6.6 Supporting older peoples’ care in surgical and

6.6 Supporting older peoples’ care in surgical and
oncological services 563

ESSENTIALS The clinical profile of patients presenting for elective and emer- gency surgery and for oncological treatment is changing. Patients are now older and more complex with coexisting multimorbidity and geriatric syndromes. There is increasing recognition of the need to improve the effectiveness, efficiency, and the experience of pa- tients in this vulnerable group. Achieving the best outcomes requires attention to: • Assessment—with emphasis on multimorbidity, geriatric syn- dromes of frailty and cognitive impairment, and functional status • Quantification of risk—use of risk prediction tools • Optimization—modifying the risk profile prior to treatment, including optimization of physiological reserve, organ-specific pathology, and geriatric syndromes • Shared decision-making about potential surgical or oncological treatment approaches (or none), based on expert communica- tion of the potential risks, harms, benefits and burdens • Optimal proactive and responsive management throughout the surgical or oncological journey Such wide-ranging interventions cannot be provided by single specialties, but require collaboration across disciplines and special- ties to ensure delivery of patient-centred services, relevant educa- tion and training, and a research programme that aims to inform routine clinical practice. Introduction Ageing is associated with an increase in the incidence and preva- lence of degenerative, metabolic, and neoplastic disease. Many of these conditions require surgical or oncological manage- ment, which is generally provided by healthcare professionals other than geriatricians. To ensure the best outcomes for the increasing numbers of older people undergoing surgery or onco- logical intervention, professionals working in these fields re- quire an understanding of geriatric medicine. Additionally, the generalist or medical team may be called upon to support older patients in surgery and oncology who have acute or longer-term medical issues. They too require an understanding of the specific needs of the older patient in the context of the surgical or onco- logical episode. This includes knowledge of the presence and interaction of age-related change in physiology, multimorbidity, and geriatric syndromes. It also requires an understanding of the

impact of this pathophysiological profile and of social and psychological factors on treatment decisions and optimal clin- ical management before, during, and after any surgical or onco- logical intervention’. The specialist settings: Oncology and surgery The increasing numbers of older people presenting with cancer is explained by demographic change and the age-related increase in the incidence of many solid organ tumours. However, older people are less likely to be offered oncological treatments than younger people, and those who do undergo treatment are more likely to have dose reduction or premature cessation of treatment courses due to reported toxicities. This may contribute to poorer cancer-related long-term survival in older patients and poorer patient-reported outcomes. Furthermore older people may decline offers of onco- logical treatment, due to widely held belief that increasing age is as- sociated with adverse outcome. However, data suggests that it is not chronological age but physiological decline, multimorbidity, and geriatric syndromes that are the independent predictors of poor outcome. These, of course, are more prevalent among older patients, hence clinical decisions require a working knowledge of these pre-dictors of adverse outcome, when and how to assess, how to modify, how to use information to ensure shared decision-making, and how to manage the recovery period after oncology treatments. Similarly, despite increased numbers of older people undergoing surgery for degenerative (e.g. joint replacements) or neoplastic conditions (e.g. colorectal cancer), they remain less likely to have equitable access, are more likely to have surgery cancelled, and suffer from an excess of postoperative morbidity, mortality, and functional decline. Rates of postoperative surgical complications remain fairly constant as age increases, but medical complications such as cardiac, respiratory, renal, and neurological impairments 6.6 Supporting older peoples’ care in surgical and oncological services Jugdeep Dhesi and Judith Partridge

