

The longitudinal primary care of transgender and gender diverse people



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Background

With more transgender and gender diverse (TGD) people affirming their genders, often with gender-affirming hormone therapy (GAHT) – which involves using hormones to help align physical characteristics with an individual's gender identity – there is a growing need for general practitioners who are confident and skilled in providing affirming, ongoing care. This includes support related to not only gender affirmation itself, but also broader health needs such as cardiovascular disease risk management, mental health, bone health, sexual health and wellbeing, and lifestyle factors including smoking, nutrition, alcohol use and physical activity.

Objective

The aim of this article is to emphasise the utility of management planning as a component of the longitudinal care of TGD people's health, and it identifies a selection of factors worth specific attention.

Discussion

The same tools used to manage the longitudinal wellbeing of cisgender (ie their perception of gender aligns with sex presumed at birth) patients may be successfully applied, with a small number of considerations and modifications, to the needs of TGD patients.

INCREASING NUMBERS of Australian transgender and gender diverse (TGD) people are leading affirmed lives, often on gender-affirming hormone therapy (GAHT), and this care is frequently initiated by specialist gender clinics or upskilled general practitioners (GPs), endocrinologists and sexual health physicians, among others. GPs are involved in the longitudinal care of TGD people as a result. This article considers the health of TGD people from a salutogenic perspective rather than the pathogenic model usually used in medicine, as being transgender or gender diverse is not a pathology but part of normal human variation and diversity. Pathogenesis infers disease is a movement or subtraction away from health, whereas salutogenesis suggests that health is not merely the absence of disease but is an increase in health from a baseline,¹ mitigating stressors and strengthening overall health and resilience.² TGD healthcare is primarily salutogenic as a result, supporting our healthy patients to become healthier and more affirmed, rather than conceptualising GAHT and affirmative care as treatment for pathology.

Aim

This article intends to present a condensed overview of preventive and planning activities of particular concern to optimising the long-term health and wellbeing of TGD people, covering a variety of topics within the scope of general practice management planning.

Management planning

Most TGD people, especially those on GAHT, will be eligible for a GP chronic condition management plan (GPCCMP), given gender incongruence, as described in the International classification of diseases, 11th revision (ICD-11), is considered a chronic condition (even though gender diversity is not pathology). Eligibility is per the Medicare Benefits Schedule (MBS) guidelines,³ though if a patient is not eligible, the management plan format can be helpful to collate healthcare provision tasks. Template examples, which may provide a useful framework for a management plan, are available on TransHub under 'Hormonal care basics'.⁴

MBS health assessment items, such as item 701, and Aboriginal and Torres Strait Islander health assessments, such as item 715, may be used where appropriate, alongside heart health assessments (item 699). Inclusion of practice staff, especially nurses,⁵ in the management planning process helps to normalise the process for patients, increases practice exposure to the needs of the TGD population and assists identification of education needs. Education is ideally provided pre-emptively to all staff; for example, The University of Melbourne offers primary care training,⁶ as does the Australian Professional Association for Trans Health (AusPATH).⁷ A summary of the points to consider during holistic care and management planning can be found within Table 1.

Table 1. Summary of longitudinal general practice management considerations for TGD people

