patients remained on trial until disease progression occurred, at which point the patient was recommended to restart the same chemotherapy that was used in the induction phase. Treatment was stopped in the event of grade 3 or worse toxic effects or persistent toxicities judged medically significant or not tolerated by the patient, until the toxicity resolved to grade 1 or better.

Statistical Methods

A full description of the statistical methods is provided in the Data Supplement. In summary, patients were allocated to either adavosertib or AM, using a 2:1 allocation ratio by minimization with a 20% random element. All analyses were performed according to a predefined statistical analysis plan using Stata (version 16.1; Stata Corporation, TX). The primary outcome measure was progression-free survival (PFS), and the prespecified primary efficacy analysis was a per-protocol analysis (PPA) using Cox regression adjusting for minimization factors. Intention-to-treat (ITT) and unadjusted models were also performed as secondary analyses. Sample size calculations were based upon a target hazard ratio (HR) of 0.5 with 80% power and .025 one-sided alpha requiring a target of 26 PFS events in the control arm for final analysis.

RESULTS

Recruitment and Patient Characteristics

The FOCUS4 trial program ran between January 2014 and March 2020. FOCUS4-C ran between April 2017 and March 2020, during which time 817 patients were registered, of whom 718 underwent successful biomarker profiling (Fig 1 and Data Supplement). Two hundred forty-seven patients (34%) had tumors confirmed with both *RAS* and *TP53* mutations (*RAS/TP53*-mut). Of these, 151 had stable or responding disease after 16 weeks of first-line treatment and 69 were randomly assigned using a 2:1 ratio: 44 to adavosertib and 25 to AM. Of the remaining eligible 82, two chose to be randomly assigned into the concurrent FOCUS4-N trial and others chose not to be randomly assigned into FOCUS4 for reasons such as toxicity from first-line therapy or patient-clinician choice to seek alternative pathways.

Table 1 summarizes the patient baseline characteristics. There were some minor imbalances, which are corrected for in the adjusted analysis (primary model). There were no differences in the frequency of other molecular alterations between the groups. There were no significant differences between the registration period chemotherapy regimens in the adavosertib and AM arms.

Primary Analysis: PFS (per-protocol)

Five patients were excluded from the PPA: four did not start treatment (adavosertib arm) and one was subsequently found to have had progressive disease at the point of random assignment (AM arm). One patient was censored early when they received fluorouracil as anticancer treatment before progression (AM arm).

Within the primary PPA (n = 64), there were 40 of 40 PFS events in the adavosertib arm and 22 of 24 in the AM arm. Patients treated with adavosertib had a longer PFS than those on AM (3.61 *v* 1.87 months). Both unadjusted HR (0.52; 95% CI, 0.30 to 0.89; $P = .022$) and adjusted HR (0.35; 95% CI, 0.18 to 0.68; $P = .0022$) were statistically significant. Kaplan-Meier curves are provided in Figure 2.

PFS (ITT)

All patients were included in the ITT analysis, but four patients were censored the day after random assignment: three in the adavosertib arm (two because of patient withdrawal and one without any post–random assignment CT scan assessments) and one in the AM arm without any post–random assignment CT scan assessments.

There were 41 of 44 PFS events in the adavosertib arm and 23 of 25 in the AM arm. Consistent with the PPA, the ITT PFS analysis shows a PFS advantage with adavosertib over AM in both the unadjusted (HR = 0.55; 95% CI, 0.32 to 0.94; $P = .032$) and adjusted analyses (HR = 0.40; 95% CI, 0.21 to 0.75; $P = .0051$).

Overall Survival (ITT)

There were 27 of 44 deaths in the adavosertib arm and 16 of 25 in the AM arm. There was no significant overall survival (OS) benefit with adavosertib compared with AM (median survival 14.0 *v* 12.8 months; unadjusted HR = 0.79; 95% CI, 0.42 to 1.48, $P = .47$; adjusted HR = 0.92; 95% CI, 0.44 to 1.94, $P = .93$; Fig 2).

Tumor Control

Adavosertib was associated with a higher proportion of patients with disease control compared with AM (47% *v* 28% at any time during the trial), including one patient with a documented partial response to adavosertib (Data Supplement).

TABLE 1. Baseline Patient Characteristics by Randomized Group

Characteristic	Active Monitoring (n = 25)	Adavosertib (n = 44)
Mean (SD) age, years	61.9 (12.2)	59.2 (12.8)
Sex, No. (%)		
Male	15 (60)	31 (70)
Female	10 (40)	13 (30)
Current WHO performance status, No. (%)		
0	17 (68)	35 (80)
1	8 (32)	9 (20)
Site of primary tumor, No. (%)		
Right colon	9 (36)	13 (30)
Left colon	6 (24)	13 (30)
Rectum	10 (40)	18 (41)
Current state of primary tumor, No. (%)		
Resected primary	9 (36)	23 (52)
Unresected primary	16 (64)	19 (43)
Unresected local recurrence	0 (0)	2 (5)
Timing of metastases, No. (%)		
Metachronous	4 (16)	13 (30)
Synchronous	21 (84)	31 (70)
No. of metastatic sites, No. (%)		
One	6 (24)	16 (36)
Two or more	19 (76)	28 (64)
Disease assessment at end of first-line treatment, No. (%)		
Complete response	0 (0)	1 (2)
Partial response	13 (52)	26 (59)
Stable disease	12 (48)	17 (39)
First-line treatment regimen, No. (%)		
FOLFOX	7 (28)	15 (34)
FOLFIRI	8 (32)	14 (32)
CAPOX	6 (24)	11 (25)
FOLFOXIRI	3 (12)	3 (7)
Others	1 (4)	1 (2)
PIK3CA mutation status, No. (%)		
Mutation	1 (4)	1 (2)
Wildtype	24 (96)	43 (98)
Total	25 (100)	44 (100)

Abbreviations: CAPOX, capecitabine and oxaliplatin; FOLFIRI, fluorouracil, leucovorin, and irinotecan; FOLFOX, infusional fluorouracil, leucovorin, and oxaliplatin; FOLFOXIRI, folinic acid, fluorouracil, oxaliplatin, and irinotecan; SD, standard deviation.

Subgroup Analyses

The impact of adavosertib versus AM on PFS was explored in prespecified subgroups (Fig 3). The most marked difference in effect was for primary tumor location (PTL): patients with a right PTL had no PFS advantage with adavosertib compared with AM (1.87 *v* 1.91 months; HR = 1.02; 95% CI, 0.41 to 2.56), whereas those with a left PTL did (3.61 *v* 1.87 months, HR = 0.24; 95% CI, 0.11 to 0.51; interaction $P = .043$; Data Supplement).

This prompted an unplanned subgroup analysis of PTL on OS, and although the numbers of events were low, the interaction was even more marked (Data Supplement). Median OS was 14.1 versus 11.3 months for adavosertib versus AM in left PTL (adjusted HR = 0.37; 95% CI, 0.15 to 0.87) but was 6.5 versus 15.5 months in right PTL (HR = 6.5; 95% CI, 0.72 to 6.43; interaction $P = .0032$). In terms of response, 38% of right-sided adavosertib patients versus 42% of right-sided AM patients reported disease stability or response at least once while on trial, whereas for left-sided tumors, the figures were 53% versus 19%.

Patients who had responded to induction chemotherapy (*v* stable disease) and who had two or more metastatic sites appeared to benefit more from adavosertib, albeit to a lesser degree (interaction *P* value = .14 for response to induction; $P = .12$ for number of metastatic sites; Fig 3).

External Analyses to Further Characterize the *RAS/TP53*-Mut Biomarker Population

The *RAS/TP53*-mutant population has not been previously described. To understand the prognostic implication of this alteration, we analyzed the outcomes of a subset (n = 438) of patients from the FOCUS trial in whom the S:CORT consortium had analyzed a wider panel of CRC genes including *KRAS*, *NRAS*, *BRAF*, *MSI*, and *TP53*. The *RAS/RAF* wild-type group was the reference population (median OS 21.6 months). The *RAS/TP53*-mutant population is distinct from either mutation alone (*RAS* or *TP53*) and had a worse prognosis than either in isolation with a median OS of 14.9 months (HR = 2.06; 95% CI, 1.08 to 3.93; $P = .028$; Fig 4). This suggests that the *RAS/TP53*-mut population is a poor-prognosis subgroup but not as marked as for patients with a *BRAF* mutation or microsatellite instability-high tumor.

These data are consistent with the finding that during the registration period of FOCUS4, 33% of patients in the *RAS/TP53*-mut population experienced progression during the first 16 weeks of chemotherapy. This is similar to the rate in the *BRAF*-mutant group (34% progressed) but higher than that seen in *RAS*-mutant (24%) and all wild-type (22%) subgroups (Data Supplement).

Effect of *RAS* and *TP53* Mutation Subtypes on Adavosertib Activity

We observed that patients with *KRAS* codon 12/13 mutations had a significant benefit from adavosertib (*P* for interaction = .014; Fig 3), whereas no detectable benefit was observed in those with *KRAS* mutations at other codons or with *NRAS* mutation. Furthermore, the interaction effects of *KRAS* subtype and of PTL on PFS may be additive as

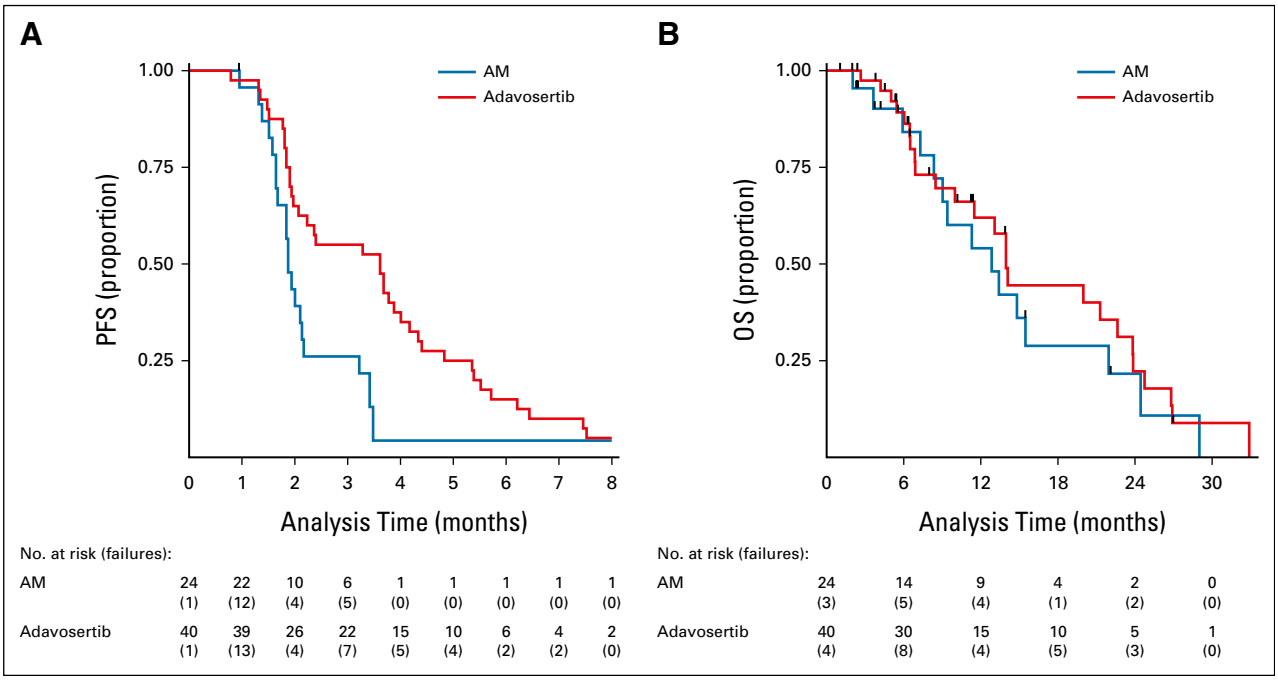


FIG 2. (A) PFS (primary analysis) in PPA population: Cox regression, adjusted for minimization factors—HR = 0.35 (95% CI, 0.18 to 0.68), $P = .0022$. Minimization factors: location of primary tumor (left, right, and rectum), baseline WHO performance status, baseline disease assessment, number of metastases, and first-line therapy (fluoropyrimidine, oxaliplatin or irinotecan, and monoclonal antibody). (B) OS (secondary analysis) in PPA population: Cox regression, adjusted for minimization factors—HR = 0.86 (95% CI, 0.39 to 1.86), $P = .70$. Minimization factors: location of primary tumor (left, right, and rectum), baseline WHO performance status, baseline disease assessment, number of metastases, and first-line therapy (fluoropyrimidine, oxaliplatin or irinotecan, and monoclonal antibody). AM, active monitoring; HR, hazard ratio; OS, overall survival; PFS, progression-free survival; PPA, per-protocol analysis.

there is a significant benefit from adavosertib within the subgroup of left PTL *KRAS* codon 12/13 subtypes (HR = 0.16; 95% CI, 0.05 to 0.50) and a clear disbenefit within the subgroup of right PTL noncodon 12/13 subtypes (HR = 1.56; 95% CI, 0.49 to 4.97; Data Supplement). The subtype of *TP53* mutation or the co-occurrence of *PIK3CA* mutation did not affect outcome.