 occur more frequently in older patients. These complications ad-versely impact functional recovery, short-term and longer-term mortality rates, and healthcare costs. The pathway of surgical and oncological care The patient pathway of care follows a similar pattern in surgery and oncology. There are five key stages for clinicians to consider. Indeed, this is the case for patients of all ages, but in complex older patients each stage can present specific challenges. These stages are: • Assessment—describing the patient’s clinical and psychosocial profile • Quantification of risk—using risk prediction tools • Optimization—modifying the risk profile prior to treatment • Shared decision-making about potential surgical or oncological treatment approaches (or none), based on expert communication of the potential risks, harms, benefits and burdens • Optimal proactive and responsive management throughout the surgical or oncological journey Assessment—describing the older patient’s clinical profile The aim of preoperative or pre-oncological assessment in older people is to identify the nature and degree of factors that may ad- versely impact clinician reported adverse outcomes (e.g. morbidity and mortality) and patient-reported outcomes (e.g. quality of life, functional deterioration). This can be challenging in a complex older patient. A full history and examination is the starting point and is essential, but rarely sufficient. The findings can be conceptu- alized as follows. Assessment for multimorbidity Multimorbidity, including previously undiagnosed disease, is to be expected in older patients, hence a systematic and standardized approach is needed. Investigations should be guided by the find- ings rather than be ‘routine’. For example, symptoms of recurrent infections suggests the need for screening for diabetes; a history of smoking and shortness of breath, the need for spirometry for chronic obstructive pulmonary disease; and symptoms of cardiac ischaemia, an electrocardiogram and further cardiac investiga- tions for heart disease. Assessment for geriatric syndromes As discussed in other chapters in this section, geriatric syndromes are a

group of conditions where ‘symptoms do not result solely from discrete diseases, but instead from accumulated impairments in multiple systems and develop when the accumulated effect of these impairments in multiple domains compromises compensa- tory ability’. The presence of these syndromes is associated with adverse postoperative and oncological treatment outcomes, and as such should be carefully considered. Frailty Frailty is an independent risk factor for adverse postoperative and post-oncological morbidity, mortality, and institutionaliza- tion. The consensus understanding of the term is a syndrome of decreased physiological reserve across several organ systems such that there is higher risk of adverse clinical and functional out- comes from additional illness, injury, or iatrogenic interventions (see Chapter 6.2). There is, however, no consistency in the diag- nostic tools for frailty used in clinical practice. For example, an- aesthetic studies often use surrogate markers to ‘diagnose’ frailty such as gait velocity or the shuttle walk. These measures may be useful for risk stratification as they do have some predictive power for outcomes in clinical settings, but they do not provide broader information of a multidomain syndrome or any guidance for risk modification. Some surgical subspecialties have developed spe- cialty specific frailty assessments, for example the Comprehensive Assessment for Frailty (CAF) score in cardiac surgery. Similarly, in oncology this has led to the development of the widely used Balducci frailty criteria. Although these tools may be clinically feasible in older surgical and oncological patients, most have not been assessed for their clinimetric properties in these settings. The ideal tool would not only diagnose frailty, be well-validated, and be clinically feas- ible, but also identify aspects of the frailty syndrome that could be optimized in order to modify risk. To this end the Edmonton Frailty Scale is proving useful, especially as it highlights domains for potential optimization (see Table 6.6.1). These may include nutritional status, mood, polypharmacy, or the introduction of a social support to maintain independence. Emerging evidence sug- gests it is both a practical and translatable tool for use in specialist settings. Cognitive impairment Cognitive impairment is an independent predictor of adverse postoperative and post-oncological outcomes (morbidity, mor- tality, poor functional outcome) and of increased length of stay. It is under-recognized in surgical and oncological populations. The purpose of identifying cognitive impairment in these contexts is not limited to making a formal diagnosis of dementia, but add- itionally to provide baseline information to: • alert the clinician to the need to carefully to assess capacity and ability to consent • predict risk of perioperative/peri-treatment cognitive syndromes such as delirium • facilitate clear communication of this risk with the patient and their carers, as well as with other healthcare professionals • employ evidence-based strategies to prevent or manage cognitive decline or delirium • prompt longer-term follow up with subsequent specialist in- volvement such as a memory clinic assessment One of the reasons for the lack of recognition of cognitive impair- ment in surgical and oncological patients may be the previous paucity of guidance on which patients should be screened for cognitive dysfunction prior to surgery or oncological treatment.

 More recent literature suggests routine cognitive screening (e.g. by the dementia questionnaire, 4AT—see Fig. 6.5.6, in Chapter 6.5) or a clock drawing test should be conducted in all older patients, followed by a more detailed assessment in those highlighted as at high risk. Alternatively, a brief but more detailed assessment (e.g. the Montreal Cognitive Assessment, MoCA) could be em- ployed. The decision as to which approach is most useful should be guided by the likely prevalence of cognitive dysfunction in the specific clinical population in question. For example, in vascular surgical patients the prevalence of cognitive impairment, par- ticularly executive dysfunction, is high and therefore routine use of the MoCA may be advocated, whereas screening using the 4AT may be more