Affirmative, supportive and holistic biopsychosocial care	• Use a trauma-informed approach • Consider barriers to accessing or navigating the following, which may be amenable to support via GP (or referral): – Name changes – Education – Occupational supports – Financial supports • Consider the individual needs of each patient without overly valued preconceptions of a 'typical' TGD patient's journey • Consider the role of peer supports, and refer to services (online and regionally, where available) appropriately
Management planning	• TGD people may be eligible for GP chronic condition management plans
CVD risk	• Calculate CVD risk • Monitor for and treat hypertension, if present • Monitor lipids, and treat if elevated
Lifestyle factors	Smoking and vaping • Screen opportunistically for smoking and vaping • Support cessation via motivational interviewing and pharmacotherapy, as appropriate • Consider specific TGD resources, including: – Quit (www.quit.org.au/articles/lgbtiq) – Can We (https://canwe.org.au/staying-healthy/quit-smoking)
	Nutrition • Discuss the role of a nourishing diet in overall health • Refer to affirming accredited dietitians or nutritionists as required
	Alcohol and substance use • Screen opportunistically for alcohol and substance use • Consider use of screening tools, such as Alcohol Use Disorders Identification Test – Consumption (AUDIT-C), CAGE or Alcohol, Smoking and Substance Involvement Screening Test (ASSIST), if appropriate
	Physical activity • Encourage physical activity opportunistically, at any level, emphasising the many positive health benefits • Ideally, support a goal of 150–300 minutes of moderate-intensity activity per week • Consider exercise prescription and resources offered by Exercise is Medicine Australia (https://exerciseismedicine.org.au) • Acknowledge the barriers to physical activity for TGD people, including body image, and support navigating safer options
Sexual health and wellbeing	Fertility and contraception • Discuss fertility plans, and revisit at intervals • Support fertility planning (eg contraception provision, gamete storage or use) • Acknowledge that return to fertility following GAHT is possible for many but may require other specialist supports
	STIs, BBVs and PrEP • Offer sexually active TGD patients screening for STIs and BBVs • Offer appropriate vaccinations (eg hepatitis A, hepatitis B, Mpox, human papillomavirus) • Offer PrEP to eligible patients
Bone health	• Ensure adequate weight-bearing, strength and resistance exercise • Ensure adequate calcium and vitamin D intake • Assess fracture risk at intervals • Maintain GAHT levels to maintain bone health, where GAHT is used • Refer for bone mineral densitometry where appropriate • Prescribe remineralisation therapy where needed

BBV, blood-borne virus; CVD, cardiovascular disease; GAHT, gender-affirming hormone therapy; GP, general practitioner; PrEP, pre-exposure prophylaxis; STI, sexually transmitted infection; TGD, transgender and gender diverse.

Cardiovascular disease risk

Cardiovascular disease (CVD) is a leading cause of death among TGD people. Specific studies on TGD people are limited, and where research exists, it tends to be observational and have a retrospective cohort design with difficulties controlling for variables, often focused on younger groups.

One meta-analysis found that TGD people taking hormone therapy had a 40% increased risk of CVD when compared with cisgender people of the same sex presumed at birth.⁸ This study suggested that transgender women (presumed male at birth and currently taking feminising GAHT) have a 2.2 times elevated risk of venous thromboembolism (VTE), 1.3 times the risk of stroke and roughly equal risk of myocardial infarction (MI) when compared with cisgender men.⁸ For transgender men taking GAHT, the same meta-analysis estimated a 1.3 times increased risk of stroke, 1.7 times risk of MI and 1.4 times risk of VTE when compared with cisgender women.⁸ However, a more recent study published in 2026, which controlled for socioeconomic factors and lifestyle variables, found that GAHT was not associated with increased CVD risk in transgender women, but it was associated with increased CVD risk in transgender men.⁹

Cardiovascular risk can be calculated via the Australian CVD risk calculator (www.cvdcheck.org.au/calculator). It does notably recommend use of sex presumed at birth, noting a current paucity of evidence to stratify differently.¹⁰ The score could be recalculated using affirmed gender, with modifications based on whichever is higher, though this approach is not scientifically validated. Particularly in transgender women taking GAHT, this approach may still underestimate the actual CVD risk. This may need to be taken into consideration when making shared decisions with the patient about clinical management and the risks and benefits of GAHT. The key modifiable risk factors (smoking, lipids and hypertension) can all be addressed to lower overall CVD risk.

