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Are trainees working in obstetrics and gynecology confident and competent in the care of frail gynecological oncology patients?

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1 **Are Trainees Working in Obstetrics and Gynaecology Confident and Competent in the Care of Frail**
2 **Gynaecological Oncology Patients?**

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1 **Abstract**

2 **Introduction**

3 Older patients undergoing cancer surgery are at increased risk of post-operative complications,
4 prolonged hospital stay and mortality. Identification of frailty can help predict patients at high risk of
5 perioperative complications and allow a collaborative, multi-disciplinary team approach to their care.
6 A survey was conducted to assess the confidence and knowledge of trainees in obstetrics and
7 gynaecology (O&G) regarding identification and management of perioperative issues encountered in
8 frail gynaecological oncology patients.

9 **Methods**

10 A web-based survey was distributed via the Audit and Research in Gynaecological Oncology (ARGO)
11 collaborative and UK Audit and Research Collaborative in Obstetrics and Gynaecology (UKARCOG) to
12 UK and Irish trainees working in O&G. The survey was on the management of frail perioperative
13 patients was disseminated to doctors-in-training (trainees) working in O&G in the United Kingdom
14 (UK) and Ireland. Specialty (ST1-7), subspecialty and General Practice (GP) trainees, non-training
15 grade doctors and foundation year (FY) doctors currently working in O&G were eligible. Consultants
16 were excluded. Study data was collected using REDCAP software hosted at the University of
17 Manchester. Responses were collected over a 6-week period between January and February 2020.

18 **Results**

19 Of the 666 trainees who participated, 67% (425/666) reported inadequate training in perioperative
20 management of frail patients. Validated frailty assessment tools were used by only 9% (59/638) of
21 trainees and less than 1% (4/613) were able to correctly identify all the diagnostic features of frailty.
22 Common misconceptions included the use of chronological age and gender in frailty assessments. The
23 majority of trainees (>75%) correctly answered a series of questions relating to mental capacity;
24 however, only 6% (36/606) were able to correctly identify all three diagnostic features of delirium. A

1 total of 87% (495/571) of trainees supported closer collaboration with geriatricians and a multi-
2 disciplinary approach.

3 **Conclusions**

4 O&G trainees reported inadequate training in the perioperative care of frail gynaecological oncology
5 patients, and overwhelmingly favoured input from geriatricians. Routine use of validated frailty
6 assessment tools may aid diagnosis of frailty in the perioperative setting. There is an unmet need for
7 formal education in the management of frail surgical patients within the UK and Irish O&G curriculum.

8

9 **Key words:** Postoperative care, surgical oncology, gynaecology

10

11 **Highlights**

- 12 • Two thirds of trainees reported inadequate training in perioperative management of frail
13 patients.
- 14 • Misconceptions regarding the diagnostic features of frailty and delirium are common.
- 15 • Trainees overwhelmingly feel that introducing specialist services for frail patients would
16 improve perioperative outcomes.

17 **Introduction**

18 The global population is aging with a corresponding increase in the incidence of cancer.¹ While cancer
19 outcomes have improved globally, the rate of progress has been slower in older patients, especially
20 women with gynaecological cancers.² Frailty is an age-related, multisystem syndrome characterised
21 by diminished physiological reserve. This results in reduced tolerance of stressors and increased
22 vulnerability to adverse outcomes including falls, disability, hospitalisation and death.³ It is related to,
23 but distinct from, comorbidity and disability.⁴ Frailty is characterised by sarcopenia, poor nutrition,

1 functional, sensory and cognitive decline, and lethargy.⁵ Frailty occurs in 25% of women ≥ 65 years and
2 increases to 45% in those aged 85 and older.⁶ More than 50% of older patients with cancer have frailty,
3 or pre-frailty,⁵ and both the disease process and treatments can challenge physiological reserve. A
4 recent meta-analysis revealed that frailty is an independent risk factor for post-operative
5 complications, prolonged hospitalisation, mortality and non-home discharge.⁷ Only a few studies have
6 evaluated frailty in gynaecological cancers, but the same trends regarding adverse postoperative
7 outcomes have been observed.⁸⁻¹² However, early recognition of frailty, followed by 'prehabilitation',
8 with the aim of modifying the degree of frailty before surgery, may improve surgical outcomes.⁵