Toxicity and Compliance

There was good compliance with randomized allocation, and adavosertib was generally well-tolerated (Fig 5 and Data Supplement). Compared with AM, adavosertib was associated with increased reported toxicity (≥ grade 1), most notably increased frequency of diarrhea (61% *v* 28%), fatigue (75% *v* 56%), nausea (68% *v* 32%), and vomiting (41% *v* 4%). However, the majority of such toxicity was of low grade, with 9% in the adavosertib arm reporting diarrhea of ≥ grade 3, 11% fatigue, 5% nausea, and 2% vomiting, versus none of each in the AM arm. As described, during the trial, there was an increase in the dose of adavosertib from 250 mg to 300 mg. The higher dose was associated with an increased frequency of grade 3 diarrhea (14% *v* 4%), but otherwise the toxicity profile was similar, and with similar rates of dose modifications and delays.

Impact of Adavosertib Dosing

As described, during the trial, there was an increase in the dose of adavosertib from 250 mg to 300 mg. PFS was 2.2 months (HR = 0.58; 95% CI, 0.31 to 1.06) with the 250-mg dose and 3.7 months (HR = 0.47; 95% CI, 0.25 to 0.89) with the 300-mg dose; this difference was nonsignificant ($P = .48$; Data Supplement). Between the 250-mg and 300-mg doses, there was an increased frequency of grade 3 diarrhea (4% *v* 14%), but otherwise the toxicity profile was similar. There were similar rates of dose modifications between the 250-mg and 300-mg doses: dose delays (16% *v* 7%), dose reductions (4% *v* 5%), and dose omissions (19% *v* 17%). A swimmer plot integrating the effects of adavosertib dose, randomized group, and PTL on PFS is shown in the Data Supplement.

DISCUSSION

Here, we have reported that FOCUS4-C met its primary end point; patients with *RAS/TP53*-mutant mCRC had PFS advantage with adavosertib compared with AM following induction chemotherapy. These results are particularly encouraging as *RAS/TP53*-mutant mCRC is a poor prognostic population with limited treatment options. Adavosertib was well-tolerated at both doses evaluated.

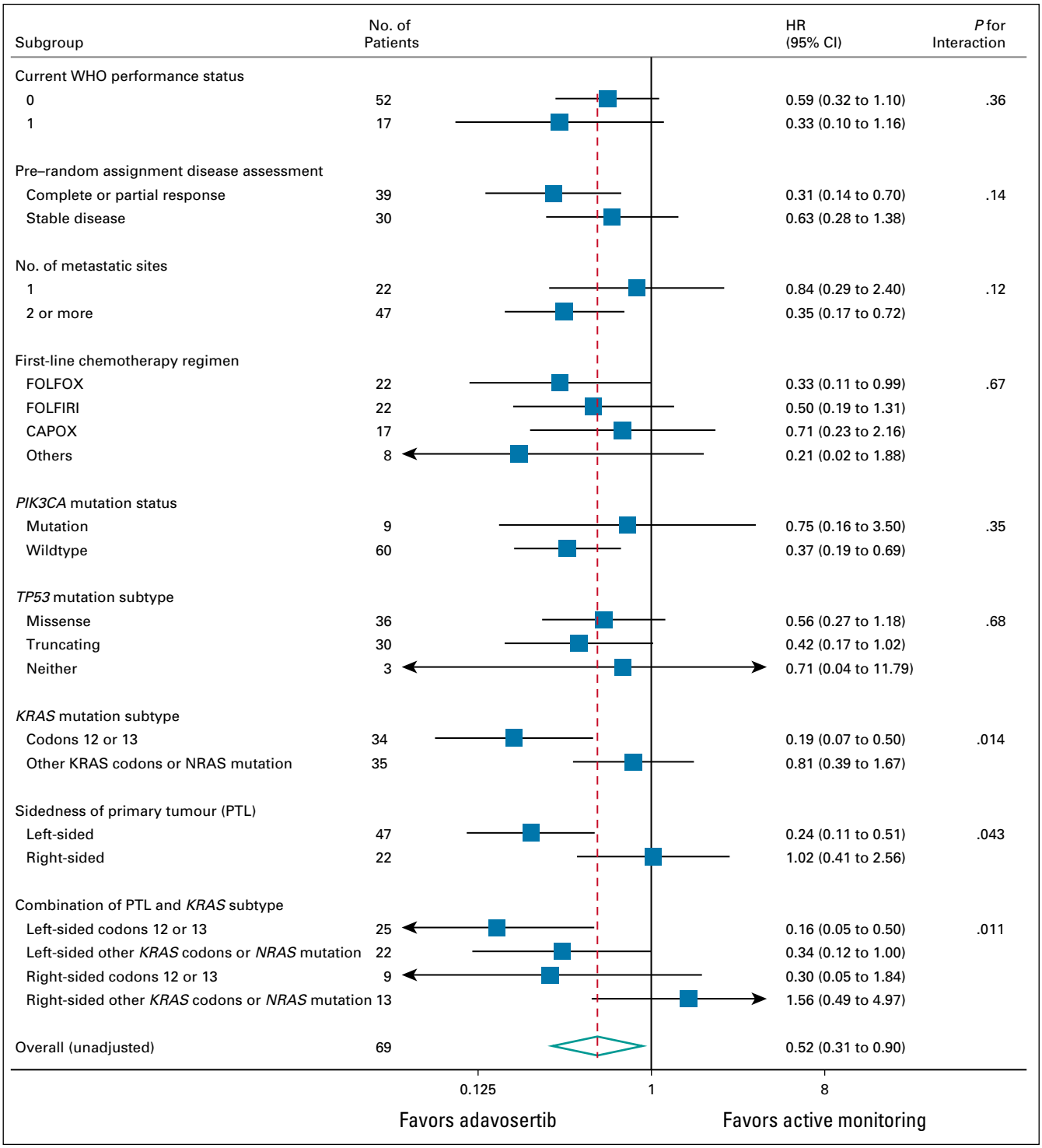
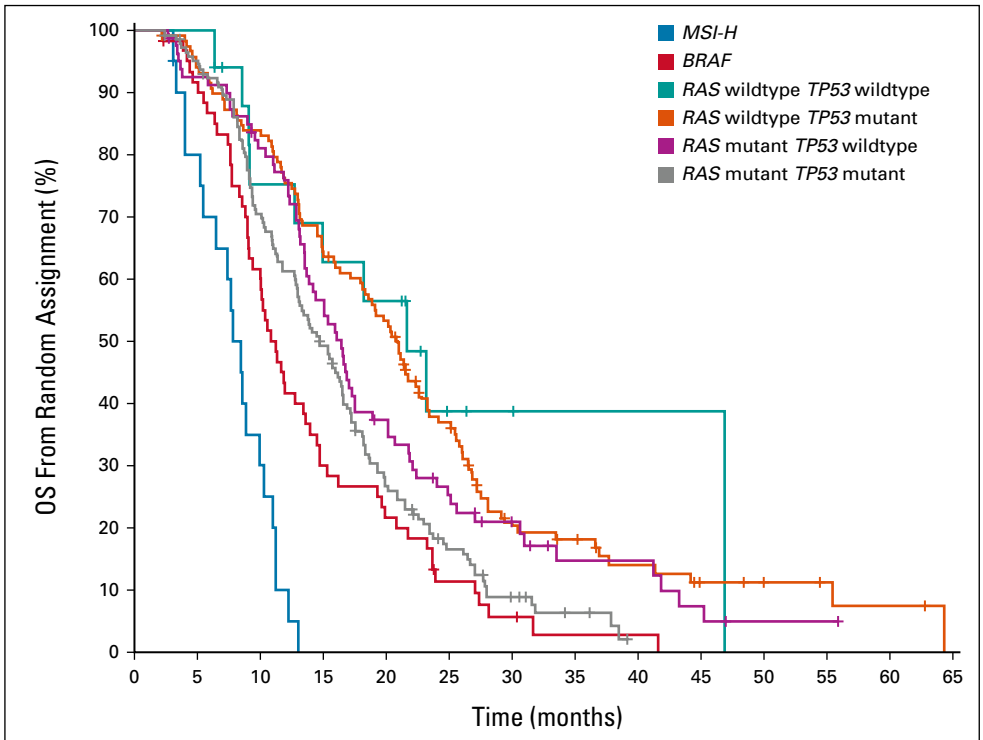


FIG 3. Subgroup analyses for PFS by intention to treat. CAPOX, capecitabine and oxaliplatin; FOLFIRI, fluorouracil, leucovorin, and irinotecan; FOLFOX, infusional fluorouracil, leucovorin, and oxaliplatin; PFS, progression-free survival; PTL, primary tumor location.

The overarching aim of the FOCUS4 trial program was to test novel agents efficiently with specified biomarker subgroups in mCRC with the multi-arm, multi-stage design allowing for an early signal of drug inactivity[14]; thus, any demonstrated efficacy would require further confirmatory study to lead to practice change. FOCUS4-C represents a success of this approach, efficiently demonstrating promising activity of adavosertib within patients with *RAS/P53*-mutant mCRC, and will directly influence research practice in mCRC.



Group	No. of Cases, Total	No. of Cases, Deceased	Median Months OS	HR	95% CI	*P*
MSI-H	20	20	7.82	9.05	4.17 to 19.6	< .001
BRAF	60	58	10.85	2.72	1.39 to 5.32	.004
RAS wildtype *TP53* wildtype	17	10	21.63	—	—	—
RAS wildtype *TP53* mutant	118	98	20.88	1.21	0.63 to 2.33	.6
RAS mutant *TP53* wildtype	79	68	16.44	1.52	0.78 to 2.96	.2
RAS mutant *TP53* mutant	144	129	14.86	2.06	1.08 to 3.93	.028

FIG 4. Prognostic impact of biomarker subgroups on OS in previous FOCUS trial. HR, hazard ratio; MSI-H, microsatellite instability-high; OS, overall survival.

The intermittent treatment strategy used in FOCUS4 follows the demonstration of no detriment in OS in the MRC COIN trial. This is now further substantiated by an individual participant data meta-analysis.[16] Thus, AM is an accepted standard of care following a few months of first-line therapy. FOCUS4 was specifically designed to use this window following first-line induction chemotherapy to test novel agents in specified biomarker groups, before the evolution of multiple resistance mechanisms.[14]

A prespecified analysis demonstrated that adavosertib activity was limited to left colon and rectal PTL, with little activity observed in right PTL. Having observed the significant subgroup effects on PFS, we investigated possible impact on OS. It is provocative to see that in the left-sided tumors, OS was significantly improved with median OS from random assignment increasing from 11.3 months to 14.1 months (HR = 0.40; 95% CI, 0.17 to 0.97). There is also a possibility of adverse effect on outcome in patients with right PTL. However, the number of patients and events was limited and thus, any conclusions need to be cautious in relation to this observed effect on OS in both subgroups. Differences in CRC by PTL are well-documented, in terms of biology, prognosis, and treatment response,[17] but the mechanisms for differences of treatment efficacy by PTL are not well-understood.

An exploratory analysis showed that adavosertib had the most PFS effect in patients with *KRAS* codons 12/13/*TP53*-mutant tumors, with lesser activity in those with extended *KRAS*, or *NRAS* mutations; functional differences between *RAS* isoforms are documented.[18] Despite the small sample sizes in FOCUS4-C, the PTL and *RAS* subtypes subgroup analyses showed interactions significant at the 5% level.