Hypertension

Hypertension is prevalent in the transgender and broader population, and it is a major risk factor for kidney disease, stroke, coronary heart disease and myocardial infarction.¹¹ Appropriate recognition and management

is crucial.¹² Lifestyle advice, including nutrition (eg low-sodium diet) and exercise,¹¹ is recommended for all patients (hypertensive or not),¹³ with pharmacotherapy as appropriate. When considering treatment, the usual agents apply.¹³

Hyperlipidaemia

GAHT is associated with lipid homeostasis changes. People on feminising GAHT tend to have increased high-density lipoprotein (HDL) cholesterol and decreased non-HDL cholesterol.¹⁴ Masculinising GAHT tends to elevate non-HDL cholesterol, lower HDL cholesterol and increase triglycerides.¹⁴ As lipid levels guide both risk assessment and treatment decisions, individualised approaches to improving lipid profiles – such as healthy diet, physical activity and lipid-lowering medications, where indicated – can support TGD people in reducing their overall CVD risk.

Smoking, nutrition, alcohol and physical activity

Key components of a social history, and risks for many health conditions, smoking, nutrition, alcohol and physical activity (SNAP)¹⁵ are all valuable to enquire about for the long-term health management of TGD patients. The five As (ask, assess, advise/agree, assist and arrange) apply well anecdotally to TGD patients as with the population as a whole.¹⁵ Some specific points worth considering are outlined as follows.

Smoking and vaping

With higher smoking rates in the TGD community when compared with the general population,¹⁶ enquiring about smoking and vaping is recommended. Smoking and nicotine use present health hazards to all patients, and cessation should be encouraged¹⁷ via brief intervention and motivational interviewing. Few resources are specifically directed towards TGD people and smoking, as listed in Table 1, so personalised discussion with consideration of usual supports and pharmacotherapy would be appropriate.

Nutrition

Nutrition is an important aspect of overall health, including weight management,¹⁷ and should be approached as a component

of overall health and wellbeing. Food and eating is often overlaid with concerns about appearance and shame, with a high prevalence of eating disorders among TGD people.¹⁸ A change in relationship with food and exercise is seen in some TGD patients during the affirmation process,¹⁹ ideally including a positive view of food and eating, and ‘wanting to make this body mine’²⁰ can be a significant positive outcome of affirmative care, with many patients finding motivation in their affirmation to improve diet and exercise in overall pursuit of a more gender-euphoric body.¹⁹ Similarly, many barriers may exist to nutritious food access,²⁰ and pursuit of a ‘healthy’ weight may not align with nutritional wellbeing.²⁰ A weight-neutral discussion of nutrition may be more constructive in the long term.

Few TGD-specific nutritional or dietary recommendations exist, beyond considerations such as bone health and ensuring adequate vitamin D levels,²¹ as an example. Accredited and affirming dietitian or nutritionist advice may support many patients, regardless of comorbidities, to achieve more positive health outcomes.

Alcohol and substance use

Australian data on TGD people’s use of alcohol and other substances are limited, though there is suggestion of higher alcohol and illicit substance use when compared with the general population.²² There is mixed information internationally, suggesting increased alcohol, cannabis and opioid use,²³ though with no significant difference in substance use disorder diagnoses overall.²⁴ Opportunistic screening for alcohol use and other substance use in all age groups should be considered, as well as education on Australian recommendations to minimise alcohol- and substance-related harms. Alcohol and substance use screening may be conversational, during the course of a history, or formal, via a screening tool. The Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) may support practice if a tool is desired. If harmful alcohol or substance use is identified, the issue can be explored more thoroughly with consideration of supports to cut down or cease use if the patient is ready and motivated to change.

Physical activity

Clinicians should encourage optimum levels of exercise because of the spectrum of benefits it confers. Benefits of exercise, in the short term, include improved cognition, reduced anxiety and increased positive sense of wellbeing, with improved academic outcomes noted.²⁵ The long-term effects are numerous: decreased stroke, Alzheimer's disease and diabetes risk; improved blood pressure; reduced risk of some cancers (colon and breast) and physical disability; and increased longevity and happiness.^{25,26}

TGD people, especially transgender women, have lower overall levels of physical activity when compared with the broader population.²⁷ This may be due to a variety of issues, including experiences of transphobia, stigma and discrimination; body image concerns; and the dichotomous female-male divisions in sport.^{27,28} Individual exploration of barriers with a trauma-informed approach when considering exercise and physical activity is suggested to address or avoid the issues specific to the patient.