9 The National Confidential Enquiry into Patient Outcome and Death (NCEPOD) report on
10 elective and emergency surgery in the elderly identified major shortfalls in the perioperative care,
11 resulting in excess morbidity and mortality.¹³ The main deficiencies included poor documentation of
12 disabilities and nutritional assessments, lack of formal frailty assessments and inadequate
13 postoperative care. Indeed, a recent study demonstrated that close involvement of multi-disciplinary
14 team (MDT) in daily care is beneficial.¹⁴ In recognition of the importance of integrated services for
15 older adults, the British Geriatrics Society have produced the 'Fit for Frailty' guideline on the
16 recognition and management of frailty in community and outpatient settings.¹⁵ However, this has yet
17 to be widely implemented in gynaecological oncology.

18 Routine post-operative care is provided by trainees ranging from foundation doctors to
19 subspecialty trainees and fellows in gynaecological oncology. Previous studies have identified that
20 surgical, haematological, medical and radiation oncology trainees lack confidence, competence and
21 specific training in the management of older adults with cancer.¹⁶⁻¹⁹ The aim of this survey was to
22 assess confidence and knowledge regarding common perioperative problems encountered in frail
23 gynaecological oncology patients in trainees working in Obstetrics and Gynaecology (O&G).

24 **Methods**

25 **Setting, participants, and recruitment**

1 An online survey was distributed via the Audit and Research in Gynaecological Oncology (ARGO)
2 collaborative and UK Audit and Research Collaborative in Obstetrics and Gynaecology (UKARCOG) to
3 UK and Irish trainees working in O&G. Specialty (ST1-7), subspecialty and General Practice trainees,
4 non-training grade doctors and foundation year (FY) doctors currently working in O&G were eligible.
5 Consultants were excluded. Study data was collected using REDCAP software hosted at the University
6 of Manchester. The survey was disseminated via ARGO and UKARCOG representatives, advertised
7 during the national and regional study days and publicised on the ARGO social media feed. Responses
8 were collected over a 6-week period between January and February 2020.

9 **Ethical Approval**

10 The National Health Service (NHS) Health Research Authority decision tool was implemented. This
11 study was assessed as service evaluation with the aim to define the current clinical care and adequacy
12 of training in the management of frailty through the implementation of clinician-completed
13 questionnaires. No patient data was included in this study. Thus, no NHS research ethics committee
14 review was sought.

15 **Questionnaire design**

16 The authors reviewed the literature on the perioperative management of frail surgical patients and of
17 trainees' knowledge in the management of frailty. Relevant issues were identified and used to inform
18 questionnaire design. Trainees and consultants in gynaecological oncology and geriatrics identified
19 three key domains: (1) trainee demographics and prior training in geriatric medicine, (2) current
20 clinical practice and attitudes regarding the assessment and management of frail patients; and (3)
21 multidisciplinary care in the management of frail patients. The questionnaire consisted of 19 questions
22 (supplementary material); questions addressing confidence and clinical experience used a 5-point
23 Likert scale while those addressing clinical knowledge used multiple choice or true/false formats.
24 Delirium and mental capacity were chosen for trainees' competency assessment as these have been
25 identified as areas of particular importance in perioperative care in the NCEPOD report.¹³ The

1 questionnaire was pre-tested in 10 trainees and changes were made to improve readability and non-
2 ambiguity.