appropriate in other surgical populations. Assessment of functional status Poor baseline functional status or high dependency levels predict adverse functional outcome, with longer recovery time and less likelihood of returning to baseline status, hence assessment of functional status is important to: • inform shared decision-making, including functional deterior- ation as a potential outcome to be considered in addition to the more conventional treatment risks • identify scope for optimization of the individual or their envir- onment before surgery or treatment • employ techniques and ward based enablement strategies to minimize functional deterioration • anticipate the need for support when discharge planning Functional status can be measured using various tools, most of which quantify a patient's need for help (or not) to complete activ- ities of daily living (ADLs) and instrumental activities of daily living (IADLs), for example, the Barthel Index (see Fig. 6.5.3 in Chapter 6.5). However, within the older surgical or oncological population the use of such tools can be limited by a marked ceiling effect. More de- tailed assessments can be useful, particularly if patients or carers can self-complete (e.g. Nottingham Extended Activities of Daily Living, NEADL), although the utility of many of these tools have not been thoroughly investigated in these clinical settings. The overall approach to the preparation for surgical or onco logical treatment is summarized in Table 6.6.2. Quantification of risk—use of risk prediction tools in older people Conducting baseline assessments in specialist settings provides information that can be used to quantify risk of adverse clinician reported outcomes such as organ-specific morbidity and 30-day mortality. In the surgical setting the most widely accepted and valid- ated tools are the American Society of Anaesthesiologists (ASA), Portsmouth-Physiology and Operative Severity Score for the enUmeration of Mortality (PPOSSUM), and the Surgical Risk Scale (SRS). Cardiopulmonary exercise testing is also being used to profile individual risk, but is limited to the single domain of cardiopulmonary fitness. In the oncological setting, WHO Table 6.6.1 Using the Edmonton Frailty Scale to address aspects of the frailty syndrome in the surgical or oncological setting Frailty protocol Frailty Domain Specific Aspect of Frailty Modification Compensation Cognition Abnormal clox test Vascular risk factor control Onward referral to memory clinic Assessment of capacity Information provision to patient and carer (diagnosis of cognitive impairment and delrium risk) Functional independence Needs assistance with daily activities Referral to occupational therapist and social worker Pre-emptive assessment of care needs Social support Has no one to help out at home when required Referral to social worker for therapeutic interventions Arrange home care/befriending /day centre/pendant alarm Medication use Number of medications Review/rationalize medications Assess/optimize cognition Provision of dosette box Arrange carer to prompt medications Forgetting to take medications Nutrition Recent weight loss Assess for underlying cause Dietician, speech and language therapy, and occupational therapy Nutritional supplements Highlight to ward/community dieticiana Mood Self-reported low mood Liaise with GP, specialist psychiatric services MDT input Access to local services Continence Self-reported urinary incontinence Medications, exercise strategies,
bladder training regimesa Referral to continence servicea Provision of pads Functional performance TUAG >11 seconds Referral for physiotherapya Provision of walking aids Provision of equipment to assist patients at home (e.g. jar opening devices) a Depending on timeframe to surgical procedure the intervention may consist of highlighting patient to ward team (dietician, therapists) or referral to community teams while awaiting surgery. Clox test, and executive clock drawing test; TUAG, Timed Up And Go test.

 performance status has traditionally been used to help clinicians to describe a patient's risk profile and to plan treatment. However, many of these tools do not adjust

