

Comprehensive geriatric assessment (CGA) in the perioperative setting: the current state of play

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The surgical population is ageing at a faster rate than the general population, presenting significant challenges to established surgical services.¹ Increasing age is independently associated with adverse perioperative outcomes but this older cohort is also frequently living with frailty and multimorbidity, further increasing the risk of postoperative complications.^{2,5} Such a high risk group requires an innovative approach adapted to their specific needs. Comprehensive geriatric assessment (CGA) and optimisation is increasingly being employed as an underpinning methodology in the perioperative setting to meet this need. Embedding complex, multicomponent interventions such as CGA into clinical services however, presents specific challenges; how to define, implement and measure the effectiveness of the interventions to ensure shared learning, minimise variation and maintain fidelity across different centres. This article details the evidence for perioperative CGA and considers the barriers and enablers to national implementation.

The American Geriatrics Society and the Association of Anaesthetists have published evidence based consensus guidelines for optimal perioperative care of older surgical patients.^{6,7} These guidelines together with other reports advocate geriatrician led and multidisciplinary delivered optimisation for complex, older surgical patients, delivered using CGA methodology.^{8,10} CGA is a multicomponent intervention where an older patient undergoes medical, functional, social and psychological assessment, usually undertaken by a multidisciplinary team, resulting in an individualised but evidenced based management plan.

Although named CGA it is rather an ongoing process of assessment, optimisation and review, applying evidence based interventions in an individualised or targeted manner. In both community and inpatient settings, CGA when compared to routine medical care, increases the chance patients are alive and living in their own home at six months following the intervention.¹¹ Emerging evidence also suggests that CGA based perioperative medicine can offer significant benefits to the older surgical patient.¹² The effectiveness of preoperative CGA has been evaluated in a single site randomised control trial in elective vascular surgical patients showing a 40% reduction in length of stay ($P < 0.001$) when compared to standard care.¹³ This shorter length of stay was largely attributed to the impact of CGA resulting in fewer postoperative medical complications. However, another RCT examining preoperative CGA in patients prior to elective colorectal cancer surgery did not show a reduction in postoperative complications, readmissions or mortality.¹⁴ This may be due to under powering or a lack of fidelity to timely and multidisciplinary CGA (i.e. non-adherence to all the components of CGA; multidisciplinary working and timely evidence-based interventions) in this study. In emergency surgery, a Cochrane review examining predominantly hip fracture patients, found that preoperative CGA reduced mortality rates, financial costs and rates of institutionalisation.¹⁵ The benefits of embedding CGA into the emergency surgical setting are further demonstrated through the National Emergency Laparotomy Audit (NELA) findings. This data shows a reduction in 30 and 90 day mortality rates following emergency laparotomy in units

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where geriatric medicine perioperative care pathways have been established.¹⁶ Furthermore, in patients aged over 70 years, where geriatricians delivered postoperative care, lower mortality rates were observed and a greater proportion of patients were discharged home as opposed to other care settings.^{16, 17}


Despite this evidence and international guidance, translation of CGA into perioperative practice has been problematic. Well described barriers include: a lack of clinical engagement across specialities and disciplines; inadequate tailoring of interventions to local context; lack of fidelity to CGA; stakeholder engagement and misalignment between clinical and managerial views secondary to competing financial, service and statutory responsibilities.¹⁸ In addition, the lack of geriatricians provides an additional barrier particularly as there are already significant demands on the geriatric medicine workforce to provide traditional models of care and expand into 'front door' frailty services, integrated care and care home medicine. This has implications for sustainability of national POPS (perioperative medicine for older people undergoing surgery) services in the face of increasing demand to sustain core geriatric work at the expense of perioperative pathways.

Despite these acknowledged challenges, CGA based perioperative medicine in the UK is developing. Nationwide surveys, the latest in 2019, have described an evolution in geriatrician led services for older surgical patients.¹⁹ To further facilitate implementation, a better understanding of the 'black box' of a multicomponent intervention, such as CGA is required. In the perioperative setting, CGA based services deliver preoperative assessment and optimisation across medical, functional, social and psychological domains and postoperative interventions including acute/subacute medical ward care, rehabilitation and discharge facilitation. These components are applicable to both the elective and emergency surgical setting, tailored appropriately to the time available.²⁰

Despite the encouraging increase in perioperative CGA based services in the UK, there is a need to minimise national variation and accelerate the rate of service development, in order to avoid the trajectory of development observed in hip fracture services. Lessons should be learned from the slow adoption of evidence based orthogeriatric medicine with the National Hip Fracture Database (NHFD) still reporting regional

variations.²¹ In particular the importance of 'buy in' from all stakeholders and involving the appropriate expertise at the correct part of the pathway should be addressed early.²² This issue is illustrated in a study examining a perioperative CGA toolkit designed for the non geriatrician; despite a robust approach to toolkit development and wide stakeholder engagement, the impact of the toolkit was limited by one site failing to engage and the other site not routinely using the toolkit in their pathway.²³ The lack of successful implementation was largely attributed to behavioural and cultural barriers with an acknowledgement that expertise in geriatric medicine is fundamental to CGA and optimisation.^{23,24} Whilst such geriatric medicine expertise is essential, the shortfall in the geriatric medicine workforce must be acknowledged and hence the training of perioperative clinicians in CGA has been proposed as a solution. This however requires further study before widespread adoption and implementation as initial evidence suggests limited benefit to non-geriatrician delivered CGA.²³

Various CGA resources have been developed in the UK and are available through national organisations such as the British Geriatrics Society.²⁵ Despite this, incorporating CGA and geriatric medicine expertise into the emerging speciality of perioperative medicine requires, not only new approaches to cross specialty education and training, but also collaborative research and translation of findings into routine clinical services nationally. To address this, the Centre for PeriOperative Care (CPOC) aims to foster cross disciplinary and speciality working, sharing of good practice and joined up research.²⁶ The cross specialty nature of this organisation will allow a collaborative approach to both quality improvement and research, necessary to evaluate new models of patient centred perioperative care. Finally, to ensure timely scale up of perioperative CGA pathways, implementation science methodology should be employed, with outcomes measured through studies using big data.

There is emerging evidence that CGA based services are beneficial to older elective and emergency surgical patients and as a result services are increasingly being developed. As national services continue to evolve, outcomes should be evaluated cognisant of the importance of implementation outcomes (acceptability, fidelity, sustainability), process outcomes (cost, efficiency) and clinician and patient reported outcomes (morbidity, mortality, recovery, and experience). 

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