3 **Statistical analysis**

4 For categorical data, responses were analysed in frequencies and percentages. The Chi-square test
5 was used to compare responses between junior and senior trainees. Junior trainees were defined as
6 ST1-2, GP and FY trainees (interns) and junior non-training grade doctors, whereas ST3-7, subspecialty
7 trainees and senior non-training grade doctors were considered senior trainees. Respondents who did
8 not specify their training grade were excluded from this analysis (n=49, 7.4%). Data from partially
9 completed surveys was included in the analysis, but only if the respondent answered all questions in
10 the relevant section, for example, all questions relating to mental capacity. SPSS v26.0 statistical
11 software package (SPSS, Inc., Chicago, IL, USA) was used for data analysis. A p value of <0.05 was
12 considered statistically significant.

13 **Results**

14 **Participants and demographics**

15 A total of 666 trainees participated in the survey. Of these, 91.1% (607/666) of respondents were
16 enrolled in O&G specialty training, giving an approximate response rate of 30% of all UK and Irish
17 trainees. Junior and senior trainees represented 32.1% and 55% of respondents, respectively. The
18 remaining 12.9% were in non-training grades or academic posts. Overall, 67.8% (451/666) of
19 participants were based in a tertiary gynaecological oncology centre at the time of survey completion.
20 Incomplete questionnaires were returned by 14.3% (95/666). For transparency, participant drop out
21 is summarised in the supplementary data. Of note, there were no overt differences in the
22 characteristics of trainees who submitted incomplete data and those who completed the full survey.
23 It is possible that the participants who submitted incomplete responses did not feel appropriately
24 qualified to complete the survey or may have found the length of the survey unacceptable.

1

2 **Training in the care of older adults**

3 In total, 8.9% (59/666) of the respondents reported never having received any training on the care of
4 older adults. More than half received formal undergraduate (62.1%, 413/666) and/or postgraduate
5 (50.2%, 334/666) training, such as a post in elderly medicine. Only 24.8% (165/666) of respondents
6 reported having received training relevant to the care of older adults during their hospital induction.
7 Overall, two thirds of trainees (66.6%, 425/638) did not feel that their postgraduate training
8 adequately prepared them for the perioperative management of frail patients. Perceived adequacy of
9 postgraduate training was strongly associated with greater confidence in managing frail patients in
10 the perioperative period ($p<0.01$).

11 **Frailty**

12 A total of 36.7% (234/638) of trainees felt confident in their ability to assess and manage a frail patient
13 preoperatively. No differences were seen between trainees who had received formal training in the
14 care of older adults and those who had not ($p=0.14$). Use of a validated frailty assessment tool in
15 preoperative evaluation of patients was uncommon, with only 9.2% (59/638) of respondents regularly
16 using these. Trainees were asked to identify key characteristics of a frailty assessment tool. The
17 majority of trainees correctly identified that level of independence with activities of daily living (91.4%,
18 560/613), medical comorbidities (89.7%, 550/613), social support (76.3%, 468/613), number of
19 regular medications (71.6%, 439/613) and weight loss (67.9%, 416/613) were components of frailty
20 assessment tools (Figure 1). Interestingly, 40.8% (250/613) of respondents thought gender was
21 considered during a frailty assessment, and only 10.9% (67/613) identified that chronological age is
22 not routinely considered. There were no significant differences in the responses from junior and senior
23 trainees. Crucially, only 0.65% of trainees (4/613) correctly identified all diagnostic features commonly
24 included in frailty assessment tools.

25

1 **Perceived confidence in management of older patients**

2 Trainees were asked to rate their confidence in managing common perioperative issues including
3 delirium, nutrition and fluid management. The frequency of junior and senior trainees agreeing or
4 strongly agreeing with each statement is shown in Table 1. Junior trainees reported significantly higher
5 levels of confidence in managing post-operative delirium ($p<0.01$), identifying potential drug
6 interactions and starting new medications ($p<0.01$), compared to senior trainees. Both senior and
7 junior trainees reported low levels of confidence in their ability to assess the nutritional status of frail
8 patients, and subsequently initiate treatment (Table 1). Conversely, two thirds of trainees (68.3%,
9 402/589) felt confident in assessing fluid balance and prescribing fluids in older patients.