for age or the presence or se- verity of multimorbidity. Furthermore, they have subjective components, demonstrate a ceiling effect in older patients, and are population based tools, hence their use for predicting individual risk in the older complex patient is limited. There are also many organ-specific risk prediction tools, for predicting cardiac events, respiratory failure or acute kidney injury, but the practical application of these is limited in older people where multimorbidity is common and individuals are at risk of multiple inter-related medical complications. There are no specific tools to assess risk of functional decline, but there are for postoperative cognitive disorders, in particular for de- lirium. This is because delirium is a well recognized postoperative complication in emergency surgery, vascular surgery, and hip frac- ture surgery. Unfortunately, most of these tools include age, emer- gency surgery, and dementia as primary predictors, and since these are prevalent in the populations we are discussing here, they lack discriminatory power in the older surgical population, limiting their practical application. More recent oncological literature suggests using a combination of objective scores examining multiple domains (e.g. geriatric de- pression scale, mini-mental status examination, ADL/IADL, per- formance status, brief fatigue inventory, ASA, POSSUM, ACE27) to assess risk. The intrinsic complexity of such an approach has led to the establishment of onco-geriatric units that use the comprehensive geriatric assessment (CGA) approach to facilitate risk profiling prior to oncological treatment. Similarly, using com- prehensive geriatric assessment in the preoperative setting may provide a fuller risk profile of a complex older surgical patient. The drawback of this method may be the time and expertise in- volved, also the fact that it does not provide a numerical score of risk, which clinicians and patients often prefer. However, modified versions of the comprehensive geriatric assessment process are in- creasingly considered essential in the specialist settings of surgery and oncology to help inform risk assessment and management. Table 6.6.2 describes how the CGA process can be employed in preoperatively or pre-oncological treatment. Optimization—modifying the risk profile in

the older patient Better postoperative and post-oncological treatment outcomes are likely if the patient is as ‘fit as possible’ prior to these interventions. Achieving this level of ‘fitness’ in older patients requires a multi- modal approach to improving physiological status, optimizing coexisting morbidity, and addressing geriatric syndromes. The fol- lowing issues should be considered. Optimization of physiological reserve Short duration exercise therapy has been shown to improve car- diorespiratory status prior to surgery and oncological treatment. Uptake and compliance has been good, even in older populations with new diagnoses of cancer. The evidence suggests both en- durance and high intensity exercise are safe and feasible in older populations, although these studies have not yet shown that im- provement in physiological status results in improved post-treatment outcomes. Optimization of organ-specific pathology There are numerous guidelines informing the optimization and perioperative management of conditions such as diabetes and anaemia. The aim of such guidance is to reduce the incidence and se- verity of predictable organ-specific complications (e.g. pneumonia in a patient with chronic obstructive pulmonary disease, acute kidney injury in a patient with known chronic kidney disease, and transfusion rates in a patient with known anaemia). Where no spe- cific perioperative guidance exists, optimization should be based on general guidance for the management of specific diseases. The de- scription of assessment and optimization of individual conditions affecting older patients is beyond the scope of this chapter. Clearly the challenge is how to employ multiple guidelines in an older pa- tient with multimorbidity, where drug therapy for one condition may aggravate another underlying condition (e.g. using β-blockers in ischaemic heart disease aggravating postural hypotension in a patient with Parkinson’s disease on levodopa) and as such requires the expertise of a geriatrician or other

generalist. Optimization of geriatric syndromes Optimization of frailty There is emerging evidence for optimization of single aspects of the frailty syndrome using, for example, preoperative exercise or Table 6.6.2 The benefits of a systematic interdisciplinary approach preparing for surgery or oncology treatments Assessment • Physiological reserve • Morbidity (existing and previously undiagnosed) • Frailty • Cognition • Capacity to consent • Patient and carer expectations Optimization • Physiological reserve • Multimorbidity • Frailty • Psychosocial issues • Social support and resources Prediction of postoperative or post- treatment risk • Organ-specific complications • Functional decline • Mortality Medication management • Pharmacological optimization of comorbidities • Reduction of harmful drug-drug interactions • Anticipate medication related adverse effects (e.g. anticholinergic load and delirium) • Plan for necessary preoperative/pretreatment cessation of medications (e.g. anticoagulants) • Ensure accurate perioperative/peritreatment prescription (with alternative formulations if necessary, e.g. of Parkinson's meds) Anticipate and mitigate changes in functional during and after treatment • Clarify social resources and resilience • Make environmental adaptations proactively • Plan for more complex hospital discharge needs Communication to promote shared decision-making • Incorporate a broader scope of benefits and risks, including functional change, in discussing treatment decisions • Consideration of alternative options