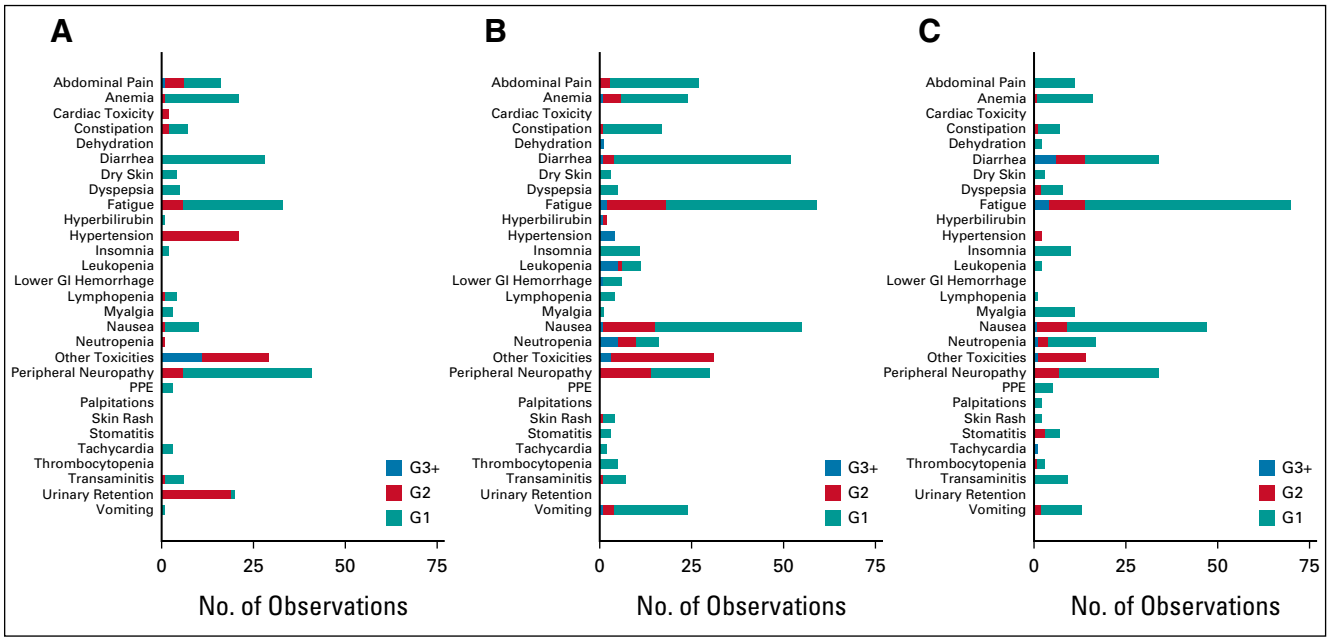


FIG 5. Cumulative reported toxicity, within FOCUS4-C treatment groups and with initial AZD1775 doses separated: (A) active monitoring (n = 25), (B) AZD1775 250 mg (n = 23), and (C) AZD1775 300 mg (n = 21). G, grade; PPE, palmar plantar erythema.

Although these subgroup analyses provide provocative results, we lack a mechanistic explanation for these differences in adavosertib effect; ongoing translational work shall investigate this. We would recommend that further clinical development of adavosertib in the *RAS/TP53*-mut mCRC population should not be limited by PTL or *RAS* subtype but should include close monitoring of patients with right PTL and extended *RAS* mutations to ensure that neither futility nor detriment are observed.

Although the clinical implications of the *RAS/TP53* mutation in mCRC are not well-studied, each alteration is individually well-characterized. Here, we have shown that the double *RAS/TP53*-mutant subgroup carries a moderately poor prognosis (Fig 4) and appears to confer a worse prognosis than either mutation in isolation. This biomarker subgroup has thus shown distinct prognostic and therapeutic relevance and so merits further study in translational work, existing data sets, and ongoing therapeutic trials in mCRC.

Adavosertib has demonstrated an acceptable safety profile; the main toxicity was diarrhea. Efficacy was noted at both the 250-mg and 300-mg doses, with a suggestion of additional activity with the higher dose. We would therefore recommend the 300-mg dosing to progress to further clinical studies in fit patients. However, in the treatment-refractory setting, the 250-mg dose may be more tolerable.

There are limitations to this study. We considered, and would have preferred, a placebo-controlled design; however, at the time of launching FOCUS4-C, high rates of nausea and vomiting had been observed in other adavosertib trials and high-dose steroid antiemetics were considered necessary. For this reason, both clinicians and patient representatives considered a placebo design unfeasible. Given the favorable safety data for single-agent adavosertib in FOCUS4-C, placebo-controlled design could be considered in the future. It is possible therefore that the PFS effect observed was influenced by investigator and patient preference to restart first-line chemotherapy sooner in the AM arm. However, a marked difference in effect was observed between the right and left PTL groups treated with adavosertib, suggesting a lesser effect on the primary analysis because of this potential bias. Additionally, the PFS end point was not centrally reviewed, but assessed in individual sites by RECIST criteria. A further limitation is that by testing adavosertib in the maintenance setting and requiring stability following induction chemotherapy, we have excluded the *RAS/TP53* patients with the worse outcome. We therefore cannot generalize the effect of adavosertib within this entire biomarker group.

In conclusion, adavosertib (AZD1775) has demonstrated promising activity compared with AM in patients with *RAS/TP53*-mut mCRC. This treatment benefit may relate to PTL and *KRAS* subtype. Given this clear demonstration of efficacy in an RCT and acceptable toxicity profile, future clinical development of adavosertib is warranted particularly as it may represent a future treatment opportunity in this sizable population of unmet need.

AFFILIATIONS

[1]Leeds Institute of Medical Research, University of Leeds, Leeds, United Kingdom
[2]MRC Clinical Trials Unit at UCL, London, United Kingdom
[3]Centre for Trials Research University and Velindre NHS Trust, Cardiff, United Kingdom
[4]Beatson Hospital, Glasgow, United Kingdom
[5]Bristol Genetics Laboratory, Bristol, United Kingdom
[6]MRC Oxford Institute for Radiation Oncology, University of Oxford, Oxford, United Kingdom
[7]Christie Hospital, Manchester, United Kingdom
[8]School of Medicine, Cardiff University, Cardiff, United Kingdom
[9]Western General Hospital, Edinburgh, United Kingdom
[10]Royal United Hospital, Bath, United Kingdom

CORRESPONDING AUTHOR

Timothy S. Maughan, MD, MRC Oxford Institute for Radiation Oncology, Gray Laboratories, University of Oxford, Old Road Campus Research Building, Roosevelt Drive, Oxford OX3 7DQ, United Kingdom; e-mail: tim.maughan@oncology.ox.ac.uk.

EQUAL CONTRIBUTION

J.F.S., L.C.B., and D.F. contributed equally to this work as first authors. M.S. and T.S.M. contributed equally to this work as last authors.

SUPPORT

FOCUS4-C was cofunded by the MRC/NIHR Efficacy and Mechanism Evaluation (EME) program and CRUK with funding commencing in April 2013. Drug supply and distribution of adavosertib and an educational grant were provided by AstraZeneca Ltd. The MRC Clinical Trials Unit at UCL receives core funding from the Medical Research Council within UKRI (Budget: MC_UU_12023/20).

CLINICAL TRIAL INFORMATION

ISRCTN#90061546

AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

Disclosures provided by the authors are available with this article at DOI https://doi.org/10.1200/JCO.21.01435.

DATA SHARING STATEMENT

Individual deidentified participant data (including data dictionaries) can be shared upon appropriate application to the MRC CTU at any time from full publication. Study protocols and statistical analysis plan have been provided in the Data Supplement with this manuscript. Going forward, it is proposed that data will be shared with an appropriate international collaborative repository to enable future IPD meta-analysis.

AUTHOR CONTRIBUTIONS

Conception and design: Jenny F. Seligmann, David J. Fisher, Louise C. Brown, Richard A. Adams, Philip Quirke, Timothy C. Humphrey, Mahesh Parmar, Richard Kaplan, Richard Wilson, Matthew Seymour, Timothy S. Maughan
Administrative support: Emma Yates
Provision of study materials or patients: Jenny F. Seligmann, Janet Graham, Philip Quirke, Susan D. Richman, Michael Braun, Fiona Collinson, Emma de Winton, Richard Wilson
Collection and assembly of data: Jenny F. Seligmann, David J. Fisher, Louise C. Brown, Richard A. Adams, Janet Graham, Susan D. Richman, Rachel Butler, Andrew Blake, Emma Yates, Emma de Winton, Richard Kaplan, Richard Wilson, Matthew Seymour, Timothy S. Maughan
Data analysis and interpretation: Jenny F. Seligmann, David J. Fisher, Louise C. Brown, Richard A. Adams, Janet Graham, Philip Quirke, Enric Domingo, Andrew Blake, Michael Braun, Fiona Collinson, Rob Jones, Ewan Brown, Mahesh Parmar, Richard Kaplan, Richard Wilson, Matthew Seymour, Timothy S. Maughan
Manuscript writing: All authors
Final approval of manuscript: All authors
Accountable for all aspects of the work: All authors

ACKNOWLEDGMENT

The full list of FOCUS4 Trial Investigators can be found in Appendix 1.

REFERENCES

1. Golan T, Hammel P, Reni M, et al: Maintenance olaparib for germline BRCA-mutated metastatic pancreatic cancer. N Engl J Med 381:317-327, 2019
2. Moore K, Colombo N, Scambia G, et al: Maintenance olaparib in patients with newly diagnosed advanced ovarian cancer. N Engl J Med 379:2495-2505, 2018
3. Kaelin WG Jr: The concept of synthetic lethality in the context of anticancer therapy. Nat Rev Cancer 5:689-698, 2005
4. Beck H, Nähse-Kumpf V, Larsen MS, et al: Cyclin-dependent kinase suppression by WEE1 kinase protects the genome through control of replication initiation and nucleotide consumption. Mol Cell Biol 32:4226-4236, 2012
5. Aarts M, Sharpe R, Garcia-Murillas I, et al: Forced mitotic entry of S-phase cells as a therapeutic strategy induced by inhibition of WEE1. Cancer Discov 2: 524-539, 2012
6. Lheureux S, Cristea MC, Bruce JP, et al: Adavosertib plus gemcitabine for platinum-resistant or platinum-refractory recurrent ovarian cancer: A double-blind, randomised, placebo-controlled, phase 2 trial. Lancet 397:281-292, 2021
7. Cuneo KC, Morgan MA, Sahai V, et al: Dose escalation trial of the Wee1 inhibitor adavosertib (AZD1775) in combination with gemcitabine and radiation for patients with locally advanced pancreatic cancer. J Clin Oncol 37:2643-2650, 2019
8. Reilly NM, Novara L, Di Nicolantonio F, et al: Exploiting DNA repair defects in colorectal cancer. Mol Oncol 13:681-700, 2019
9. Molinari M: Cell cycle checkpoints and their inactivation in human cancer. Cell Prolif 33:261-274, 2000
10. Kawabe T: G2 checkpoint abrogators as anticancer drugs. Mol Cancer Ther 3:513-519, 2004
11. Rajeshkumar NV, De Oliveira E, Ottenhof N, et al: MK-1775, a potent Wee1 inhibitor, synergizes with gemcitabine to achieve tumor regressions, selectively in p53-deficient pancreatic cancer xenografts. Clin Cancer Res 17:2799-2806, 2011
12. Murcia L, Clemente-Ruiz M, Pierre-Elies P, et al: Selective killing of RAS-malignant tissues by exploiting oncogene-induced DNA damage. Cell Rep 28: 119-131.e4, 2019
13. Fikaris AJ, Lewis AE, Abulaiti A, et al: Ras triggers ataxia-telangiectasia-mutated and Rad-3-related activation and apoptosis through sustained mitogenic signaling. J Biol Chem 281:34759-34767, 2006
14. Kaplan R, Maughan T, Crook A, et al: Evaluating many treatments and biomarkers in oncology: A new design. J Clin Oncol 31:4562-4568, 2013
15. Eisenhauer EA, Therasse P, Bogaerts J, et al: New response evaluation criteria in solid tumors: Revised RECIST guideline (version 1.1). Eur J Cancer 45: 228-247, 2009

16. Adams R, Goey K, Chibaudel B, et al: Treatment breaks in first line treatment of advanced colorectal cancer: An individual patient data meta-analysis. Cancer Treat Rev 99:102226, 2021
17. Arnold D, Lueza B, Douillard JY, et al: Prognostic and predictive value of primary tumor side in patients with RAS wild-type metastatic colorectal cancer treated with chemotherapy and EGFR directed antibodies in six randomized trials. Ann Oncol 28:1713-1729, 2017
18. Hobbs GA, Der CJ, Rossman KL: RAS isoforms and mutations in cancer at a glance. J Cell Sci 129:1287-1292, 2016

AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

Inhibition of WEE1 Is Effective in *TP53*- and *RAS*-Mutant Metastatic Colorectal Cancer: A Randomized Trial (FOCUS4-C) Comparing Adavosertib (AZD1775) With Active Monitoring

The following represents disclosure information provided by authors of this manuscript. All relationships are considered compensated unless otherwise noted. Relationships are self-held unless noted. I = Immediate Family Member, Inst = My Institution. Relationships may not relate to the subject matter of this manuscript. For more information about ASCO's conflict of interest policy, please refer to www.asco.org/rwc or ascopubs.org/jco/authors/author-center.

Open Payments is a public database containing information reported by companies about payments made to US-licensed physicians (Open Payments).