10 **Delirium**

11 Only 37.4% (220/589) of trainees felt confident in managing postoperative delirium. Altered
12 consciousness, sudden onset and inattention were correctly identified as the three key diagnostic
13 features of delirium by 59.4% (350/589), 60.6% (357/589) and 38.3% (226/589) of trainees (Table 2),
14 respectively. Overall, only 5.9% (36/606) of all respondents were able to correctly identify all 3 key
15 diagnostic criteria. Significantly more junior trainees correctly identified inattention and altered
16 consciousness as key features, compared to senior trainees ($p<0.01$). It was a common misconception
17 between junior and senior trainees that altered-sleep wake cycle and delusions were diagnostic
18 features of delirium.

19 **Mental capacity**

20 A total of 31.7% (192/606) reported that they did not feel confident in assessing mental capacity or
21 conducting a best interest meeting. Confidence was not associated with level of training ($p=0.17$) or
22 formal training in care of older patients ($p=0.06$). Despite low confidence, the majority of trainees
23 (>75%) correctly answered a series of true/false questions relating to mental capacity (Table 3).

24

1 **Multi-disciplinary care**

2 A total of 89.7% (525/585) of trainees sought medical advice when managing frail surgical patients;
3 typically from an anaesthetist (82.9%, 483/583), physician (76.5%, 446/583), geriatrician (60.4%,
4 352/583), occupational therapist (63.1%, 368/583) or physiotherapist (67.6%, 394/583). Old age
5 psychiatrists were least likely to be consulted. Trainees overwhelmingly felt that greater support from
6 a specialist service for frail patients would improve preoperative optimisation (93%, 531/571) and
7 post-operative rehabilitation (94.4%, 539/571) (Figure 2). Significantly more senior trainees agreed or
8 strongly agreed that greater support from specialist services would improve their learning outcomes
9 ($p=0.042$). Similarly, 86.7% (495/571) of trainees agree or strongly agreed that frail patients would
10 benefit from involvement of a geriatrician within the MDT.

11 **Discussion**

12 To our knowledge, this is the first study to comprehensively assess the perception of training in the
13 management of frailty amongst postgraduate trainees working in O&G. This study captured the views
14 of 30% of junior doctors training in O&G in the UK and Ireland. The key finding is that a large proportion
15 of junior doctors working in gynaecological oncology have not received formal training in the care of
16 elderly patients; either as part of their undergraduate (37.9%) or postgraduate (49.8%) training and
17 consequently, lack confidence in managing frail patients.

18 Frailty is increasingly recognised as an important factor in post-operative recovery. In
19 gynaecological oncology, frailty indices have been shown to predict the incidence of post-operative
20 complications, the need for critical care, non-home discharge and 30-day mortality.⁸⁻¹² Gynaecological
21 oncology patients are particularly vulnerable to the effects of frailty as they may be managed in stand-
22 alone women's hospitals with limited access to other specialties. To deliver optimal care to these
23 patients requires doctors with adequate knowledge and training to recognise and manage frailty.
24 Implementation of frailty screening tools during preoperative assessment enables proactive

1 optimisation and management of high-risk patients, to facilitate improved outcomes and reduced
2 length of stay.¹⁵

3 Only 9% of respondents reported regularly using frailty assessment tools and there were
4 common misconceptions regarding the inclusion of chronological age and gender in these
5 assessments. The Royal College of Anaesthetists recommend that older patients undergoing
6 intermediate or high-risk surgery should be assessed for frailty using a validated tool.²⁰ Screening tools
7 such as the Edmonton Frailty Scale ²¹ or Rockwood Clinical Frailty Scale,²² may help non-specialist
8 clinicians to identify frail patients who warrant specialist input. The Rockwood Clinical Frailty Scale
9 measures frailty based on clinical judgement on a nine point scale ranging from 'very fit' to 'terminally
10 ill'.²² The Edmonton Frailty Scale assesses nine domains, including general health, functional
11 independence, functional performance and cognition.²¹ Both scales can be undertaken by any
12 appropriately trained healthcare professional and completed within 10 minutes. The Edmonton Frailty
13 Scale is recommended by the BGS for use in elective surgical settings, as it specifically identifies
14 aspects of frailty amenable to preoperative optimisation.¹⁵ Only 0.65% of trainees correctly identified
15 all diagnostic features commonly included in frailty assessment tools. This is likely to reflect lack of
16 widespread use of these tools in gynaecological oncology and a lack of formal training on frailty.