 nutritional support. However, there is no evidence to date to support the hypothesis that preoperative or pretreatment multicomponent interventions can modify the frailty syndrome or impact on postoperative or post-treatment outcome, other than through the use of CGA. Optimization of cognitive function/reducing risk
of delirium Dementia specific medications, notably anticholinesterases, can produce improvement in cognition and symptoms of dementia for some patients, but the timescale of response will often preclude this initiation in patients prior to oncological treatments or surgery, and to date there is no clinical trial evidence of impact on the outcomes. There is evidence, however, to suggest that pre-existing contribu- tors to postoperative cognitive disorders can be modified. Given that delirium is now known to commonly worsen the longer-term cognitive trajectory, preventing postoperative delirium in those at risk is clearly of importance. Multicomponent interventions for prevention of delirium were initially described in medical populations but have been trans- lated into surgical populations. These interventions include medi- cines optimization (e.g. stopping deliriogenic drugs), treating electrolyte imbalances and disorders such as hypothyroidism, and correcting nutritional deficiencies (e.g. folate deficiency). There is insufficient evidence to support the use of pharmaco- logical agents such as antipsychotics to prevent delirium. Optimization of functional status and potential
hospital-acquired deconditioning As preoperative/treatment functional status is predictive of postsurgical/treatment functional recovery, assessment should prompt a proactive approach to maximizing function prior to surgery or oncological treatment, utilizing multidisciplinary skills. An example may be a patient awaiting elective joint re- placement receiving preoperative strength and balance training from a physiotherapist, pre-emptive home adaptations from an occupational therapist, and initiation of social support by a social worker either preoperatively or proactively arranged for hospital discharge. Such approaches employed in a structured manner are being used as part of prehabilitation in enhanced recovery programmes in various surgical specialties surgery. Clearly in ur- gent cancer surgery or consideration for oncological treatment, the form of prehabilitation will need to be tailored to the limited time available. Communication and shared

decision-making After assessment, the next phase in the surgical or oncological pathway of care is shared decision-making. At this stage, the differing expertise of the doctor and the patient should be com- bined to develop a shared care plan. This requires knowledge and good communication skills on the part of the doctor, and the pa- tient must be assessed to have capacity to take part in such a discus- sion. If the patient lacks capacity then the relevant legal framework must be adhered to (e.g. the Mental Capacity Act in the United Kingdom). The doctor should present information on the available treat- ment options, together with the likelihood of benefit or harm for each, and the likely burden of treatment. It is important to con- sider the vocabulary used and the presentation of risk. While healthcare professionals may interpret the term ‘risk’ as a statis- tical probability, many patients assume ‘risk’ implies a bad out- come or harm. Likewise, the word ‘chance’ may be interpreted as throwing of dice. The word ‘likelihood’ can be a more useful term. Some patients may find pictures, tables, or graphs helpful to understand outcome predictions. The patient should be en- couraged to consider this information in terms of their individual goals and what they want the treatment to achieve, for example, a reduction in specific symptoms, avoidance of dependency, or an increase in life expectancy. This discussion, guided by the patient, can result in a decision to: • proceed with the surgical or oncological treatment option • modify the treatment proposed • not proceed with surgery/oncological treatment, but to employ other treatment options (e.g. symptom control) • inform the management of treatment-related risks • defer the decision to a future date, at which time further or re- peated information may be requested by the patient, before a shared care plan can be developed Using the same principles as shared decision-making, pro- active advance care planning should be considered in patients at high risk of postoperative/treatment morbidity and mortality. This should include a discussion with the patient regarding ‘ceilings of care’. Questions to be considered include whether the patient should be managed in a ward setting only, whether multiorgan support in an intensive care unit would be appro- priate, or whether they should be resuscitated in the event of a cardiorespiratory arrest. Similarly, patients who decline surgery or treatment may then be at risk of premature death due to the underlying surgical pathology. For example, a patient with an ab- dominal aortic aneurysm is at risk of rupture at a time and place where even an urgent surgical response may be unsuccessful. The management of just such a possibility should be discussed and documented. In such cases, the risks of undertaking an emer- gency procedure are even higher than for an elective procedure, and in many situations the patient chooses palliation. This deci- sion will need to be communicated with the primary care team and the family or carers in order to facilitate community-based palliative treatment. Optimal management of older patients throughout the surgical or oncological journey Although a proactive approach and pretreatment may reduce the risk of adverse outcome, it is not possible for all risk to be elimin- ated. It is therefore important to plan and establish standardized team approaches to common postoperative or post chemo- radiotherapy complications, which are especially common in older people.