Jenny F. Seligmann
Honoraria: Pierre Fabre, Merck Serono, Servier
Consulting or Advisory Role: Pierre Fabre, Roche Molecular Diagnostics
Travel, Accommodations, Expenses: Bristol Myers Squibb/Medarex

Louise C. Brown
Research Funding: AstraZeneca

Richard A. Adams
Honoraria: Merck Serono, Servier, Amgen
Consulting or Advisory Role: Merck Serono, Amgen, Servier, Bayer
Speakers' Bureau: Merck Serono, AstraZeneca, Merck Sharp & Dohme
Travel, Accommodations, Expenses: Servier, Amgen, Merck Serono, AstraZeneca

Janet Graham
Honoraria: Merck Serono, Bristol Myers Squibb, Nucana, Bayer
Consulting or Advisory Role: Merck KGaA
Travel, Accommodations, Expenses: Nucana

Philip Quirke
Honoraria: Roche
Consulting or Advisory Role: Roche, Adlai Nortye, Avacta Life Sciences, Amgen, Bayer
Research Funding: Roche, GeneFirst, ONI
Patents, Royalties, Other Intellectual Property: Roche has filed a patent jointly with my University; I may receive income but none to date
Travel, Accommodations, Expenses: Roche, Bayer, Amgen

Rachel Butler
Speakers' Bureau: Bayer, Pfizer, Roche, AstraZeneca, MSD, Illumina, Lilly, Novartis, Amgen, Boehringer Ingelheim

Michael Braun
Honoraria: Servier, Amgen, Pierre Fabre
Travel, Accommodations, Expenses: Servier

Fiona Collinson
Research Funding: Bristol Myers Squibb

Rob Jones
Honoraria: Astellas Pharma, Janssen, AstraZeneca, MSD Oncology, Bristol Myers Squibb, Pfizer, Novartis, Ipsen, Seattle Genetics, Sanofi, Bayer, Roche/Genentech, EUSA Pharma, Pharmacyclics, Clovis Oncology, Merck Serono, Eisai
Consulting or Advisory Role: Clovis Oncology
Research Funding: Roche, Astellas Pharma, AstraZeneca, Pfizer, Novartis, Exelixis, Clovis Oncology, Bayer
Travel, Accommodations, Expenses: Ipsen, Bayer, Janssen, Astellas Pharma, MSD

Ewan Brown
Research Funding: MSD Oncology

Timothy C. Humphrey
Research Funding: Debiopharm Group

Mahesh Parmar
Research Funding: AstraZeneca, Astellas Pharma, Janssen, Clovis Oncology

Richard Kaplan
Research Funding: AstraZeneca

Richard Wilson
Honoraria: Servier, Amgen, Bristol Myers Squibb
Consulting or Advisory Role: Amgen, CV6 Therapeutics, Pierre Fabre, Amphista Therapeutics, Nucana
Travel, Accommodations, Expenses: Amgen, Pierre Fabre

Matthew Seymour
Research Funding: Amgen, AstraZeneca

Timothy S. Maughan
Consulting or Advisory Role: AstraZeneca, Vertex, Pierre Fabre
Research Funding: AstraZeneca, PsiOxus Therapeutics, Merck KgAA, Almac Diagnostics

No other potential conflicts of interest were reported.

APPENDIX 1. FULL AUTHORSHIP LIST FOR THE FOCUS4 TRIAL INVESTIGATORS

Writing Committee for FOCUS4-C Trial

Seligmann J.F., Fisher D.J., Brown L.C., Adams R.A., Graham J., Quirke P., Richman S.D., Butler R., Domingo E., Blake A., Yates E., Braun M., Collinson F., Jones R., Brown E., De Winton E., Humphrey T.C., Parmar M., Kaplan R., Wilson R.H., Seymour M., and Maughan T.S.

Trial Management Group

Maughan T.S. (Chair), Wilson R.H., Adams R.A., Seymour M., Seligmann J.F., Graham J., Wasan H., Pope M., Pope J., Samuel L., Shiu K., Church D., Middleton G., Steward W., Twelves C., Wellman S., Hodgkinson E., Stoner N., Beety J., Duggleby K., Dutton G., MRC CTU team (below), and laboratory staff (see below).

MRC CTU Trial Coordinating Center

Brown L.C., Kaplan R., Parmar M., Fisher D.J., Campos M., Yates E., Santana S., Fiddament A., Harper L., Bara A., Pugh C., Bathia R., Letchemanan K., Przybył B., Bhogal S., Gopalakrishnan G., Purvis C., Diaz-Montana C., Mohamed F., Townsend S., Cragg W., Masters L., Van Looy N., and Rauchenberger M.

Laboratories

Quirke P., Richman S.D., Hemmings G., Davis J., Gallop N., Wilkinson L., Butler R., Roberts H., Jasani B., White R., Dodds R., James M., and Morgan M.

Independent Data-Monitoring Committee

Cameron D. (Chair), Souhami R., Peeters M., Billingham C., Griffiths G., and Brown J.

Trial Steering Committee

Johnson P. (Chair), Rudd R., Whelan J., and Russell A.

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076)

Hospital	First Name	Surname (principal investigator [PI])
Western General Hospital	Ewan	Brown (PI)
	Morven	Atkinson
	Caroline	Bruce
	Patricia	Campbell
	Sally	Clive
	Kathryn	Connolly
	Lorraine	Cook
	Helen	Creedon
	Judith	Crawford
	Alisa	Davinson
	Lesley	Dawson
	Grace	Ding (Tze-en Ding)

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Martin	Doak
	Tamasin	Doig
	Clare	Dunbar
	Ben	Elliott
	Lynne	Faragher
	Paul	Fineron
	Nikki	Gilluley
	Ewa	Kondarewicz
	Jenifer	Lauchlan
	Jim	Macpherson
	Catriona	Mclean
	Hazel	Milligan
	Suzanne	Muir
	Alisa	Oswald
	Ashley	Pheely
	Hamish	Phillips
	Kelly	Rust
	Shaafia	Siddiqui
	Barbara	Stanley
	Moira	Stewart
	Vivienne	Wilson
St James's University Hospital (Leeds)	Fiona	Collinson (PI)
	Matt	Seymour (PI)
	Humaira	Abbas
	Ifeoluwa	Ajibayo
	Alan	Anthoney
	Hana	Ali
	Orrie	Appell
	Andrew	Barker
	Vincent	Barlow
	Shanaz	Begum
	Maxine	Berry
	Judith	Chapman
	Sam	Charlton
	Pam	Clark
	Emily Rose	Crawford
	Anne	Crossley
	Gemma	Dart
	Jessica	Docherty
	Irina	Ershova
	Alexandra	Firth

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Jeanifer	Gachev
	Leanne	Galloway-Browne
	Jillian	Hanson
	Amelie	Harle
	Farzana	Haque
	Janine	Heeley
	Jane	Hook
	Jane	Hughes
	Alison	Judge
	Emma	Livesey
	Emma	Lundy
	Michael	O'Brian
	Mike	Osborne
	Lauren	Paul
	Mary	Perrin
	Annet	Pillai
	Charlotte	Richardson
	Suzanne	Rogerson
	Olorunda	Rotimi
	Emily	Rudolph
	Jenny	Seligmann
	Hannah	Shanks
	Daniel	Swinson
	Danny	Ulahannan
	Mariah	Vorajee
	Sarah	Wetherop
	Hannah	Wigginton
	Christopher	Williams
	Jawairiya	Zubair
Velindre Hospital	Rob	Jones (PI)
	Richard	Adams (PI)
	Seema	Arif
	Rebecca	Bethell
	Kathy	Bishop
	Alison	Brewster
	Michael	Brown
	Julie	Broughton
	Lucy	Chestney
	Nikki	Coates
	Sonali	Dasgupta
	Karen	Davies
	Clare	Donnithorne

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Beverley	Eley
	Maria	Evans
	Julie	Graham
	Jill	Halpin
	Robert	Henley
	Lynda	Holman
	Alys	Irving
	Amanda	Jackson
	Emma	John
	Rhianydd	Jones
	Colette	Kemp
	Satish	Kumar
	Claire	Lang
	Cindy	Langford
	Debbie	O'Connor
	Diana	Osman
	Catherine	Matthews
	Ross	McLeish
	James	Morgan
	Phillip	Morgan
	Renata	Poole
	Karen	Pow
	Joanne	Preece
	Cathy	Richards
	Jayne	Richards
	Rosie	Roberts
	Sharon	Rogers
	Jodie	Sherburn
	Lisa	Stafford
	Catherine	Sullivan
	Hana	Thomas
	Anshu	Wadhawan
	Catherine	Watkins
	Hilary	Williams
	Rachel	Williams
	Kay	Wilson
	Rebecca	Wilson
	Cheryl	Worsey
	Charlotte	Young
Christie Hospital	Michael	Braun (PI)
	Jo	Allen
	Hannah	Arhinful

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Janet	Beech
	Martin	Birch
	Anna	Bowron
	Suzanne	Carter
	Jackie	Connell
	Camille	Cooney
	Rebecca	Cox
	Olive	Craven
	Mark	Cutting
	Hannah	Downs
	Karen	Forshaw
	Chloe	Gawlik
	Jurjees	Hasan
	Sarah	Hughes
	Paul	Husbands
	Mary	Jepson
	Konstantinos-Vellios	Kamposioras
	Rhea	Langeveld
	Catherine	McBain
	Danielle	McCool
	Saifee	Mullamitha
	Monica	Narasimham
	Alkesh	Patel
	Jane	Rogan
	Mark	Saunders
	Sue	Seifi
	Lilly	Simpson
	Greg	Wilson
	Marie	Woolley
Weston Park Hospital	Joanne	Hornbuckle (PI)
	Jess	Aldred
	Cyper	Allan
	Richard	Allen
	Lynne	Ashmore
	Darrell	Barrott
	Alex	Bradshaw
	Richard	Brown
	Sarah	Brown
	Kevin	Chan
	Rachael	Clarke
	Su	Clark
	Susan	Clenton

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Richard	Crossley
	Alice	Dewdney
	Julia	Disney
	Lynne	Dixon
	Paul	Dodd
	Sarah	Gill
	Elizabeth	Hodgkinson
	Helen	Joyce
	Mandip	Khaira
	Panagiota	Kitsanta
	Jasima	Latif
	Laura	Lee
	Cathryn	Leng
	Tony	Matthew
	Eileen	Marsh
	Aimee	Pendlebury-Worrad
	Megan	Perry
	Simon	Pledge
	Muneeb	Qureshi
	Alison	Redfearn
	Helen	Shulver
	Helen	Slater
	Laura	Smith
	Svetlana	Solovieva
	Catherine	Spalton
	Elisavet	Theodoulou
	Lucy	Walkington
	Christopher	Walls
	Mary	Ward
	Katherine	Williams
	Vanessa	Wilshaw
	Robin	Young
Bristol Haematology and Oncology Centre	Stephen	Falk (PI)
	Elizabeth	Allison
	Paul	Armenise
	Lindsay	Ball
	Helen	Brooks
	Paula	Byrne
	Carlota	Clemente
	Marc	Coe

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Kiril	Delchev
	Kay	Drury
	Emily	Foulstone
	Elysia	Gower
	John	Helbrow
	Jon	Heywood
	Robert	Hollister
	Kirsten	Hopkins
	Hollie	Jones
	Lauren	Joyce
	Helen	Kingston
	Jayne	Leonard
	Amelia	Lowe
	Catherine	McDonald
	Helen	Monnington
	Katarina	Milutinovic
	Jessica	Nuttall
	Yasmin	Odding
	Ronak	Patel
	Ian	Penwarden
	Peter	Robertson
	Tim	Robinson
	Sharon	Short
	Thomas	Strawson-Smith
	Kirsty	Stevenson
	Hannah	Taylor
	Sandra	Williams (nee Price)
	Eve	Watson
	Axel	Walther
	Angela	Webb
	Tom	Wilson
	Roland	Wynn-Williams
Royal United Hospital	Emma	De Winton (PI)
	Louise	Medley (PI)
	Tania	Allen
	Rowan	Appleby
	Claire	Barron
	Leigh	Biddlestone
	Hannah	Blades
	Ruth	Brydon-Hill
	Shaolin	Chidavaenzi

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Ashley	Cox
	Christine	Cox
	Claire	Craige
	Jane	Crozier
	Samantha	Curtis
	Michael	Daly
	Claire	Dyke
	Rachael	Exley
	Ioana	Fodor
	Yuko	Francis
	Sharath	Gangadhara
	Amy	Gaunt
	Jenny	Gilbert
	Beatrice	Hamilton
	Leonie	Harrison
	Carly	Laxon-Takooree
	Jill	MacDonald-Burn
	Katarzyna	Machura
	Margaret	Macmillan
	Carey	Milsom
	Kate	Moloney
	Sarah	Murdoch
	Joseph	Needham
	Abigail	Pocock
	Vicki	Portingale
	Bryony	Robertson
	Annie	Taylor
	Eve	Tomlinson
	Tom	Tylee
	Rebecca	Wassall
	Samantha	Williams
	Jess	White
Castle Hill Hospital	Rajarshi	Roy (PI)
	Abigail	Alford
	Katie	Broadbent
	Amandeep	Dhadda
	Ceri	Fuller
	Laura	Hart
	Lyn	Harrison
	Joanne	Hinchcliffe
	Linda	Hoggarth
	Rhian	Horne
	Dawn	Jones