In the broader population, the recommendations for exercise include getting approximately 150–300 minutes of moderate-intensity exercise (or 75–150 minutes of higher-intensity exercise) per week, as this reduces all-cause mortality.^{25,26} It is also noted that any exercise is an improvement on none at all.²⁵

An excellent resource for exercise prescription and motivational interviewing is Exercise is Medicine Australia (<https://exerciseismedicine.org.au>), which includes a variety of fact sheets aimed at exercise for various health conditions; tools to support assessment of physical activity and risk of complications from commencement (the Adult Pre-exercise Screening System), and behavioural change; prescription templates; and links to Australia's physical activity and sedentary behaviour guidelines.

Mental health

It should not be presumed that all TGD people are living with mental health conditions, although they are more prevalent in TGD people when compared with the general population, including eating disorders, attention deficit hyperactivity disorder and autism spectrum disorder.^{18,29}

There is a dedicated article in this issue of *Australian Journal of General Practice* about providing mental healthcare to TGD people,³⁰ and detailed discussion is beyond the scope of this article.

Sexual health and wellbeing

Sexual health and wellbeing – including fertility, contraception, sexually transmitted infections (STIs) and blood-borne viruses (BBVs) and their prevention, and general sexual satisfaction – are a significant factor in the holistic assessment of any individual's health. Some points to raise and discuss with patients during management planning are outlined in the following sections.

Fertility and contraception

Fertility goals vary considerably between individuals and may change over time, making it important to revisit this topic periodically during routine care. Although a comprehensive discussion is beyond the scope of this article, several considerations warrant attention. Unplanned pregnancy rates are high among transgender men who

were presumed female at birth, underscoring the need for proactive counselling and contraceptive planning.³¹ Importantly, testosterone is teratogenic and should not be relied on as contraception. Evidence from a small study indicates that approximately one-third of amenorrhoeic transgender men using testosterone continued to ovulate, highlighting the ongoing risk of pregnancy despite amenorrhoea.³² Box 1 summarises some additional key issues to consider concerning fertility and contraception for TGD people.

Sexually transmitted infections, blood-borne viruses and pre-exposure prophylaxis

STI and BBV screening should be offered to all sexually active TGD people.³³ A sensitive and trauma-informed approach is recommended.³³ Rates of STIs in TGD people are largely unknown.³³ As with any other patient, offer screening on the basis of risk, sexual behaviours, organs present and patient preference, for example, self-collected vaginal swab or first-pass urine for gonorrhoea and chlamydia screening

Box 1. Considerations for fertility and contraception for TGD people

Contraceptive options

- Consider the sexual behaviours and organs of the patient and the patient's partner or partners, and whether contraception is required.
- Barrier methods still aid in reducing STI transmission.⁴¹
- Feminising GAHT tends to suppress spermatogenesis, but it is not considered adequate contraception alone.⁴¹
- For people with testes, barrier methods, vasectomy and/or partner contraceptive options are useable.^{40–42}
- Masculinising GAHT is not contraceptive even if menses have ceased (ovulation may occur³²).⁴¹ Testosterone is also a teratogen and incompatible with pregnancy.⁴¹
- For people with ovaries/a uterus, barrier methods and all hormonal and non-hormonal methods, including tubal ligation, are useable.^{40–42}

Fertility

- Children are commonly desired among TGD people.⁴⁰
- There are many barriers to having children.⁴³
- Cryopreservation of gametes/embryos is available, though in many cases expensive.⁴³
- There is increasing evidence spermatogenesis,⁴⁴ ovulation and pregnancy⁴⁵ are possible if GAHT is paused, but counselling and fertility preservation prior to GAHT initiation are recommended.⁴⁰

Further resources

- Family Planning Alliance Australia, <https://familyplanningallianceaustralia.org.au/learn>