 Management of medical complications Postoperative and post-oncological treatment cardiac (e.g. atrial fibrillation), respiratory (e.g. lower respiratory infection), neuro- logical (e.g. delirium), or other medical complications are more likely in older than younger patients. This is particularly important as older people are less likely to tolerate these complications than younger patients and more likely to have ‘failure to rescue’. Clear management plans based on current guidance should be in place for these predictable complications. These need to be supplemented by education and training for surgical or cancer care staff to en- sure complications are identified early through routine screening, managed in a standardized way

according to local protocols, and referred to specialty teams early. Management of geriatric syndromes Cognitive disorders There is scant literature regarding cognitive disorders specific to the oncological setting, but there is an increasing focus on these complications in relation to surgery. The evidence suggests that perioperative cognitive disorders are common and include postoperative delirium, postoperative cognitive dysfunction, and longer-term cognitive impairment. While the use of such terms implies that they are discreet entities, this is not yet established. Of these conditions, postoperative delirium is the most well described, aided by the clear definition in the Diagnostic and Statistics Manual of Mental Disorders (DSM-5). In contrast, postoperative cognitive dysfunction and longer-term cognitive impairment suffer from lack of universally accepted definitions, with variations in the neurocognitive tools used, the time-point of cognitive assessment, and what constitutes a clinically meaningful postoperative cog- nitive change. Furthermore, many studies have been limited by a failure to preoperatively diagnose existing cognitive impairment, provide a systematic approach to the identification of postoperative delirium, and/or conduct meaningful longer-term follow up. In terms of management of postoperative delirium, the mainstay is nonpharmacological with an emphasis on maintaining a sup- portive environment, good nursing care, and de-escalation strat- egies. For example, with delirium, staff should be aware of delirium in patients who have been identified as at high risk at preassessment, know how to diagnose delirium using tools such as the confusion assessment method, know how to manage delirium or know where to find local guidelines, and be aware of how and when to refer to specialist teams. As with delirium in other settings, there is a role for pharmacological intervention in hyperactive delirium when a patient is a danger to themselves or others, including through the re- fusal of essential investigation or treatment. The use of medications to treat a patient with delirium who lacks capacity should always be considered within the relevant legal framework. Current guid- ance differentiates between using dopamine antagonists for most postoperative delirium, with benzodiazepine usage reserved for de- lirium secondary to alcohol withdrawal, those with movement dis- orders, or those with a prolonged QT interval on electrocardiogram. Impaired functional recovery Management plans should also address less clearly defined complications such as delayed functional recovery, fatigue, or psychological sequelae (anxiety or depression). While evidence describing the trajectory of recovery after surgery or cancer treat- ment is limited, it appears that postsurgical functional limitation can persist for up to six months. Targeting such functional deteri- oration requires a proactive multidisciplinary approach involving early mobilization whenever possible, with removal of obstacles to this such as unreported pain, a care approach which promotes autonomy, mental and physical activity, structured rehabilitation with patient-centred goals, and proactive planning for new care needs in terms of equipment or carers. As previously highlighted, these needs can often be anticipated and actions taken beforehand, rather than relying on a reactive approach initiated once the com- plication has occurred. Specific consideration in emergency surgery The principles of managing emergency surgical patients are the same as those described for elective surgical patients, with the main difference being the need to tailor management to the shorter timeframe available. The subspecialty of orthogeriatrics provides a good example of the evolution of geriatric medicine provision in emergency surgery. Orthogeriatrics The concept and development of orthogeriatric care started in the United Kingdom in the late 1950s and has evolved to what is now an established evidence-based approach with NICE guidance. The fundamental principles are: • holistic care that extends beyond the broken bone • multidisciplinary team care delivered by a range of disciplines with appropriate expertise • integrated care in which there is explicit shared ‘ownership’ of the programme, working collaboratively in partnership with shared clinical

governance • a long-term conditions approach incorporating rehabilitation and secondary prevention of fractures by focusing both on falls prevention and bone health Largely depending upon local context and resources, various models of orthogeriatric collaboration have emerged. Initially the focus was on the postoperative phase, but increasingly the evidence supports shared care from the moment of presentation with gains in clinical outcomes to be made by medical intervention from the beginning. The most common models are: • Traditional—a reactive consultation service with the care led and predominantly delivered by orthopaedic teams. Advice is sought from general medicine, organ-specific, or geriatric medi- cine teams as required. • Structured support—the orthopaedic team retain overall re- sponsibility but with scheduled liaison geriatric medicine input (e.g. fixed ward rounds/multidisciplinary team meetings), some- times starting preoperatively but more commonly not. • Phased care—orthopaedic teams retain responsibility up to the immediate postoperative period, when geriatric medicine takes over, usually involving patients being transferred to the geriatric