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Louise	Karsera
	Magdalena	Kolodzieg
	Daniel	Lee
	Lisa	Nix
	Paula	O'Reilly
	Kristian	Plowman
	Karen	Shepherd
	Karen	Stubbs
	Gabrielle	Taft
	Reenee	Tiam
	Adam	Wolstencroft
Victoria Hospital (Blackpool)	Sin	Lau (PI)
	Charlotte	Armer
	Denise	Bennett
	Caroline	Boardman
	Oliver	Brennan
	Laura	Collins
	Falalu	Danwata
	Alexander Paul	Davies
	Emma	Davies
	Leanne	Davies
	Stacey	Donaldson
	Hannah	Ferguson
	Amanda	Finch
	Julie	Frudd
	Karen	Gratrix
	James	Haston
	Sue	Hesketh
	Sue	Lancaster
	Chris	Pemberton
	Karen	Pollard
	Andrew Jonathan	Potter
	Toni	Purcer
	Ella	Riedel
	Nicola	Slawson
	Shabbir	Susnerwala
	Lauren	Thornborough
	Conor	Wilkinson
	Mark	Wrigley
Royal Preston Hospital	Sin	Lau (PI)
	Amanda	Alty

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Philippa	Antrobus
	Katherine	Ashton
	David	Barber
	Stephanie	Cornthwaite
	William	Croxford
	Parth	Desai
	Kay	Ellel
	Cassandra	Gleeson
	Louise	Hough
	Krishna	Panchal
	Shakeelah	Patel
	Mark	Pitt
	Sarah	Preston
	Andrew	Martyniak
	Aasif	Motala
	Deborah	Williamson
	Claire	Searle
	Shabbir	Susnerwala
	Dorothy	Walmsley
	Saif	Yousif
Musgrove Park Hospital	Gihan	Ratnayake (PI)
	Clare	Barlow (PI)
	Jan	Ashcroft
	Hilary	Barlow
	Nita	Beacham
	Erica	Beaumont
	Hannah	Berry
	Becky	Brown
	Clair	Brunner
	Richard	Burgess
	Alison	Chedham
	Hayley	Cornall
	Nicola	Cutmore
	Flora	Darch
	Natasha	Eveleigh
	John	Geraghty
	Fiona	Goodchild
	Emma	Gray
	Clair	Hinton
	Lucy	Howell-Drewett
	Joan	Kemp

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Catherine	Lane
	Fen	Lewen
	Dee	Lewis
	Angela	Locke
	Sue	Mahoney
	Samantha	Northover
	Joanne	Rogers
	Guillermo	Reina-Ruiz
	Joy	Rowe
	Alison	Snell
	Luke	Stephens
	Joanne	Taylor
	Rebecca	Twemlow
	Rebecca	Wallbutton
	Jasmine	Youens
	Robert	Zorica
	Maria	Zietz
Hammersmith Hospital	Harpreet	Wasan (PI)
	Ilyas	Ali
	Nawa	Amin
	Gareth	Barker
	Michelle	Chen
	Sarah	Chilcott-Burns
	James	Clark
	Susan	Cleator
	Christopher	Coyle
	Andrea	Davis-Cook
	Keyury	Desai
	Matthew	Flook
	Victoria	Harding
	Gillian	Hornzee
	Victoria	Latham
	Luzviminda	Llemit Ramos
	Charles	Lowdell
	Maria	Martinez
	Daniel	Meredith
	Laura	Morland
	Annette	Musallam
	Chynna	Pascual
	Emily	Pickford
	David	Pinato

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Keira	Pudge
	Ramya	Ramaswami
	Azeem	Saleem
	Amalia	Saucan
	Sarah	Stimpson
	Regina	Storch
	Caroline	Ward
	Adrian	Zebrowski
Huddersfield Royal Infirmary	Jo	Dent (PI)
	Zenab	Ahmed
	Mohammad Irfan	Alam
	Nick	Brown
	Sam	Dale
	Nicky	Daker
	Denise	Hancock
	James	Harris
	Lisa	Horner
	Ibrar	Hussain
	Jeremy	Hyde
	Paula	Gomes
	Rebecca	Jenkins
	Christopher	Knight
	Adam	Mawer
	Mandy	Madigan
	Belinda	McLean
	Sabiha	Ravat
	Hannah	Riley
	Jodie	Rowan
	Simone Deborah	Ryan
	Lisa	Shaw
	Selina	Shaw
	Kathryn	Smith
	Christine	Turner
	Georgina	Turner
	Hayley	Webster
	Tracy	Wood
Northampton General Hospital	Roshan	Agarwal (PI)
	Sabri	Ahmed
	Caroline	Duncombe
	Tasnim	Ebrahimjee
	Rachel	Gabitass

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Ethelwolda	Goyena
	Andrea	Hillyer
	Jane	Hosea
	Mohammad	Hussain
	Kashif	Jarral
	Andrea	Jones
	Andrea	Kempa
	Adnan	Masood
	Craig	Macmillan
	James	Maloy
	Katherine	McGrath
	Jan	Miles
	Onyinye	Ndefo
	Paula	O'Connell
	Malgorzata	Polnik
	Ehsan	Rahman
	Shahriar Mohammed	Reza
	Sharon	Ryan
	Simon	Stapley
	Elizabeth	Tee
	Lenka	Zvirinska
Pinderfields Hospital	Iva	Damyanova (PI)
	Ashraf	Alkhaldi (PI)
	Gireesh	Kumaran (PI)
	Usman	Ahmad
	Aneeka Shubnum	Altaf
	Julie	Ball
	Louise	Benton
	Kevin	Birbeck
	Lynsey	Bourner
	Richard	Bowers
	Hollie	Brooke
	Ellis	Burton
	Julie	Burton
	Deborah	Cooper
	Elizabeth	Clayton
	Jane	Eastwood
	Aimee	Fletcher
	Rebecca	Foster
	Darren	Gomersall
	Hassan	Hameed

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Aimee	Hayton-Bott
	Charlotte	Hirst
	Claire	Hutsby
	Andrew M	Jackson
	Annette	Jones
	Konstantinos-Vellios	Kamposioras
	Patricia	Kane
	Tracey	Lowry
	Stephanie	Lupton
	Joanna	Lyle
	Kate	Norton
	Ganesh	Radhakrishna
	Vishal	Ramdhani
	Muhammad Bilal	Razzaq
	Ayesha	Sheikh
	Hira	Yousif
Beatson West of Scotland Cancer Centre	Janet	Graham (PI)
	Tareq	Abdullah
	Ghada	Al-Salih
	Martin	Ball
	Karen	Bell
	Anette	Charlick
	Maureen	Connolly
	Jill	Dempster
	Alan	Foulis
	Paula	Henry-Stephenson
	Jill	Graham
	Lesley	Hickey
	Sandra	Jenkins
	Sai Juan	Jia
	Jennifer	Keith
	Donna	Kelly
	Audrey	Leonard
	Gail	Lynch
	Alex	McDonald
	Jordan	McGill
	Anne	McKillop
	Austin	McInnes
	Fiona	McQueen
	Nazia	Mohammed
	Paul	Mooney

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Maria	Nygren
	Shilpa	Thapar
	Kirsty	Ross
	Patricia	Roxburgh
	Pavlina	Spiliopoulou
	Eileen	Soulis
	Kirsteen	Stuart
	Rasheed	Syed
	Ashita	Waterston
	Cheryl	Wilson
Ysbyty Gwynedd	Catherine	Bale (PI)
	Kelly	Andrews
	Naomi	Boyle
	Claire	Fuller
	John	Grant
	Emma	Hall
	Anna	Mullard
	Wendy	Saxton
	Nick	Stuart
	Alice	Thomas
	Linzi	Williams
	Rachel	Williams
Withybush General Hospital	Sarah	Gwynne (PI)
	Maung	Moe (PI)
	Fawwaz	Arikat
	Denisa	Asandei
	Sandra	Evans
	Eirianydd	Garrard
	Sophie	Glynn-Williams
	Colette	Griffiths
	Rachel	Hughes
	Catherine	MacPhee
	John	Murphy
	Kirsty	Pope
	Rocio	Riba
	Sally-Ann	Rolls
	Abigail	Taylor
	Carol	Thomas
	Helen	Thomas
	Vallipuram	Vigneswaran
Aberdeen Royal Infirmary	Leslie	Samuel (PI)

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Fay	Annison
	Sharon	Armstrong
	Abimbola	Barango
	Balazs	Binnyei
	Gillian	Brand
	Kay	Campbell
	Angie	Cheyne
	Michael	Christie
	Kathryn	Connolly
	Pat	Cooper
	Amber	Johnson
	Susan	Martin
	Celia	Meneses
	Graeme	Murray
	Nicola	Price
	Sue	Rodwell
	Mhairi	Scott
	Margaret	Smith
	Bartosz	Was
	Mehmood	Zaidi
	Ishtiaq	Zubairi
Cheltenham General Hospital	Kim	Benstead (PI)
	Jaqueline	Aberdeen
	Rehana	Bakawala
	Sarah	Beazer
	Colin	Binks
	Lucy	Blake
	Bethan	Cartwright
	Samuel	Croly
	Lin	Crossley
	Rachel	Durrant
	David	Farrugia
	Janet	Forkes
	Emma	Gilbert
	Fabrizio	Mauri
	Elaine	Pratten
	Elisabeth	Read
	Nick	Reed
	Rachel	Sayers
	Neil	Shepherd
	Stephen	Shepherd

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Jennifer	Smith
	Sarah	Stanley
	Catherine	Stuart-Grumbar
	Bilal	Topia
	Kate	Trigg-Hogarth
Clatterbridge Centre for Oncology	Nasim	Ali (PI)
	Wesley	Artist
	Shaker	Abdallah
	Alexandra	Bailey
	Danielle	Campbell
	Maggie	Cantrell
	Joanne	Cliff (nee Mooney)
	Thomas	Davies
	Helen	Flint
	Amy	Ford
	Barbara	King
	Ayman	Madi
	Samah	Massalha
	Laura	McAllister
	Amir	Montazeri
	Joanne	Mullen
	Julie	O'Hagan
	Anna	Olsson-Brown
	Katharine	Pelton
	Kelly	Richardson
	Sandra	Robinson
	Joseph	Sacco
	Sarah	Stuart
	Hollie	Wilson
	Pembe	Yesildag
	Mariah	Zavery
Royal Devon and Exeter Hospital	Melanie	Osborne (PI)
	Kizzy	Baines
	Tamika	Chapter
	Elizabeth	Davey
	Susan	Downer
	Dawn	Edwards
	Theresa	Lawless
	James	Leavy
	Mark	Napier

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Emma	Robjohns
	Patrick	Sarsfield
	Ingrid	Seath
	Shirley	Todd
	Jane	Thompson
	Fiona	Walters (nee Hall)
	Claire	Webb
	Julia	Weston
Southampton General Hospital	Tim	Iveson (PI)
	Liane	Armstrong
	Andrew	Bateman
	Adrian	Bateman
	Emma	Brown
	Holly	Burton
	Tracey	Callen
	Bethany	Caruana
	Caroline	Chau
	Tracey	Day
	Efe	Evbuomwan
	Meg	Gale
	Julie	Gwilt
	Sara	Hosseini-Moein
	Alice	Johnson
	Leah	Long
	Steve	McKenzie
	Charlotte	Rees
	Rasha	Said
University College Hospital	John	Bridgewater (PI)
	Adrienne	Abioye
	Mahfuja	Ahmed
	Shamima	Akther
	Maise	Al Bakir
	Adelaide	Austin
	Holly	Baker
	Jaytee	Barnett
	Nina	Bason
	Isabelle	Brown
	Alexa	Childs
	Louise	Coyle
	Patricia	Danaswamy
	Kanishka	Dissansayke

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Rosina	Donovan
	Lola	Enemuwe
	Victor	Eneh
	Gabrielle	Gould
	Todd	Gumbleton
	Selina	Gurung
	Gemma	Hector
	Sonya	Hessey
	Daniel	Hochhauser
	Sabrina	Holohan
	Michelle	Hung
	Georgios	Imseeh
	Adoracion	Jayme
	Sarah	Kerr
	Khurum	Khan
	Jennifer	Laude
	Xiao	Lu
	Gina	Margai
	Katie	Matthews
	Eman	Mohamad
	Fatima	Mohamed
	Sam	Morris
	Anna	Nikopoulou
	Mayur	Patel
	Maria	Power
	Prakash	Rao
	Manuel	Rodriguez-Justo
	Derya	Sahin
	Kai Keen	Shiu
	Luke Owen	Steventon
	Mark	Sunga
	Hinesh	Tailor
	Anisa	Tariq
	Varji	Thayalan
	Jennifer	Thomas
	Christopher	Wanstall
	Kristian	Warnes
	Christopher	Whitton
	Georgina	Wood
Monklands Hospital	Lisa	Rogers (PI)
	Anne	McKillop (PI)
	Ashita	Waterston (PI)