GAHT, gender-affirming hormone therapy; STI, sexually transmitted infection; TGD, transgender and gender diverse.

for people with a vagina.³³ People with a neovagina should be offered first-pass urine collection for this indication.³³ Specific screening advice can be found within the ‘Trans and gender diverse people’ subsection of the Australian STI Management Guidelines for Use in Primary Care.³³

Preventive activities include offering Mpox,³⁴ hepatitis A and hepatitis B vaccination to TGD people at risk of infection and not vaccinated or known to be immune,³³ with human papillomavirus vaccination catch-up recommended to higher-risk individuals. Pre-exposure prophylaxis (PrEP) for human immunodeficiency virus (HIV) should be offered to those at risk, with a more detailed discussion of prescribing found in other publications³⁵ and in the Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine PrEP guideline.³⁶

Bone health

Bone density on GAHT will generally be stable or improve.³⁷ Baseline bone mineral densitometry may be considered if there has been prolonged hypogonadism (>1 year),³⁷

with follow-up as needed. Hypogonadism may include time on GAHT without adequate serum hormone levels.^{38,39} For TGD people aged 50 years or older, T-scores should use the female normative database.⁴⁰ The reference for Z-score calculation should be that of the individual’s affirmed gender, or for non-binary people, their sex presumed at birth.⁴⁰ An approach to bone health is outlined in Table 2.

Conclusion

A comprehensive management plan, including the factors mentioned within this article as well as GAHT monitoring and cancer screening, permits a positive and salutogenic approach to the health of TGD patients over time.

Key points

- Longitudinal primary care of TGD people is within the scope of GPs.
- GPCCMPs may be useful to support holistic long-term healthcare.
- TGD people may face elevated risk of

- CVD and venous thromboembolism, underscoring the need for heightened attention to hypertension, hyperlipidaemia and other modifiable risk factors.
- SNAP constitute determinants of health that are equally, if not more, salutogenic for TGD people when compared with the wider cisgender population.
 - Bone health may be addressed by review of GAHT, densitometry where needed, and review and/or management of additional risk factors.

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References

References are available online only.

Table 2. An approach to bone health for TGD people

Assess fracture risk	Consider use of one of the two key absolute fracture risk tools, such as the Garvan Bone Fracture Risk Calculator ⁴⁶ (localised to Australia, includes falls as an independent risk factor) or FRAX fracture risk assessment tool ⁴⁷ (likely more robust, though all secondary causes are included as a binary yes/no, and falls are not included)
Maintain hormone levels	For feminising GAHT: serum oestradiol ≥180 pmol/L ⁴⁰ is considered bone-protective For masculinising GAHT: serum testosterone levels >7 nmol/L are likely bone-protective, based on cisgender data ⁴⁰
Densitometry where indicated	Densitometry may be considered if risk factors are present, ⁴⁰ even if not eligible for an MBS rebate
Address modifiable secondary causes	Modifiable secondary causes include: • smoking • glucocorticoid use • alcohol • falls risk
Remineralisation therapy	Prescribe where indicated (privately if not PBS-eligible) Bisphosphonates and denosumab are not gender-locked on the PBS
Review fracture risk	Review risk on a regular basis as a component of care planning

GAHT, gender-affirming hormone therapy; MBS, Medicare Benefits Schedule; PBS, Pharmaceutical Benefits Scheme; TGD, transgender and gender diverse.