 medicine unit once stable. Orthopaedic input is reduced to as and when required. • Shared care model—here geriatricians and orthopaedic surgeons take joint responsibility and accountability for the care of the pa- tient from admission, supported by a multidisciplinary team and incorporating rehabilitation services. The best results appear to come from collaboration between orthopaedic, anaesthetic, and geriatric medicine teams in the de- sign and delivery of the care pathway. The focus of the surgical team is on making the diagnosis and considering the surgical options. The medical team focuses on ensuring prompt history, examination, risk assessment, immediate management focusing on medical optimization for surgery, and taking a longer-term view of management of postsurgical recovery. The anaesthetic team reviews the information provided by both the medical and surgical team and uses this to ensure an appropriate strategy for pain management, intraoperative care, and consideration of the need for high-dependency care in the postoperative period. There is necessarily overlap between these tasks and teams, and all of the healthcare professionals involved should have an under- standing of assessment of capacity to consent, management of delirium, prevention of pressure ulcers, and of consideration for advance care planning. One of the clearest associations from large scale audit and ob- servational studies is the link between timing of surgery and improved outcome. This has resulted in a widespread change in clinical practice, at least in the United Kingdom, where reim- bursement of the provider hospital depends upon surgery being undertaken within 36 hours. Overall the evidence suggests that early surgery does reduce postoperative complications, improve functional outcomes, and reduce mortality, in addition to re- sulting in a shorter hospital stay and therefore lower financial cost. Furthermore, from the patient's perspective, early surgery to achieve definitive pain control and allow early mobilization is beneficial. There are, however, clinical situations—probably rele- vant to less than 5% of patients—where medical optimization prior to surgery is preferable. There are no evidence-based rules on this, but current consensus suggests that the following clinical issues justify this approach: • Anaemia (Hb <90 g/litre) • Acute uraemia • Severe electrolyte imbalance (Na <120 or >150 mmol/litre; K <2.8 or >6.0 mmol/litre) • Uncontrolled diabetes • Uncontrolled heart failure • Correctable cardiac arrhythmia (e.g. atrial fibrillation with rapid ventricular rate) • Exacerbation of chronic chest or acute chest infection • Severe sepsis • Reversal of iatrogenic or other significant coagulation deficiencies The discovery of a systolic murmur consistent with aortic valve dis- ease is not an uncommon finding in older people, and if clarifica- tion with echocardiography is not rapidly available this can lead to surgical delays, but experienced

anaesthetists can judge the poten- tial risk of perioperative hypotension in this situation and adjust their approach accordingly. In the postoperative period, it is essential to focus on reducing risk of medical and functional complications (delirium, pneu- monia, hospital-acquired deconditioning). Secondary prevention of falls and fracture is discussed in Chapter 6.8. Translating the lessons from orthogeriatric care into other emergency surgical settings The National Hip Fracture Database, in the United Kingdom which was established to describe the hip fracture population, the out- comes, and provide benchmarking data, has successfully raised the profile of hip fracture care. This has resulted in increased use of guidelines and facilitated improvements in quality of care with better outcomes. Lessons learnt from orthogeriatrics are now being translated into other high-risk emergency surgical populations such as those undergoing emergency laparotomy. The National Emergency Laparotomy Audit (NELA) in the United Kingdom reported that in the emergency general surgical population, 70% of patients were aged over 70 years and had a 25% postoperative mortality rate. Although there is emerging data that the timely involvement of geriatricians can improve outcomes, the organiza- tional component of NELA shows that such care is not yet routine. As with the hip fracture population, it is likely that a combination of evidence-based direct clinical care and supporting indirect and nonclinical components such as guidelines, pathways, and protocols will be needed to improve outcomes for older people undergoing emergency laparotomy. Furthermore, there are sig- nificant numbers of older patients admitted under other surgical subspecialties, for example, ruptured aneurysms under vascular, haematuria under urology, and skin trauma under plastics, all of whom have high-risk profiles (multimorbidity, frailty, cognitive impairment). These populations require novel evidence-based ap- proaches tailored to take into account their specific risk profile, surgery-specific issues, and clinical pathways. The benefits of novel approaches to surgical
and oncological care for older people The changing demographics and the clinical profile of the surgical and oncological populations has led to the development of novel patient-centred rather than organ or specialty centred services. Such services bring together the expertise of all healthcare pro- fessionals involved in the surgical or oncological pathway of care. This may include surgeons, anaesthetists, oncologists, and geria- tricians, as well as allied healthcare professionals, and liaison with organ-specialist physicians. The intended benefits of these novel approaches are to achieve: • targeted and appropriate use of level 2 and 3 care • standardized management of predictable complications • proactive rehabilitation and discharge planning • smoother transitions to community care The anticipated benefits include: • more effective care reflected in clinician-reported outcomes (morbidity, mortality) • increased efficiency (lower cancellation rates, reduced length of stay)