17 Post-operative care is often provided by junior doctors. Trainees' confidence in the
18 recognition of frailty did not correlate with training grade; junior trainees reported greater confidence
19 in the recognition and management of frailty than their senior counterparts. Whilst this may reflect a
20 greater breadth of medical knowledge as a result of a shorter time from graduation and more recent
21 experience of working in medical specialties, the phenomenon of juniors' tendency to overestimate
22 their skills and knowledge is recognised.²³ Therefore, escalating care with earlier involvement of a
23 consultant, will not be sufficient; rather the involvement of an appropriate clinician is vital.
24 Respondents reported particularly low levels of confidence in the management of common
25 perioperative issues surrounding prescribing, delirium, mental capacity assessment and suboptimal

1 nutrition. Despite the high prevalence of delirium in post-operative patients,²⁴ only 6% of respondents
2 in our study were able to identify the three diagnostic features for this condition. Therefore, delirium
3 may be unrecognised and mismanaged, with potential effects on morbidity and mortality.²⁵ This
4 finding is consistent with an earlier study of general surgical trainees,¹⁶ suggesting that the problem is
5 not limited to trainees in O&G. Encouragingly, O&G trainees performed much better when asked to
6 answer knowledge-based questions on ascertaining mental capacity. Legal issues regarding valid
7 consent are included in the core O&G curriculum, inferring that knowledge of the management of
8 other perioperative issues could improve if formally incorporated into the curriculum.

9 Trainees implicitly adopted a multidisciplinary approach in managing the frail patients with
10 90% seeking help from other specialists. Anaesthetists and general physicians were more often
11 consulted than geriatricians which may reflect the ease of access to other specialist and/or inadequate
12 recognition of the value of geriatricians in perioperative care. Geriatric-surgical liaison services in
13 other surgical subspecialties have demonstrated that, once embedded, they can reduce complications
14 and length of stay in older patients.²⁶⁻²⁹ In our study, trainees also believed that engagement of the
15 wider MDT also has the potential to improve morale and educational opportunities (Figure 2).

16 The Shape of Training review³⁰ emphasised the need for doctors to be able to provide broad-
17 based care in a range of settings and a move towards holistic care. As a result of this paper and the
18 need for radical changes to meet the needs of a changing population outlined in the Future Hospital
19 report in 2013,³¹ specific learning modules have been developed for general medical and geriatric
20 medicine trainees in perioperative care. In both the core surgical and O&G curricula in the UK, there
21 is as yet, no specific section on the care of the older surgical patient.

22 **Strengths and Limitations**

23 Our study surveyed 666 junior doctors from across the UK and Ireland and therefore
24 represents an estimated third of all trainees working in O&G in these nations. This is the first survey
25 of this kind in O&G and trainees of all grades were surveyed to give a true cross-sectional impression

1 of trainees confidence and competence in this area. Regional representatives were enlisted to
2 improve response rates. The response rate to this survey is similar to other web based surveys.³² As
3 the exact number of eligible trainees receiving the link via social media, email networks and face-to-
4 face meetings could not be accurately established, the response rate when measured against the
5 actual number receiving the link may be significantly higher.

