Beyond age: A holistic approach to predicting 10-year survival of prostate cancer patients

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WE HAVE RECENTLY received numerous emails from experienced general practitioners (GPs) in response to the article 'When less is more: Updates in active surveillance and watchful waiting in the management of prostate cancer' that was published in the *AJGP* May 2024 issue.[1] In short, the emails highlight the imprecise science of predicting 10-year all-cause survival and the implications this has on screening and overall management **intent** of prostate cancer (PCa), particularly in fit older patients (who might suffer from undertreatment bias). This was a particular focus given that the European Association of Urology (EAU) and American Urological Association (AUA) guidelines recommend treatment with palliative intent for PCa patients with a life expectancy of less than 10 years.[2,3] This cut-off is based on data initially from the Scandinavian Prostate Cancer Group-4 (SPCG-4) study and corroborated by the Prostate Testing for Cancer and Treatment (ProTecT) study that demonstrated 10 years was required to produce significant difference in metastasis-free survival.[4,5]

Although clinical 10-year survival predictions sit at the confluence of 'the art' and 'the science' of medicine, we will seek to address these concerns by providing a literature-informed framework for such assessments. Where uncertainty in 10-year survival exists, multidisciplinary geriatrician-driven holistic review of comorbidities, nutritional status, physical function and cognitive ability are suggested for improved clinical 10-year survival prediction.[2]

Life expectancy for Australian men has increased significantly over the past 30 years.[6] Despite concerted efforts for health equity, these improvements are spread unequally across the population.[6,7] Heterogeneity in life expectancy results in inaccurate age-based 10-year life expectancy predictions.[8] Fitness, and its counterpart, frailty, have been shown to give more nuanced life expectancy predictions.[8] Many attempts have been made to quantify frailty with metrics such as gait speed, the Geriatric 8 (G8) score (www.mdcalc.com/calc/10426/g8-geriatric-screening-tool), the Cumulative Illness Score Rating-Geriatrics (CISR-G), the Charlson Co-morbidity Index (CCI), the Eastern Cooperative Oncology Group Performance Status (ECOG) score, and others.

Stratifying by gait speed alone, the 10-year survival rate for men aged 75 years varies significantly, from 19% for those walking slower than 0.4 m/s to 87% for those walking faster than 1.4 m/s (Figure 1).[9] From these data, noting the speed at which a patient walks down the corridor gives a reasonable indication of 10-year survival.

Given heterogeneity in age-specific life expectancy, the International Society of Geriatric Oncology's (SIOG) PCa Working Group advises that decision of treatment intent for those aged over 70 years should be informed by structured frailty assessment, with the G8 screening tool and an algorithmic decision tree proposed as a practicable solution (Figure 2, Tables 1 and 2).[2,10] This tool seeks to differentiate between fit, vulnerable and frail patients who are at higher risk for mortality and adverse effects from cancer treatments.[10] Healthy patients or those who can recover from geriatric problems should be treated like younger patients (treatment with curative intent), whereas vulnerable or frail patients might benefit from treatment with palliative intent.[10] A G8 score below 14 suggests a need for a comprehensive geriatric assessment, which includes a more comprehensive assessment of comorbidity, nutritional status, cognitive and physical function, and social support to determine if frailty is reversible and if so, once reversed, more accurately determine life expectancy.[10] Proper geriatric evaluations and interventions can improve

subsequent treatment tolerance, completion and outcomes.[11]

Comorbidity, more so than age, is an independent predictor of all-cause mortality in men with PCa.[12,13] Comorbidity can be quantified using validated scores such as the CISR-G[14] and the CCI.[15] Men with high comorbidity scores are more likely to die from other causes within 10 years, regardless of age or tumour aggressiveness.[2,16] Nutritional status can be evaluated based on weight changes over three months. Good nutritional status is defined as weight loss of less than 5%, risk of malnutrition is defined as weight loss between 5% and 10%, and severe malnutrition is defined as weight loss greater than 10%.[17] Cognitive function can be quickly screened using the miniature cognitive (mini-Cog) test,[18] with scores below 3/5 warranting further cognitive assessment.[18,19] Cognitive impairment might necessitate a capacity assessment for informed decision making, and it also increases the risk of postoperative delirium.[19] Physical function can be formally assessed using the ECOG score,[20] whereas dependence during daily activities is typically measured through activities of daily living (ADL).[21]

This information can then be formulated to assess a patient as fit (with a life expectancy greater than 10 years) or unfit (with a life expectancy less than 10 years) for curative treatment.