 • better patient experience and subsequent quality of life • improved functional recovery The development of a multidisciplinary approach encompassing partnerships across clinical specialties, allied health profes- sionals, nurses, and managers, and so on may galvanize better commissioning of services, shared clinical governance ap- proaches, and collaborative research networks. Central to this ap- proach is the embedding of comprehensive geriatric assessment in surgical and cancer services for older people, and this is now promoted by several specialist societies, including the ‘Optimal preoperative assessment of the geriatric surgical patient’ guide- line published collaboratively by the American College of Surgeons National Surgical Quality Improvement Program and the American Geriatrics Society. The same approach has been advocated by the Society of International Oncogeriatrics for pa- tients with cancer. FURTHER READING Balducci L (2007). Aging, frailty, and chemotherapy. Cancer Control, 14, 7–12. Bell S, et al. (2015). Risk of postoperative acute kidney injury

in patients undergoing orthopaedic surgery—development and validation of a risk score and effect of acute kidney injury on survival: observational cohort study. BMJ, 351, h5639. Braude P, et al. (2016). Perioperative medicine for older patients: how do we deliver quality care? Future Hospital Journal, 3, 33–6. Gladman JR, Lincoln NB, Adams SA (1993). Use of the extended ADL scale with stroke patients. Age Ageing, 22, 419–24. Gupta H, et al. (2011). Development and validation of a risk calculator predicting postoperative respiratory failure. Chest, 140, 1207–15. Inouye SK, et al. (1990). Clarifying confusion: the confusion assess- ment method. A new method for detection of delirium. Ann Intern Med, 113, 941–8. Lawrence VA, et al. (2004). Functional independence after major ab- dominal surgery in the elderly. J Am Coll Surg, 199, 762–72. Lee TH, et al. (1999). Derivation and prospective validation of a simple index for prediction of cardiac risk of major noncardiac surgery. Circulation, 100, 1043–9. Lin H, et al. (2016). Frailty and post-operative outcomes in older sur- gical patients: a systematic review. BMC Geriatr, 16, 157. Marcantonio ER, et al. (2001). Reducing delirium after hip fracture: a randomized trial. J Am Geriatr Soc, 49, 516–22. Myles PS, et al. (2016). Standardizing end points in perioperative trials: towards a core and extended outcome set. Br J Anaesth, 116, 586–9. Nadelson M, Sanders R, Avian M (2014). Perioperative trajectory in adults. Br J Anaesth, 112, 440–51. National Institute for Health and Care Excellence (NICE). Delirium: Prevention, Diagnosis and Management. Clinical guideline [CG103]. https://www.nice.org.uk/guidance/cg103?un lid=812382453201667151246 Partridge J, et al. (2014). The impact of pre-operative comprehensive geriatric assessment on postoperative outcomes in older patients undergoing scheduled surgery: a systematic review. Anaesthesia, 1, 8–16. Rolfson DB, et al. (2006). Validity and reliability of the Edmonton Frail Scale. Age Ageing, 35, 526–9. Siddiqi N, et al. (2016). Interventions to prevent delirium in hospital- ised patients, not including those on intensive care units. Cochrane Database Syst Rev, 3, CD005563. Sündermann S, et al. (2011). Comprehensive assessment of frailty for elderly high-risk patients undergoing cardiac surgery. Eur J Cardiothorac Surg, 39, 33–7.

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