6 As with any survey-based study, it is limited by potential selection bias and non-response bias.
7 In cases of partial non-response, we ensured that the presented findings were adjusted for the non-
8 responders. Whilst surveys relating to areas with the potential for quality improvement or the
9 contribution to clinical knowledge are more likely to receive higher response rates,³² clinicians as a
10 group tend to have very homogenous knowledge, behaviours, attitudes and training.³³ It has been
11 suggested that variations that do exist are less likely to be associated with willingness to respond or
12 the survey content and are more associated with time pressures.³³

13 **Conclusion and Recommendations**

14 To improve patient outcomes, frail patients require a clinical team with the necessary skills
15 and training to be able to recognise and manage their complex medical and social needs. Our study
16 has highlighted that O&G trainees lack proficiency and confidence in the perioperative management
17 of these patients. We have identified a need for: (1) routine use of validated frailty assessment tools
18 in the perioperative period to aid recognition of frailty in gynaecological oncology patients; (2)
19 incorporation of a specific training module on the management of older surgical patients into the
20 national O&G curriculum to ensure trainees are equipped with the knowledge and skills to manage an
21 ageing population; (3) formal engagement of geriatricians and specialist frailty services in the
22 management of these patients.

23

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2 **Conflicts of Interest**

3 None declared

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3

1 **Figure Legends**

2

3 Figure 1. Trainees' responses to factors taken into account in frailty assessment tools.

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5 Figure 2. Trainees' beliefs regarding areas likely to improve with a specialist service for frail
6 gynaecological oncology patients during the perioperative period.

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8 Supplementary figure. Flow chart of participant drop out. Overall, 95 participants exited the survey
9 early. The flow chart shows at what stage participants exited the survey, and the total number of
10 participants who completed each set of questions.

11

1 Table 1. Trainees' self-reported confidence in managing frail patients in the perioperative period

	Junior trainees (n= 218)	Senior trainees (n= 371)	P-value
Confident in ability to assess and manage frail patients	91 (41.7%)	125 (33.7%)	0.050
Confident in managing post-operative delirium	99 (45.4%)	121 (32.6%)	0.002
Confident in ability to assess nutritional status of frail patient	49 (22.5%)	67 (18.1%)	0.193
Confident in assessing fluid balance and prescribing fluids in frail older patients	160 (73.4%)	242 (65.2%)	0.040
Confident in identifying potential drug interactions and starting new medications in frail older patients	102 (46.8%)	117 (31.5%)	<0.001

Junior trainees = Foundation year doctors, GPST1-2, ST1-2 and junior non-training grade doctors; Senior trainees = ST3-7, subspecialty trainees and senior non-training grade doctors.

2

1 Table 2. Trainees' answers identifying the three clinical features most characteristic of delirium

Clinical Feature of Delirium	Frequency of selection		P-value
	Junior trainees, N of 218 (%)	Senior trainees, N of 371 (%)	
Correct clinical features			
Altered consciousness	150 (68.8%)	200 (53.9%)	<0.001
Sudden onset	133 (61.0%)	224 (60.4%)	0.880
Inattention	104 (47.7%)	122 (32.9%)	<0.001
Incorrect distracters			
Altered sleep-wake cycle	141 (64.7%)	239 (64.4%)	0.950
Delusions	100 (45.9%)	242 (65.2%)	<0.001
Gradual onset	23 (10.6%)	48 (12.9%)	0.390
Dysphasia	1 (0.46%)	17 (4.6%)	0.005
Fever	11 (5.0%)	23 (6.2%)	0.562

2 Junior trainees = Foundation year doctors, GPST1-2, ST1-2 and junior non-training grade doctors; Senior trainees = ST3-7,
 3 subspecialty trainees and senior non-training grade doctors.

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1 Table 3. Trainees' responses to questions relating to consenting a patient for surgery

	Correct Response	Frequency of correct response, N of 586 (%)
a. Patients with a disorder of the brain or mind lack capacity	False	452 (77.1%)
b. Where mental capacity is found to be absent, the patient's next of kin should be asked to make a decision on the patient's behalf	False	464 (79.2%)
c. A patient must score >26/30 on the MMSE to demonstrate mental capacity	False	448 (76.5%)
e. Being able to communicate a decision is a key feature of mental capacity	True	540 (92.2%)
f. Mental capacity has to be tested for each decision	True	497 (84.8%)
g. When assessing mental capacity, a psychiatrist should be involved	False	541 (92.3%)

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