Another consideration for establishing management intent is that large population studies have demonstrated that the morbidity of treatment varies based on age at surgery.[22] For example, post prostatectomy incontinence and impotence are significantly worse in men aged over 75 years (1 year post prostatectomy: 86% continence, 31% potency vs men aged <65 years: 93.2% continence, 59.3% potency).[22] Given that treatment is not necessarily curative (reduces the risk of metastasis and death, rather than abolishing it),[5] the trade-off between morbidity of treatment and potential therapeutic gain begins to swing towards the former for most patients.

Further considerations must be made for social determinants of health to ensure existing social disadvantages do not propagate further health inequity.[23,24] In the Australian setting, such determinants include geographic access, indigenous status and financial capacity.[25] Given the significant side effects of radical therapy, future research with holistic measures such as disability-adjusted life expectancy will be important to better map these inequities.[23] This will enable such inequities to be addressed by novel healthcare strategies such as eHealth and community-shared care outreach.[26,27]

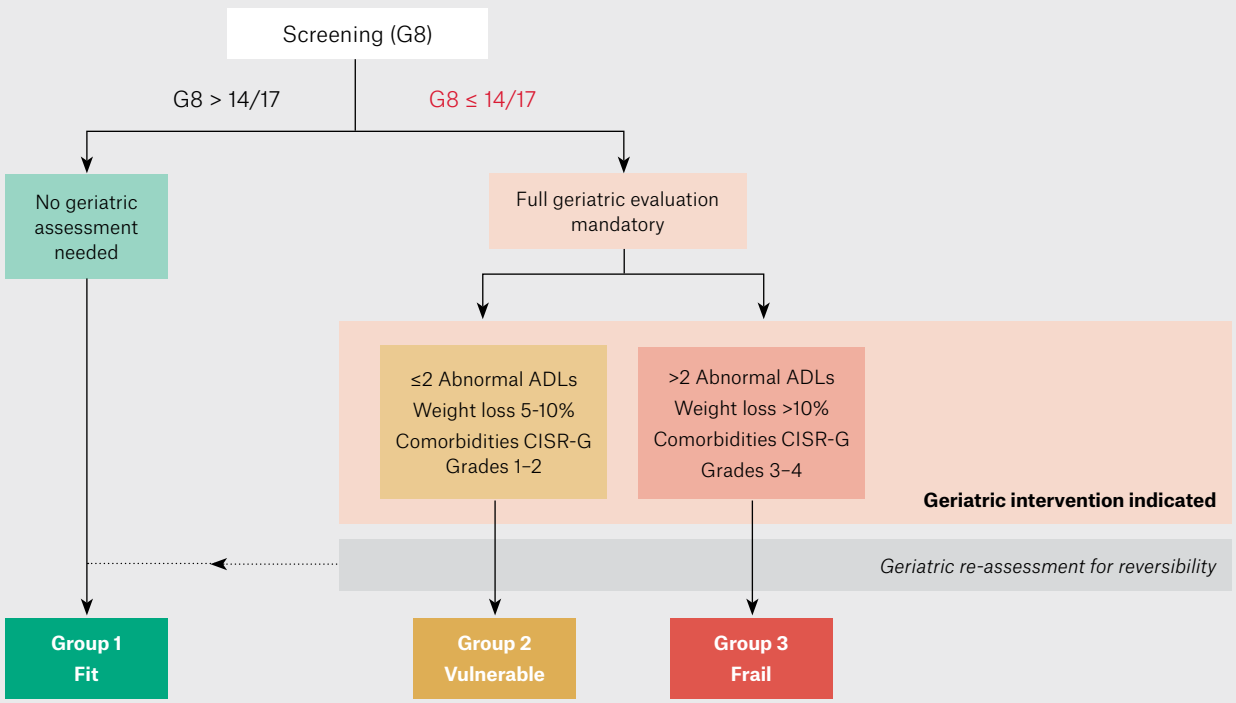

Figure 1. Decision tree for health screening status for men aged >70 years.
ADLs, activities of daily living; CIRS-G, cumulative illness rating score – geriatrics; G8, geriatric 8 questionnaire.
Green, fit; orange, vulnerable; red, frail.

Adapted from Studenski S, Perera S, Patel K, et al. Gait speed and survival in older adults. JAMA 2011;305(1):50–58. doi: 10.1001/jama.2010.1923, with permission from JAMA Network.