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Paula	Botham
	June	Carr
	Louise	Devlin
	Katie	Douglas
	Grainne	Dunn
	Mohammed	El-Abdullah
	Lynn	Glass
	Kirsteen	Hamill
	Susan	Hastings
	Rebecca	Heron
	Chloe	MacDonald
	Steven	Marshall
	Laura	Miller
	Geradline	O'Dowd
	Aqilah	Othman
	Diana	Park
	Angela	Scullion
	Denise	Vigni
	Kai	Yahya
Charing Cross Hospital	Harpreet	Wasan (PI)
	Thalia	Afxentiou
	Riz	Ahmed
	Melloney	Allnutt
	Gareth	Barker
	Abigail	Caldow
	Jolene	Carioni
	Sarah	Chilcott-Burns
	Andrea	Davis-Cook
	Yomi	Fatola
	Chee	Goh
	Dorothy	Gujral
	Gillian	Hornzee
	Eleni	Josephides
	Charlotte	Kelly
	Daleep	Kumar
	Priya	Limbu
	Luzviminda	Llemit Ramos
	Charles	Lowdell
	Sophia	Magwaro
	Rochelle	McIntyre
	Philippa	Nutkins
	Shola	Ogegbo

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Anna	Osei-Kofi
	Susan	Ramsey
	Pippa	Riddle
	Amalia	Saucan
	Helen	Saxby
	Chantelle	Simpson
	Aspa	Spyrou
	Kirsty	Tunna
	Iman	Yahya
	Adrian	Zebrowski
Churchill Hospital, Oxford	Tim	Maughan (PI)
	David	Badcock
	Magdalena	Benysek
	Rosita	Broderick
	Anne	Butterfield
	Evelyn	Chan
	Philip	Charlton
	David	Church
	Richard	Cousins
	Louise	Cowen
	Joanne	Davies
	Steven	Davis
	Alfonso	Gonzalez Blas
	Will	Goodman
	Nikki	Hayward
	Clare	Jacobs
	Patrycja	Jastrzebska
	Evanthia	Komninidou
	Jonathan	Lau
	Carolina	Lepiato
	Clare	Marken
	Kerrie	Marston
	Mark	Middleton
	Ann	Murphy
	Rebecca	Muirhead
	Adrian	Nicholson
	Robin	Peach-Toon
	Navin	Pol
	Sally	Rich
	Nicola	Stoner
	James	Wakelin

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Lai Mun	Wang
	Andrew	Weaver
	Sandie	Wellman
	Anthony	Wilson
	Rebecca	Wiltshire
	Martha	Woodward
	Kirsten	Wynn
Leicester Royal Infirmary	Anne	Thomas (PI)
	Will	Steward (PI)
	Elizabeth	Andrzejewski
	Tracey	Alexander
	Sarah	Attridge
	Julie	Barlow
	Theresa	Beaver
	Amy	Branson
	Meera	Chauhan
	Aurora	Del Pozo
	Hadia	Haque
	Hannah	Holdsworth
	Rahima	Ibrahim
	Chinenye	Iwuji
	Mohammed	Karolia
	Lydianne	Lock
	Mohammed	Mahgoub
	Adrian	Nicholson
	Ahmed	Osman
	Katherine	Perkins
	Sarah	Porter
	Thiaghrajon	Sridhar
	Judith	Underwood
	Balaji	Varadhan
	Julia	Walker
	Kevin	West
	Joanna	Wood
Raigmore Hospital	Walter	Mmeka (PI)
	Anglise	Addison
	Seonaid	Arnott
	Karen	Callum
	Denise	Campbell
	Fiona	Campbell
	Kay	Kelly

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Alison	Macdonald
	Angela	Macgregor
	Carol	Macgregor
	Zoe	Maciver
	Laura	Maclennan
	Jude	Madeleine
	Melanie	McIlroy
	Mary	McKenzie
	Neil	McPhail
	Alison	Nicholls
	Marion	Paterson
	Leslie	Samuel
	Georgina	Simpson
	Glenda	Sinclair
	Feng Yi	Soh
	Grant	Stenhouse
	Joan	Stewart
	Una	Taylor
	Zoe	Urquhart
Victoria Hospital (Kirkcaldy)	Sally	Clive (PI)
	Brian	Adamson
	Julie	Aitken
	John	Brush
	Rebecca	Cain
	Lesley	Cargill
	Shona	Cheyne
	Clare	Cliff
	Hazel	Cree
	Karen	Gray
	Sophie	Iwanikiw
	Fiona	Johnston
	Alastair	Matthews
	Wendy	McCorry
	Catriona	Mclean
	Fiona	Murdoch
	Ibrahim	Nawroz
	Julie	Penman
	Anna	Scott
	Maria	Simpson
	Deepak	Subedi
	Jennifer	Tait

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Michelle	Tingley
	Linzi	Wilson
Princess Alexandra Hospital (Harlow)	John	Bridgewater (PI)
	Gemma	Cook
	Amelia	Daniel
	Venkatesh	Gajapathy
	Evelyn	Holmes
	Tayo	Jaiyesimi
	Joanne	Kellaway
	Teresa	Light
	Lucinda	Melcher
	Cait	Rees
	Vasi	Sundaresan
Royal Surrey County Hospital	Tony	Dhillon (PI)
	Mazhar	Ajaz
	Nawa	Amin
	Humyraa	Aziz
	Izhar	Bagwan
	Catherine	Blake
	Fiona	Butler
	Penny	Champion
	Karen	Chan
	Sebastian	Cummins
	Tineke	Edmunds
	Sharadah	Essapen
	Andrew	Furness
	Laura	Gordon
	Di	Grainger
	Helen	Graves
	Imogen	Heenan
	Kirsty	Horwood
	Daniel	Jennings
	Natasha	Kamboh
	Aga	Kehinde
	Karla	Lee
	Sibylle	Lintott
	Gaybrielle	Livingstone
	Cheryl	Marriott
	Catherine	Medcalf
	Aruna	Medisetti
	Mahomed	Moosa

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Gayathri	Nagarajan
	Sarah	Oakes
	Sue	Sargent
	Alexandra	Stewart
	Hasina	Thandar
	Claire	Thompson
	Katharine	Webb
	Rosalyne	Westley
	Julia	Whittle
	Julie	Wilkinson
	Rebecca	Wills
St Helens Hospital	Zahed	Khan (PI)
	Rachel	Cassidy
	Jenny	Cotton
	Lisa	Dobson
	Nicola	Hornby
	Sheila	Kelly
	Amanda	McCairn
	Jeanette	Ribton
	Michelle	Robinson
	Carol	Ross
	Victoria	Thomas
Chesterfield Royal Hospital	Vanessa	Wilshaw (PI)
	Ibrahim	Al-Modaris
	Rebecca	Clark
	Aurora	Del Pozo
	Alice	Dewdney
	Nicky	Ford
	Rachel	Gascoyne
	Neeta	Gogna
	Charlotte	Hoult
	Emma	Hudson
	Kelly	Pritchard
	Martin	Shepherd
	Lesley	Stevenson
	Danesh	Taraporewalla
	Julie	Toms
	Katie	Wallace
	Julie	Whitehead
	Lucinda	Wilson
Ipswich Hospital	Gopalakrishnan	Srinivasan (PI)
	Zoltan	Szucs (PI)

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Deborah	Abrams
	Debbie	Austin
	Carlos	Gonzalez
	Matthew	Howlett
	Natalie	Lloyd
	Rita	Ng
	Paul	Ridley
	Kirubah	Selvaraj
	Liz	Sherwin
	Bamini	Sivarajah
	Susan	Upson
	Angharad	Williams
	Jason	Wong
Royal Hampshire County Hospital	Luke	Nolan (PI)
	Louise	Beattie
	Julie	Conti
	Duncan	Cooke
	Victoria	Corner
	Adrienn	Fazekasne Fulep
	Angela	Frith
	Julie	Gwilt
	Samantha	Hammond
	Liz	Happle
	Lesley	Hollister
	Roger	Hudson
	Abigail	Hughes
	Lauriane	Kerwood
	Matthew	Pitt
	Balvinder	Shoker
	Rao	Vuyyuru
Peterborough City Hospital	Catherine	Jephcott (PI)
	Terri-Anne	Baker
	Helen	Bowyer
	Kerrie	Cavanagh
	Rebecca	Chilvers
	Marilyna	Chong
	Laura	Costello
	Abigail	Hollingdale
	Steph	Lawrence
	Heather	Maccoll
	Carla	Martino

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Claire	Palombo
	Stuart	Richmond
	Richard	Skells
	Laura	Simon
	Claire	Snowden
	Lisa	Wilde
	Louise	Wilmer
Calderdale Royal Hospital	Jo	Dent (PI)
	Mohammad Irfan	Alam
	Nick	Brown
	Nicky	Daker
	Sam	Dale
	Denise	Hancock
	James	Harris
	Lisa	Horner
	Jeremy	Hyde
	Rebecca	Jenkins
	Christopher	Knight
	Mandy	Madigan
	Adam	Mawer
	Belinda	McLean
	Sabiha	Ravat
	Hannah	Riley
	Jodie	Rowan
	Simone Deborah	Ryan
	Lisa	Shaw
	Selina	Shaw
	Kathryn	Smith
	Christine	Turner
	Georgina	Turner
	Hayley	Webster
	Tracy	Wood
Derriford Hospital	David	Sherriff (PI)
	Rebecca	Aaron
	Bridget	Aire
	Baffour	Amo-Takyi
	Erin	Brennan
	Lucy	Cadmore
	Leonie	Eastlake
	Laura	Evenden
	Kay	Facey
	Olivia	Fraser

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Julie	Froud
	Bojidar	Goranov
	Irene	Harvey
	Maggie	Kalita
	Sarah	Kingdon
	Mike	Marner
	Laura	Marks
	Susan	McFarlane
	Chelsea	Morton
	Anna	Mucha
	Sarah	Prance
	Olivia	Reed-Poysden
	Peter	Sankey
	Helen	Smith
Macclesfield District General Hospital	Victoria	Lavin (PI)
	Ganesh	Radhakrishna (PI)
	Catherine	McBain (PI)
	Victoria	Adinkra
	Dane	Bradwell
	Lisa	Brookes
	Helen	Burns
	Nicola	Dawson
	Catherine	Fenson
	Lisa	Hardstaff
	Abbi	Henderson
	Christy	Henderson
	Pippa	Hill
	Debra	Jowle
	Mark	Lawrence
	Joanna	Longden
	Nicola	Lunt
	Marilyn	McCurrie
	Karen	Rotchell
	Barbara	Townley
	Helen	Wassall
	Julie	Whitehead
	Lesley	Wilkinson
	Iain	Woodhouse
Torbay District General Hospital	Nangi	Lo (PI)
	Michele	Allison

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Kenneth	Almedilla
	Emmie	Arbury
	Lauren	Blunt
	Jo	Blurton
	Catherine	Brookman
	Ian	Buley
	Shelley	Chamberlain
	Stacey	Davies
	Angela	Foulds
	Meadow	Fisher-Crisp
	Joanne	Garfield-Smith
	Petra	Gee
	Caera	Good
	Hannah	Griffin
	Andrew	Harford-Brown
	Prithvi	Jampana
	Ingrid	Koehler
	Tyler	Lowe
	Sally	Maddison
	Mitchell	McMillan
	Louise	Medley
	Lyn	Micklewright
	Louise	Paatz
	Maeve	Pomeroy
	Helen	Randall
	Fleur	Rogers
	Lorraine	Thornton
	Christine	Tsang
	Elaine	Vandecandalaere
	Sarah	Wright
Addenbrooke's Hospital	Hugo	Ford (PI)
	Athar	Ahmad
	Alexandra	Azevedo
	Lesley	Bennett
	Elizabeth	Blake
	Mark	Bolton
	Rebecca	Bradley
	Jane	Bushen
	Joanna	Calder
	Anita	Chhabra
	Kathy	Chin

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Sarah	Clark
	Joseph	Gallagher
	Svitlana	Iyevkova
	Rashmi	Jadon
	Catherine	Jephcott
	Natalie	Jones
	Hannah	Loveday
	Jane	Macdonald
	Betania	Mahler-Araujo
	Debra	Mansergh
	Ultan	McDermott
	Lindsay	Piper
	Amy	Strong
	Catherine	Thorbinson
	Saji	Victor
	Naval	Vyse
	Amanda	Walker
	Emma	Wong
	Zsuzsa	Zaborszky
Guy's Hospital (London)	Paul	Ross (PI)
	Samantha	Barrett
	Eva	Batovska
	Jessica	Brady
	Maribel	Boyce
	Laura	Camburn
	Lorna	Caplis
	Noan Minh	Chall
	Jason	Chow
	Chi Yee	Chung
	Sophie	Clark
	Sarah	Cleary
	Victoria	Donovan
	Sandra	Esteban Moreno
	Adrienn	Fazekasne Fulep
	Lucy	Featherstone
	Michael	Flanagan
	Laura	Green
	Sara	Hulf
	Arun	Karnad
	Sara	Kazemzadeh
	Vevangaune	Ketjiperue