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References

- Rojatz D, Nowak P, Bahrs O, Pelikan JM. The application of salutogenesis in primary care. In: Mittelmark MB, Bauer GF, Vaandrager L, et al, editors. *The handbook of salutogenesis*. Springer International Publishing; 2022; p. 419–32. Available at https://link.springer.com/10.1007/978-3-030-79515-3_38 [Accessed 30 March 2025].
- Bhattacharya S, Pradhan KB, Bashar MA, et al. Salutogenesis: A bona fide guide towards health preservation. *J Family Med Prim Care* 2020;9(1):16–19. doi: 10.4103/jfmpc.jfmpc_260_19.
- Services Australia. GP chronic condition management plans. Services Australia; 2025. Available at www.servicesaustralia.gov.au/mbs-billing-rules-for-gp-chronic-condition-management-plans?context=20 [Accessed 27 September 2025].
- TransHub. Hormonal care basics. TransHub; 2025. Available at www.transhub.org.au/clinicians/hormonal-care-basics [Accessed 22 December 2025].
- Ziegler E, Slotnes-O'Brien T, Peters MDJ. Cancer screening and prevention in the transgender and gender diverse population: Considerations and strategies for advanced practice nurses. *Semin Oncol Nurs* 2024;40(3):151630. doi: 10.1016/j.soncn.2024.151630.
- The University of Melbourne. Primary health care for trans gender diverse nonbinary people. The University of Melbourne; 2021. Available at <https://catalog.lms.unimelb.edu.au/browse/communities/courses/primary-health-care-for-trans-gender-diverse-nonbinary-people> [Accessed 22 December 2025].
- Australian Professional Association for Trans Health (AusPATH). E-learning module: Trans primary care. AusPATH; 2021. Available at <https://auspath.org.au/2021/06/13/e-learning-module-trans-incl-gender-diverse-and-non-binary-primary-care> [Accessed 22 December 2025].
- van Zijverden LM, Wiepjes CM, van Diemen JJK, Thijs A, den Heijer M. Cardiovascular disease in transgender people: A systematic review and meta-analysis. *Eur J Endocrinol* 2024;190(2):S13–24. doi: 10.1093/ajnd/190.2.S13.
- van Zijverden LM, Thijs A, van Diemen JJK, Wiepjes CM, den Heijer M. Transgender persons receiving gender-affirming hormone therapy: Risk of acute cardiovascular events in a Dutch cohort study. *Eur Heart J* 2026;47(21):2660–69. doi: 10.1093/eurheartj/ehaf837.
- Nelson MR, Banks E, Brown A, et al. 2023 Australian guideline for assessing and managing cardiovascular disease risk. *Med J Aust* 2024;220(9):482–90. doi: 10.5694/mja2.52280.
- Hanssen H, Boardman H, Deiseroth A, et al. Personalized exercise prescription in the prevention and treatment of arterial hypertension: A consensus document from the European Association of Preventive Cardiology (EAPC) and the ESC Council on Hypertension. *Eur J Prev Cardiol* 2022;29(1):205–15. doi: 10.1093/eurjpc/zwaa141.
- Schutte AE, Bennett B, Chow CK, et al. National hypertension taskforce of Australia: A roadmap to achieve 70% blood pressure control in Australia by 2030. *Med J Aust* 2024;221(3):126–34. doi: 10.5694/mja2.52373.
- National Heart Foundation of Australia. Guideline for the diagnosis and management of hypertension in adults. National Heart Foundation of Australia; 2016.
- Masumori N, Nakatsuka M. Cardiovascular risk in transgender people with gender-affirming hormone treatment. *Circ Rep* 2023;5(4):105–13. doi: 10.1253/circrep.CR-23-0021.
- The Royal Australian College of General Practitioners (RACGP). Smoking, nutrition, alcohol, physical activity (SNAP). 2nd edn. RACGP; 2015. Available at www.racgp.org.au/clinical-resources/clinical-guidelines/key-racgp-guidelines/view-all-racgp-guidelines/snap [Accessed 29 March 2025].
