When should I perform an examination?
A physical examination including male children and adolescents is vital for the detection of conditions such as testicular cancer, Klinefelter syndrome, penile and hormonal abnormalities.

How do I approach an examination with young patients?
Good communication can assist the process of physical examinations with children and adolescents.
- Communicate with both the patient and his parents, using simple language and visual aids if available
- Explain why you need to perform the examination and ask for permission to proceed
- Allow the patient to ask questions and express any discomfort before/during the examination
- When it seems appropriate, humour can be used (particularly with children) to reduce anxiety, foster rapport and improve cooperation before or during the examination
- If you refer the patient to another specialist, take the time to explain why, and what may be involved

Childhood history and examination

Presentation with acute testicular pain
- Testicular torsion
- Refer immediately for evaluation for possible surgery

History
- Undescended testes (increased risk of testicular cancer, and associated with inguinal hernia)
- Inguinal-scrotal surgery or hypospadias

Testicular examination
- Undescended testes
- Testicular volume: Normal childhood (pre-pubertal) range of testicular volume is ≤ 3 mL

Penile examination
- Hypospadias
- Micropenis

When is it best to perform an examination?
1. Part of a standard health check-up with new or existing patients
2. On presentation of relevant disorders or symptoms, including:

Risk Factor | Associated disorder
--- | ---
Undescended testes as an infant | Testicular cancer
Delayed puberty | Androgen deficiency
Gynecomastia | Androgen deficiency, Klinefelter syndrome, Testicular cancer
Past history of testicular cancer | Testicular cancer
Acute testicular - groin pain | Testicular cancer
Testicular pain or lumps | Testicular torsion

Adolescent history and examination

Presentation with acute testicular pain
- This is a medical emergency
- Later follow up review (e.g. epididymo-orchitis)

History
- Undescended testes
- Pubertal development
- Testicular trauma, lump, cancer
- Gynecomastia
- Prior inguinal-scrotal surgery or hypospadias

Testicular examination
- Testicular volume
  - Normal pubertal range is 4-14 mL
  - < 4 mL by 14 years indicates delayed or incomplete puberty
  - Small testes (< 4 mL) may suggest Klinefelter syndrome
- Adult testis size is established after completion of puberty
- Scrotal and testicular contents
  - Abnormalities in texture or hard lumps (tumour or cyst)

Penile examination
- Hypospadias
- Micropenis
- Infections (STI) or inflammation
- Foreskin: balanitis, phimosis

Examination of secondary sexual characteristics
- Gynecomastia: excessive and/or persistent breast development
- Delayed puberty (average onset is 12-13 years). Indicators:
  - Short stature compared to family, with reduced growth velocity
  - Absent, slow or delayed genital and body hair development compared to peers
  - Anxiety, depression, school refusal, or behaviour change in school years 8-10 (age 14-16 years)
Puberty: delayed onset or poor progression

Presentation
- Short stature compared to family
- Absent, slow or delayed genital development
- Anxiety, depression, school refusal, behaviour change

(s) Other features
- Headache/visual change (CNS lesions)
- Inability to smell (Kallmann's syndrome)
- Behavioural or learning difficulty (47,XXY)
- Unusual features (rare syndromes)

Primary investigations
- Growth chart in context of mid parental expectation (velocity, absolute height)
- Penile size (standard growth chart)
- Testicular volume (> 4 mL: puberty imminent)
- Bone age

Specific investigations
- LH/FSH (may be undetectable in early puberty, but if raised can be useful)
- Total testosterone level (rises with onset of puberty)
- Karyotype (if suspicion of 47,XXY)

General investigations
- U&E, FBE & ESR, coeliac screen, TFT

Treatment and specialist referral
- If all normal for prepubertal age, observe for 6 months
- Refer to paediatric endocrinologist if patient is >14.5 years without pubertal onset and/or a specific abnormality

Clinical notes: Precocious puberty (very rare) is indicated by premature/early onset of pubic hair and testes > 4 mL before 10 years. Refer to paediatric endocrinologist.

Klinefelter Syndrome (47,XXY)

Presentation
- Small testes < 4 mL characteristic from mid puberty
- Presentation varies with age, and is often subtle
- Behavioural and learning difficulties
- Gynecomastia (adolescence)
- Poor pubertal progression (adolescence)

Investigations
- Total testosterone level (androgen deficiency)
- LH/FSH level (both elevated)
- Karyotype

Treatment and specialist referral
- Refer to paediatric endocrinologist
- Refer for educational and allied health assistance if needed

Refer to Clinical Summary Guide 10: Klinefelter Syndrome

Testicular mass

Presentation
- Painless lump
- Self report, incidental
- Past history undescended testes (cancer risk)
- Consider possibility of epididymal cyst

Primary investigations
- Testicular ultrasound

Treatment and specialist referral
- Refer to uro-oncologist
- Offer pre-treatment sperm cryostorage

Refer to Clinical Summary Guide 6: Testicular Cancer

Penile abnormality

Presentation
- Hypospadias
- Micropenis
- Phimosis

Treatment and specialist referral
- Refer to urologist for investigation and treatment plan
- Refer to paediatric endocrinologist for investigation of micropenis

Gynecomastia

Presentation in adolescence
- Excessive and/or persistent breast development
- More prominent in obesity
- Often normal, resolves over months

Rare secondary causes:
- Hypothalamic pituitary lesions
- Adrenal/testis lesions (oestrogen excess)

Treatment and specialist referral
- If persistent or acute onset, refer to paediatric endocrinologist

Refer to Clinical Summary Guide 6: Testicular Cancer