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Choi Chin	Lau
	Nick	Maisey
	Simranjit	Mehta
	Ngozi	Muoneke
	Theodorah	Nago
	Rita	Njoku
	Vitalis	Nwokorie
	Temi	Olusi
	Kishen	Patel
	Amy	Quinn
	Catherine	Rogers
	Hannah	Rush
	Susie	Slater
	Anita	Soma
	Chara	Stavraka
	Harriet	Waine
	Sally	Walker
St George's Hospital (London)	Fiona	Lofts (PI)
	Doraid	Alrifa
	Nia	Alsamarrai
	Jason	Chow
	Alice	Dainty
	Lorette	Ffolkes
	Caroline	Finlayson
	Claire	Gilmartin
	Anne	Haldeos
	Sam	Hollingworth
	Geoffrey	Howell
	Robert	Ingham
	Kay	Laurent
	Vitalis	Nwokorie
	Antonio	Pesino
	Mark	Quarrell
	Agne	Sekmokaite
	Jesusa	Toledo
Wrexham Maelor Hospital	Simon	Gollins (PI)
	Stacy	Ackerley
	Ashraf	Alkhaldi
	Kelly	Andrews
	Rachel	Davies

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Alistair	Ellis-Jones
	Emma	Hall
	Rachel	Hughes
	Ravi	Kodavatiganti
	Arwel	Lloyd
	Bethan Wyn	Owen
	Beryl	Roberts
	Charley-Anne	Rutter
	Jane	Stockport
	Gemma	Szabo
	Ian	Walker
	Claire	Watkins
	Glesni	Williams
	Linzi	Williams
Glan Clwyd Hospital	Simon	Gollins (PI)
	Elizabeth	Allan
	Jill	Andrews
	Kelly	Andrews
	Lisa	Ashley
	Llinos	Davies
	Rachel	Davies
	Clair	Domeney
	Sarah	Evans
	Emma	Hall
	Jane	Heron
	Ravi	Kodavatiganti
	Joanne	Lewis
	Arwel	Lloyd
	Carey	Macdonald-Smith
	Claire	McGregor
	Bethan Wyn	Owen
	Tracy	Parry-Jones
	Fiona	Redmond
	Beryl	Roberts
	Charley-Anne	Rutter
	Libby	Thackray
	Ian	Walker
	Jill	Westlake-Guy
	Linzi	Williams
	Stephanie	Wynne

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
James Cook University Hospital	Nick	Wadd (PI)
	Andrea	Boyce
	Alison	Chilvers
	Anthony	Donnelly
	Helen	Dunn
	Vicky	Hanlon
	Charlotte	Jacobs
	Steven	Liggett
	Craig	Mower
	Lisa	Peacock
	Jacqueline	Richards
	Agnieszka	Skotnicka
	Danielle	Sweeney
	Jane	Thompson
	Hans	Van der Voet
	Gill	Wheater
	David	Wilson
	Jason	Wong
Poole Hospital	Amelie	Harle (PI)
	Tamas	Hickish (PI)
	Michael	Adrio
	Maria	Alban
	Julian	Alexander
	Lyn	Allen
	Mary	Apps
	Beth	Aubrey
	Helen	Bradley
	Savina	Elitova
	Daniel	Fielding
	Maxine	Flubacher
	Deborah	Forster
	Melanie	Foster
	Louise	Heckford
	Jill	Hobson
	Hannah	James
	Min Yee	Lee
	Helen	Morling
	Victoria	Osborne
	Sharon	Power
	Victoria	True
	Craig	Vincent
	Roger	Wheelwright

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
Royal Cornwall Hospital	Richard	Ellis (PI)
	Linda	Allsop
	Nicholas	Ashley
	Kerry	Atkinson
	Nigel	Bailey
	Thea	Barlow
	Kayleigh	Bennett
	Carolyn	Brode
	Thomas	Cornell
	Alexander	Dengler
	Emma	Duley
	Sophia	Eloi
	Caroline	Goddard
	Aaron	Gould
	Anne	Griffiths
	Karina	Harris
	Peter	Helliwell
	Claire	Hill
	Louise	Johns
	Tinnaya	King
	Samantha	Lomax
	Kirsty	Maclean
	John	Madine
	Joe	Mathew
	John	McGrane
	Fiona	Minear
	Sharon	Moore
	Anna	Oakes
	Caroline	Parnell
	Kerena	Partridge
	Sallyanne	Platt
	Kirsty	Prout
	William	Pynsent
	Rebecca	Rogers
	Jenifer	Row
	Laura	Royle
	Johanna	Skewes
	David	Smith
	Darren	Snell
	Luke	Townley
Royal Free Hospital	Daniel	Krell (PI)
	Astrid	Mayer (PI)

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Tahmin	Ahmed
	Ian	Clark
	Jen	Fraser-Fish
	Roopinder	Gillmore
	Sara	Hamilton
	Ben	Marks
	Leah	Meaden
	Aarti	Nandani
	Tesha	Suddason
	Sharon	Thompson
	Elizabeth	Woodford
South Tyneside District Hospital	Ashraf	Azzabi (PI)
	Amy	Burns
	Kumud	Jain
	Judith	Moore
	Ruth	Tindle
St Bartholomew's Hospital (London)	David	Propper (PI)
	Waheeda	Abida
	Hayley	Blackgrove
	Joanne	Chin-Aleong
	Nikolaos	Diamantis
	Resmi	Jayachandran
	Sumaiya	Kamora
	Cheryl	Lawrence
	Alia	Mahboob
	Juan	Navarro
	Tanjil	Nawaz
	Pratistha	Panday
	Hannah	Payne
	Stephen	Russell
	Sarah	Slater
Yeovil District Hospital	Andrew	Allison (PI)
	Erica	Beaumont (PI)
	Matthew	Sephton (PI)
	Joanna	Allison
	Zenaida	Armstrong
	Claire	Barron
	Nigel	Beer
	Kate	Beesley

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Edwin	Cooper
	Sarah	De Bruijn
	David	Donaldson
	Tracey	Duckett
	Adam	Edwards
	Shirley	Fox
	Karen	Flynn
	Michelle	Kotze
	Michaela	Nock
	Jess	Perry
	Lucy	Pippard
	Kerry	Rennie
	Amber	Rowsell
	Rufus	Smith
	Lesley	Thomas
	Barbara	Williams-Yesson
Lincoln County Hospital	Zuzana	Stokes (PI)
	Antoinette	Adu
	Suzanne	Archer
	Sarah	Bell
	Jayne	Borley
	Sarah	Coombs
	Olesya	Francis
	Annette	Hilldrith
	Kathryn	Hoare
	Carol	Lockwood
	Maryanne	Okubanjo
	Rhiannan	Pegg
	Manuel	Ruiz-Echarri
	Thomas	Sheehan
	Anuradha	Sheth
	Andrew	Sloan
	Caroline	Taylor
	Ruth	Thoy
	Alyson	Wilson
Maidstone Hospital	Mark	Hill (PI)
	Doraid	Alrifa
	Elizabeth	Angus
	Paulette	Basham
	Lisa	Brown
	Tracey	Chambers
	Alison	Davison

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Jackie	Evans
	Sanjina	Kathuria
	Samantha	Kestenbaum
	Tiana	Kordbacheh
	Satish	Kumar
	Barbara	LeBrocq
	Gemma	McCormick
	Christos	Mikropoulos
	Ian	Pamphlett
	Joanne	Patterson
	Caroline	Rodger
	Holly	Slater
	Charlotte	Stevens
	Jeff	Summers
	Alicia	Synowiec
	Katy	Taylor
	Lisa	Tribe
Nottingham University Hospitals	Cristina	Lopez Escola (PI)
	Rebecca	Ashton
	Suha	Atabani
	Alex	Blades
	Emma	Blades
	Lauren	Blackburn
	Pauline	Brookes
	Eliot	Chadwick
	Caroline	Coulson
	Michelle	Cunnell
	James	Donworth
	Jade	Eggleton
	Susan	Elliott
	Joanne	Hobbs
	Shaymaa	Hosni
	Laura	Kirk
	Emma	Marshall
	Balwir	Matharoo-Ball
	Kayleigh	Mills
	Jamie	Mills
	Jeanette	Mulhurn
	Karen	Newcombe
	Vanessa	Potter
	Tin	Sang-Tsang

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Rosalind	Roberts
	Maria	Scott
	Rafael	Silverman
	Ananth	Sivanandan
	Tania	Slater
	Anita	Stevenson
	Richard	Swinden
	Jackie	Worville
	Georgina	Walker
	Andrew	Wright
Hinchingbrooke Hospital	Cheryl	Palmer (PI)
	Shilamba	Bramham
	Sue	Donnelly
	Simon	Duke
	Vanessa	Goss
	Beverley	Haynes
	Rebecca	Lam
	Elizabeth	Lee
	Sarah	Littlechild
	Adam	McGeoch
	Suzanne	Miller
	Agnieska	Osmanska
North Middlesex Hospital	John	Bridgewater (PI)
	Ernesto	Balaguer-Ruiz
	Girish	Bhome
	Moira	Durdy
	Lorraine	Hurl
	Shardul	Kulkarni
	Simranjit Kaur	Mehta
	Lucinda	Melcher
	Julia	Rees
	Jamila	Roehrig
	Rahi	Shah
	Chloe	Van Someren
Queen Alexandra Hospital	Ann	O'Callaghan (PI)
	Oluwatobi	Adeagbo
	Suhail	Baluch
	Kathy	Blight
	Sherilee	Cook
	Heather	Cuell

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Tracey	Dobson
	Mya	Gyi
	Antony	Higginson
	Samuel Luke	Hill
	Chloe	Holden
	Tracey	Lee
	Jayne	McCartney
	Badrriyya	Mohamedali
	Sethupathi	Muthuramalingam
	Andras	Nagy
	Eleanor	Taylor
	Mary	Wands
	Robert	Williams
	Carole	Wragg
Weston General Hospital	Stephen	Falk (PI)
	Paola	Di Nardo (PI)
	Marjorie	Tomlinson
	Kathy	Beard
	Sandra	Beech
	Hannah	Berry
	Debbie	Coles
	Donna	Cotterill
	Harvey	Dymond
	Symeon	Eleftheriadis
	Rajesh	Gamare
	Christine	Graham
	Serena	Hilman
	Sarah	Kidd
	Denise	Leighton-Price
	Hugh	Lloyd-Jones
	Andrew	McKendrick
	Kathryn	Munday
	Vivienne	Pixton
	Glenn	Saunders
	Ed	Sheffield
	Dawn	Simmons
	Axel	Walther
	Rachel	Warinton
	Tom	Wells
Glangwili General	Mau-Don	Phan (PI)
	Samantha	Coetzee

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Sonya	Goriah
	Praba	Gupta
	Ann	Hewins
	John	Murphy
	Zohra	Omar
	Bryan	Phillips
	Meena	Raj
	Kelly	Reed
	Rocio	Riba
Royal Albert Edward Infirmary	Francisca Marti	Marti (PI)
	Elena	Takeuchi (PI)
	Jennifer	Cannon
	Kate	Chilman
	Shien	Chow
	Louise	Devereaux
	Alison	Doran
	Diane	Forrest
	Karen	Moss
	Monica	Patel
	Angela	Power
	Wendy	Stevens
Sunderland Royal Hospital	Ashraf	Azzabi (PI)
	Hayley	Anderson
	Rod	Beard
	Jane	Cole
	Michelle	Edwards
	Adam	Hassani
	James	Henry
	Vivienne	Hullock
	Stephen	Laybourne
	Paula	Newton
	Rachel	Pearson
	Ian	Pedley
	Ian	Pepley
	Melanie	Robertson
	Fiona	Wakinshaw
	Kathryn	Wright
Basingstoke and North Hampshire Hospital	Charlotte	Rees (PI)
	Louise	Beattie