- Riley KE, Jabson Tree JN, Giles M, El-Sharkawy K, Hall E, Valera P. Smoking cessation interventions for LGBT populations: A scoping review and recommendations for public health. *Ann LGBTQ Public Popul Health* 2023;4(1):51–74. doi: 10.1891/LGBTQ-2020-0009.
- Cheung AS, Wynne K, Erasmus J, Murray S, Zajac JD. Position statement on the hormonal management of adult transgender and gender diverse individuals. *Med J Aust* 2019;211(3):127–33. doi: 10.5694/mja2.50259.
- Hay P, Aouad P, Le A, et al; National Eating Disorder Research Consortium. Epidemiology of eating disorders: Population, prevalence, disease burden and quality of life informing public policy in Australia—a rapid review. *J Eat Disord* 2023;11(1):23. doi: 10.1186/s40337-023-00738-7.
- Pham A, Kerman H, Albertson K, Crouch JM, Inwards-Breland DJ, Ahrens KR. Understanding the complex relationship between one's body, eating, exercise, and gender-affirming medical care among transgender and nonbinary adolescents and young adults. *Transgend Health* 2023;8(2):149–58. doi: 10.1089/trgh.2021.0112.
- Linsenmeyer W, Heiden-Rootes K, Drallmeier T, Thomure M, Nye E, Armstrong E. Nutrition and exercise as a 'source of empowerment': A narrative inquiry of transgender men. *SSM Qual Res Health* 2022;2:100128. doi: 10.1016/j.ssmqr.2022.100128.
- Nolan BJ, Cheung AS. Gender-affirming hormone therapy for transgender and gender-diverse adults in Australia. *Intern Med J* 2024;54(9):1450–57. doi: 10.1111/imj.16413.
- Australian Institute of Health and Welfare (AIHW). National Drug Strategy Household Survey 2022–2023: LGBT people's use of alcohol, tobacco, e-cigarettes and other drugs. AIHW; 2024. Available at www.aihw.gov.au/reports/lgbtiq-communities/lgbt-people-alcohol-drugs [Accessed 22 December 2025].
- Hughto JMW, Quinn EK, Dunbar MS, Rose AJ, Shireman TI, Jasuja GK. Prevalence and co-occurrence of alcohol, nicotine, and other substance use disorder diagnoses among US transgender and cisgender adults. *JAMA Netw Open* 2021;4(2):e2036512. doi: 10.1001/jamanetworkopen.2020.36512.
- Cotaina M, Peraire M, Boscá M, Echeverría I, Benito A, Haro G. Substance use in the transgender population: A meta-analysis. *Brain Sci* 2022;12(3):366. doi: 10.3390/brainsci12030366.
- Crookham J. A guide to exercise prescription. *Prim Care* 2013;40(4):801–20. doi: 10.1016/j.pop.2013.08.002.
- Lucini D, Pagani M. Exercise prescription to foster health and well-being: A behavioral approach to transform barriers into opportunities. *Int J Environ Res Public Health* 2021;18(3):968. doi: 10.3390/ijerph18030968.
- Lightner JS, Schneider J, Grimes A, et al. Physical activity among transgender individuals: A systematic review of quantitative and qualitative studies. In: Chan ASW, editor. *PLOS ONE* 2024;19(2):e0297571. doi: 10.1371/journal.pone.0297571.
- Pattinson EM, Newman HJH, Kiemle-Gabbay LR. Challenges accessing physical activity from a transgender perspective: A systematic review. *Sport Exerc Psychol Rev* 2022;17(2):19–35. doi: 10.53841/bpssepr.2022.17.2.19.
- Bretherton I, Thrower E, Zwickl S, et al. The health and well-being of transgender Australians: A national community survey. *LGBT Health* 2021;8(1):42–49. doi: 10.1089/lgbt.2020.0178.
- Russell D. Providing mental healthcare to LGBTQIA+ people in general practice. *Aust J Gen Pract* 2026;55(10):673–76. doi: 10.31128/AJGP-10-25-7868.
- Thornton KGS, Mattatall F. Pregnancy in transgender men. *CMAJ* 2021;193(33):E1303–1303. doi: 10.1503/cmaj.210013.
- Asseler JD, Del Valle JS, Chuva de Sousa Lopes SM, et al. One-third of amenorrheic transmasculine people on testosterone ovulate. *Cell Rep Med* 2024;5(3):101440. doi: 10.1016/j.xcrm.2024.101440.