Table 1. European Association of Urology guideline recommendations for evaluating health status and life expectancy[2]

Recommendation	Strength rating
Use individual life expectancy, health status and comorbidity in prostate cancer management	Strong
Use the Geriatric 8, mini-COG and Clinical Frailty Scale tools for health status @ screening	Strong
Perform a full specialist geriatric evaluation in patients with a G8 score <14	Strong
Offer symptom-directed therapy alone to frail patients	Strong
Consider standard treatment for vulnerable patients with reversible impairments (after resolution of geriatric problems), similar to fit patients, if life expectancy is >10 years	Weak
Offer adapted treatment to patients with irreversible impairment	Weak

COG, cognition; G8, geriatric 8 questionnaire.

Adapted from the European Association of Urology (EAU) Guidelines. Edition presented at the EAU Annual Congress, Madrid, 2025. Available at https://uroweb.org/guidelines/prostate-cancer, with permission from EAU.[2]

Table 2. Summary of G8 frailty questionnaire

Aspect	Description
Purpose	To identify frail elderly cancer patients who might benefit from a comprehensive geriatric assessment
Origin	Developed by Bellera et al (2012)[10]
Scoring	Range: 0 (heavily impaired) to 17 (not at all impaired)
Cut-off	≤14 points indicates frailty
Time to complete	5–8 minutes
Assessed areas	Nutritional status, mobility, neuropsychological restrictions, polypharmacy, age, subjective health status
Sensitivity	>85% for geriatric frailty
Specificity	>65% for geriatric frailty
Clinical impact	Predicts survival in elderly cancer patients
Limitations	Mainly focused on nutrition, some items have low thresholds, some items are subjective (such as health status)

Ultimately, screening and treatment decision making should be determined by the patient's values, preferences, quality of life, functional abilities and expectations. These factors are particularly important for older and frail patients. Proper shared decision making might also involve family members, especially in cases of cognitive impairment.

Clinical decisions on screening, diagnosis and treatment for PCa should be based on individual life expectancy determined by health status, frailty and comorbidity rather than age alone (with screening cessation recommended at age 70 years, as outlined by urological guidelines; Table 1).[2,28,29] A 10-year life expectancy or greater is accepted as a threshold for the benefit of local treatment.

Older men, especially those aged ≥70 years with frailty (G8 ≤14), should undergo a comprehensive geriatric assessment to determine frailty reversibility and life expectancy to inform appropriate treatment intent of their PCa management.

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Competing interests: None.

Funding: None.

Provenance and peer review: Not commissioned, externally peer reviewed.

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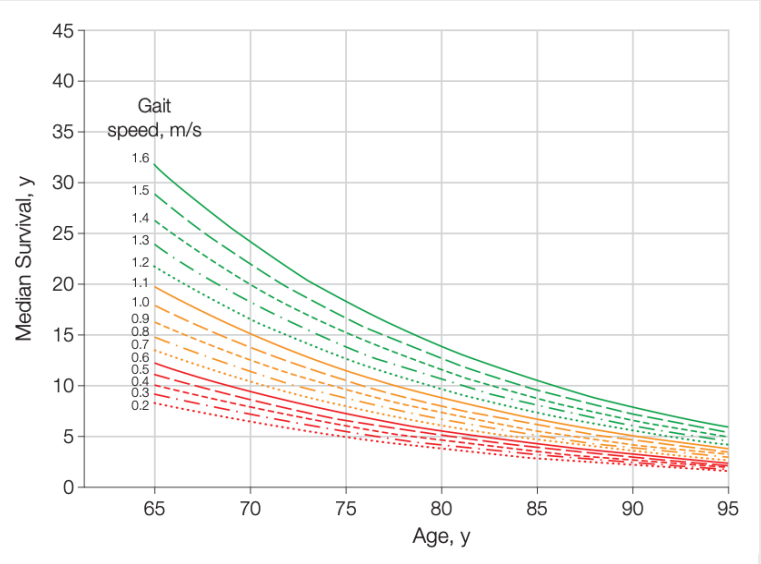

Figure 2. Predicted median life expectancy by age and gait speed for men.[9]

Green, fit; orange, vulnerable; red, frail.

y, years.

Adapted from the European Association of Urology (EAU) Guidelines. Edition presented at the EAU Annual Congress, Madrid, 2025. Available at https://uroweb.org/guidelines/prostate-cancer, with permission from EAU.[2]

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