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Victoria	Corner
	Abigail	Edwards
	Adrienn	Fazekasne Fulep
	Angela	Frith
	Julie	Gwilt
	Liz	Happle
	Roger	Hudson
	Andrew	Jackson
	Lauriane	Kernwood
	Lauriane	Kerwood
	Kathryn	Leach
	Emma	Magras
	Asmat	Mustajab
	Christina	Narh
	Pennie	Porter
	Arun	Selvaraju
	Jackie	Smith
	Claire	Williams
Forth Valley Royal Hospital	Dawn	Storey (PI)
	Joanne	Blackburn
	Stephanie	Brogan
	Raj	Burgul
	Eilidh	Henderson
	Jane	Keddie
	Linnet	McGeever
	Kaye	McIlvar
	David	McIntosh
	Caroline	Mcleary
	Lynn	Prentice
	Annette	Riley
	Joanne	Robinson
	Anne	Todd
	Patricia	Turner
	Sally	Young
Mount Vernon Hospital	Mark	Harrison (PI)
	Farhan	Ahmed
	Nicola	Anyamene
	Nicky	Barnes
	Neel	Bhuva
	Sam	Bosompem
	Kari	Evans

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Shiv	Gayadeen
	Rob	Glynne-Jones
	Marcia	Hall
	Rakhi	Jain
	Colleen	Murray
	Julie	Russell
	Waqar	Saleem
	Anand	Sharma
	Margaret	Stone
	Harsha	Vara
Queen Elizabeth Hospital (Birmingham)	Gary	Middleton (PI)
	Sabia	Akhtar
	Amisha	Desai
	Colm	Forde
	Kam	Gareja
	Sharon	Hackett
	Sam	Hopkins (nee Poole)
	Mary	Kotadia
	Victoria	Kunene
	Catherine	Prest
	Helen	Preston
	Donna	Smith
	Phillipe	Taniere
Queen's Hospital Burton	Manjusha	Keni (PI)
	Ann	Adams
	Mosan	Ashraf
	Jo	Burns
	Helen	Cox
	Katy	English
	Annette	Fleet
	Sarah	Hathaway-Lees
	Elizabeth	Kemp
	Hayley	Lewis
	Clare	Mewies
	Jennifer	Moyes
	James	Price
	Scott	Sanders
	Adrian	Smith
	Alison	Tilley

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
Russells Hall Hospital	Ankit	Jain (PI)
	Simon	Grumett (PI)
	Joann	Atkinson
	Daniel	Bull
	Donna	Cleal
	Lesley	Edwards
	Kath	Harrow
	Stacey	Jennings
	Lucy	Kadiki
	Karen	Kanyi
	Sally	Keates-Porter
	Pek	Keng-Koh
	Margaret	Marriott
	Julie	Matthews
	Karen	McGarry
	Vanessa	Moore
	Andrew	Moores
	Manesh	Patel
	Veena	Shinde
	Lucie	Smith
	Lucy	Smith
	Angela	Watts
Singleton Hospital	Sarah	Gwynne (PI)
	Cristina	Lopez (PI)
	Alya	Al-Affan
	Philip	Bryant
	Karen	Chesters
	Sharon	Davies
	Jenna	Edwards
	Stuart	Evans
	Tracey	Ford
	Ricky	Frazer
	Judith	Gooding
	Olivia	Hatcher
	Gillian	Jones
	Lewis	Jones
	Maung	Moe
	Karen	Phillips
	Euan	Pratt
	Alex	Richards
	Louise	Thomas

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Julie	Turner
	Nia	Viney
	Dawn	Withers
University Hospital Coventry	Vanessa	Potter (PI)
	Jason	Allen
	Senthil Kumar	Athmanathan
	Rachel	Bazeley
	Susan	Bird
	Yasmin	Brough
	Maggie	Brown
	Dannielle	Burgess
	Luanne	Carey
	Philippa	Clark
	Peter	Correa
	Kishore	Gopalakrishnan
	Cheryl	Hunter
	Sian	Kempster
	Mohammed	Khan
	Fiona	McGurk
	Jade	McKelvie
	Lucy	Miller
	Sarah	O'Toole
	Karandeepu	Pachoo
	Noor	Shaw
	Laura	Stanley
	Charlie-marie	Suddens
	Rachel	Thompson
	Maria	Truslove
	Linda	Wimbush
	Jane	Wording
University Hospital of North Tees	Madhavi	Adusumalli (PI)
	David	Wilson (PI)
	Alison	Chilvers
	Helen	Dunn
	Sarah	Essex
	Mohammad	Hegab
	Hyder	Latif
	Moira	Percival
	Sarah	Pitcairn
	Lynda	Poole
	Pam	Race

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Andrew	Sigsworth
	Eleni Andriana	Trigka
	Helen	Wardle
	Bill	Wetherill
Whittington Hospital (London)	Pauline	Leonard (PI)
	Rashidat	Adeniba
	Dhili	Arul
	Jonathan	Flor
	Kavita	Kantilal
	Xiao Lou	Lu
	Mulyati	Mohamed
	Michelle	Saull
	Nuray	Temiz
	Azmina	Verjee
	Simon	Wan
Freeman Hospital, Newcastle	Ashraf	Azzabi (PI)
	Craig	Alderson
	Chris	Barron
	Michelle	Borthwick
	Julie	Burton
	Kay	Carson
	Fiona	Chapman
	Sarah	Cook
	Fareeda	Coxon
	Sue	Farrell
	Elaine	Greaves
	Ahmed	Hashmi
	Amanda	Henderson
	Kathryn	Hewitt
	Ben	Hood
	Thomas	Jarvis
	Irene	Jobson
	Najibah	Mahtab
	Lesley	Naik
	Stephanie	Needham
	Gemma	O'Neill
	Ian	Pedley
	Sindhu	Ramamurthy
	Zarine	Razvi

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Elizabeth	Reay
	Timothy	Simmons
	Carole	Stobbart
	Jonathan	Stoddart
	Nichola	Waugh
	Hesther	Wilson
Leighton Hospital	Michael	Braun (PI)
	Vanessa	Adamson
	Carole	Bennion
	Kim	Best
	Leanne	Everall
	Julia	Gemmell
	Laura	Hanton
	Christy	Henderson
	Adele	Hough
	Chris	Hough
	Cyndy	Jackson
	Taya	Jones
	Tracy	Larcombe
	Carolyn	Mansfield
	Emma	Margerum
	Julie	Meir
	Andrew	Ritchings
	Paul	Simcock
	Sarah	Tinsley
	Caroline	Walker
Ninewells Hospital, Dundee	Sharon	Armstrong (PI)
	Jennifer	Allison
	Rachael	Banks
	Anne	Black
	Louise	Brannan
	Frank	Carey
	Shona	Carson
	Helen	Cumming
	Debbie	Forbes
	Audrey	Lyall
	AJ	Munro
	Moira	Rogers
	Ian	Sanders
	Gail	Weir
Westmorland General Hospital	David	Eaton (PI)
	Rebecca	Anderson

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Syed	Asghar
	Manal	Atwan
	Claire	Bartlett
	Ashoke	Biswas
	Jennifer	Bowler
	Karen	Burns
	Rebecca	Calvert
	Amy	Ford
	Laura	Healey
	Nima	Herlekar
	Maria	Kassi
	Lauren	Kilifin
	Jo	Kilkenny
	Nicola	Mackenzie
	Aileen	Menzies
	Helen	Morris
	Debbie	Power
	Jane	Ritchie
	Mary	Robinson
	Vickie	Rose
	Rachel	Simmons
	Andrew	Taylor
	Hilary	Thatcher
	Gail	Wiley
Belfast City Hospital	Victoria	Coyle (PI)
	Conal	Askin
	Ellen	Brown
	Karen	Campfield
	Catherine	Davidson
	Michael	Hanna
	Diane	Law
	Alison	McKeever
	Aine	McKeown
	Damian	McManus
	Linda	McNeice
	Karen	Parsons
	Miranda	Reid
	Fiona	Tarpey
	Joanne	Todd
	Paul	Ward
	Richard	Wilson
Dorset County Hospital	Amelie	Harle (PI)

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Richard	Osborne (PI)
	Pauline	Ashcroft
	Corrado	d'Arrigo
	Maxine	Flubacher
	Jackie	Gibbins
	Karen	Hogben
	Arabis	Oglesby
	Andrew	Rees
	Simon	Wilsher
Great Western Hospital	Sarah	Lowndes (PI)
	Graham	Brown
	Christopher	Clarke
	Amanda	Colston
	Jan	Dodge
	Eva	Fraile
	Sarah	Grayland
	Lesley	Haxton
	Lawrence	John
	Jean	Kordula
	Lynsey	Kyeremeh
	Donna	Lake
	Catherine	Lewis Clarke
	Sarah	Long
	Dorota	Marciniak
	Laura	McCafferty
	Darren	McFadden
	Sue	Meakin
	Chanelle	Meyer
	Tim	Owen
	Cerila	Parajes
	Ronak	Patel
	Suzannah	Pegler
	Caroline	Pensotti
	Joseph	Stevens
Milton Keynes University Hospital	Wasiru	Saka (PI)
	Ann	Abraham
	Hannah	Ansell
	Sam	Bosompem
	Matthew	Burnett
	Chris	Ford

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Chloe	Green
	Sara	Greig
	Penni	Hawkins
	Chamene	Hicks
	Aarzoo	Ilyas
	Charity	Masvaure
	Louise	Moran
	Mala	Nathvani
	Cheryl	Padilla-Harris
	Vijay	Patel
	Shahriar Mohammed	Reza
	Syed Azhar Javed	Rizvi
	Abby	Skillington
	Jeannette	Smith
	Oliver	Spring
	Heather	Thomas
	Stephanie	Thorp
	Valerie	Webb
	Dona	Wingfield
	Christopher	Woodard
New Cross Hospital	Simon	Grumett (PI)
	Syed	Asghar
	Vanda	Carter
	Sandeep	Dhillon
	Anna	Grant
	Clare	Hammond
	Kelly	Kauldhar
	Margaret	King
	Christine	Kirk
	Claire	Lomas
	Manel	Mangalika
	Gurminder	Sahota
	Elaine	Wylde
Pilgrim Hospital	Zuzana	Stokes (PI)
	Antoinette	Adu
	Simon	Archer
	Gloria	Barone
	Jayne	Borley
	Wendy	Deamer
	Jo	Fletcher
	Matthew	Flook
	Amy	Kirkby

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Victoria	Knight
	Tara	Lawrence
	Beverley	Mashegede
	Helen	Palmer
	Kerry	Pettitt
	Gunjan	Phalod
	Manuel	Ruiz-Echarri
	Gemma	Sankey
	Thomas	Sheehan
	Rebecca	Spencer
	Kinga	Szymiczek
	Isobel	Thomas
Rotherham District General Hospital	Joanne	Hornbuckle (PI)
	Matthew	Barnes
	Sarah	Besley
	Meredyth	Harris
	Kath	Lowe
	Scott	Nicol
	Susan	Oakley
	Amy	Rees
	Charlotte	Widdop
Royal Bournemouth Hospital	Tamas	Hickish (PI)
	Jocelyn	Ablorde
	Omolade	Bakarey
	Rachel	Bower
	Zoe	Clark
	Nicole	Davies
	Alison	Hogan
	Stephanie	Jones
	Tiffany	Joyce
	Maria	Lane
	Sharon	Megson
	Sandy	Pressdee
	Linda	Purandare
	Taslima	Rabbi
	Emma	Sharland
	Esther	Una Cidon
	Luke	Vamplew
	Jasmin	Webb

(continued on following page)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
Royal Marsden Hospital (London)	Ian	Chau (PI)
	Helen	Breeze
	Shirley	Clifton
	Saoirse	Dolly
	Sandra	Esteban Moreno
	Lucy	Featherstone
	Shelby	Hatt
	Blanka	Hezelova
	Alexander	Lee
	Hazel	Lote
	Lizzie	Love
	Nnenna	Ngwu
	Isma	Rana
	Gihan	Ratnayake
	Penny	Rogers
	Clare	Saffery
	Anna	Scott
	Izelle	Ueckermann
	Chloe	Westrip
	Ian	Chau
	Sally	Abdelmalik
	Gayahri	Anandappa
	Joo Ern	Ang
	Thushasa	Ansari
	Sheila	Azaiji-Benjamin
	Annette	Bryant
	Shirley	Clifton
	Richard	Crux
	David	Cunningham
	Sara	Diffley
	Julie	Duncan
	Laurice	Edwards
	Sandra	Esteban Moreno
	Lucy	Featherstone
	Monika	Ferencova
	Angela	Gillbanks
	Sarnjeet	Kaur
	Naila	Kaudeer
	Shelize	Khakoo
	Shannon	Kidd
	Retchel	Lazaro Alcausi

(continued in next column)

Participating Hospitals in Descending Order of the Number of Patients Registered With All Staff Listed (N = 2,076) (continued)

Hospital	First Name	Surname (principal investigator [PI])
	Hazel	Lote
	Jacqueline	Oates
	Bijal	Patel
	Minal	Patel
	Brenda	Pem
	Sijy	Pillai
	Clare	Saffery
	Francesco	Sclafani
	Gillian	Smith
	Eleanor	Temple
	Jan	Thomas
	Andrea	Turner
	Izelle	Ueckermann
	David	Watkins