- Ong JJ, Bourne C, Dean JA, et al. Australian sexually transmitted infection (STI) management guidelines for use in primary care 2022 update. *Sex Health* 2022;20(1):1–8.
- Australian Centre for Disease Control. Mpox (previously known as monkeypox). The Australian Immunisation Handbook. Commonwealth of Australia, Department of Health, Disability and Ageing; 2024. Available at <https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/mpox-previously-known-as-monkeypox> [Accessed 17 June 2026].
- Bhatti O, So D, Zahid MA, Cornelisse VJ. Prescribing pre-exposure prophylaxis in general practice. *Aust J Gen Pract* 2021;50(7):479–82. doi: 10.31128/AJGP-02-21-5829.
- Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine (ASHM). Prevent HIV by prescribing PrEP. ASHM; 2019. Available at <https://prepguidelines.com.au> [Accessed 29 March 2025].
- Rosen HN, Hamnvik OR, Jaisamrarn U, et al. Bone densitometry in transgender and gender non-conforming (TGNC) individuals: 2019 ISCD official position. *J Clin Densitom* 2019;22(4):544–53. doi: 10.1016/j.jocd.2019.07.004.
- Reginster JY, Sarlet N, Deroisy R, Albert A, Gaspard U, Franchimont P. Minimal levels of serum estradiol prevent postmenopausal bone loss. *Calcif Tissue Int* 1992;51(5):340–43. doi: 10.1007/BF00316876.
- Lindsay R. Hormone replacement therapy for prevention and treatment of osteoporosis. *Am J Med* 1993;95(5A):37–39. doi: 10.1016/0002-9343(93)90380-8.
- Australian Professional Association for Trans Health (AusPATH). Australian standards of care for informed consent gender-affirming hormone therapy. Version 2. AusPATH; 2025. Available at <https://auspath.org.au/standards-of-care> [Accessed 22 December 2025].
- The Faculty of Sexual and Reproductive Healthcare (FSRH). Clinical Effectiveness Unit. FSRH CEU Statement: Contraceptive choices and sexual health for transgender and non-binary people. The Faculty of Sexual and Reproductive Healthcare of the Royal College of Obstetricians & Gynaecologists; 2017. Available at www.fsrh.org/Common/Uploaded%20files/documents/contraceptive-choices-and-sexual-health-for-transgender-non-binary-people-oct-2017.pdf [Accessed 29 March 2025].
- Australasian Society for HIV, Viral Hepatitis and Sexual Health Medicine (ASHM). Decision making in gender affirming contraception: Consultation essentials. ASHM; 2025. Available at <https://ashm.org.au/resources/decision-making-in-gender-affirming-contraception-consultation-essentials> [Accessed 22 December 2025].

43. Stolk THR, Asseler JD, Huirne JAF, van den Boogaard E, van Mello NM. Desire for children and fertility preservation in transgender and gender-diverse people: A systematic review. *Best Pract Res Clin Obstet Gynaecol* 2023;87:102312. doi: 10.1016/j.bpobgyn.2023.102312.
44. de Nie I, van Mello NM, Vlahakis E, et al. Successful restoration of spermatogenesis following gender-affirming hormone therapy in transgender women. *Cell Rep Med* 2023;4(1):100858. doi: 10.1016/j.xcrm.2022.100858.
45. Hassan A, Perini J, Khan A, Iyer A. Pregnancy in a transgender male: A case report and review of the literature. *Case Rep Endocrinol* 2022;2022:6246867. doi: 10.1155/2022/6246867.
46. Garvan Institute of Medical Research. Bone fracture risk calculator. Garvan Institute of Medical Research, 2025. Available at www.garvan.org.au/research/bone-fracture-risk-calculator [Accessed 29 March 2025].
47. Centre for Metabolic Bone Diseases. FRAX® fracture risk assessment tool. Osteoporosis Research Ltd, 2025. Available at <https://frax.shef.ac.uk/FRAX/tool.aspx?country=31> [Accessed 29 March 2025].