



BAPS | British Association of
Paediatric Surgeons

BAPU
PROMOTING EXCELLENCE
IN PAEDIATRIC UROLOGY



2015

Commissioning guide:

Paediatric orchidopexy for undescended testis

Commissioned and facilitated by



East Midlands Strategic Clinical Networks



Sponsoring Organisation: British Association of Paediatric Surgeons

Date of evidence search: February 2014

Date of publication: July 2015

Date of Review: July 2018



NICE has accredited the process used by Surgical Speciality Associations and Royal College of Surgeons to produce its Commissioning guidance. Accreditation is valid for 5 years from September 2012. More information on accreditation can be viewed at www.nice.org.uk/accreditation

Commissioning guide 2015

Paediatric Orchidopexy for undescended testis

Contents

Introduction	2
Timing of surgery	2
1. High Value Care Pathway for Orchidopexy in the undescended testes	3
1.1 Primary care.....	3
1.2 Secondary and Tertiary Care	3
2. Procedures explorer for the provision of orchidopexy for an undescended testis	5
3. Quality dashboard for the provision of orchidopexy for an undescended testes	6
4. Levers for implementation	6
4.1 Audit and peer review measures.....	6
4.2 Quality Specification/CQUIN	7
5. Directory	7
5.1 Patient Information	7
5.2 Clinician information	8
6. Benefits and risks of implementing this guide	8
7. Further information	9
7.1 Research recommendations	9
7.2 Other recommendations	9
7.3 Evidence base	9
7.4 Guide development group for Orchidopexy.....	12
7.5 Funding statement.....	13
7.6 Conflict of interest statement	13

The Royal College of Surgeons of England, 35-43 Lincoln's Inn Fields, London WC2A 3PE

Commissioning guide 2015

Paediatric Orchidopexy for undescended testis

Introduction

The undescended testis presents in a bimodal fashion with the majority at birth, however an additional significant number are diagnosed during childhood – the ‘ascending testis’ in whom the testis was initially located in the scrotum¹⁻⁴.

At term undescended testes occur in 3-5% male infants but in the majority the testis reaches its normal scrotal position by 3 months of age⁵⁻⁶. A significant number of boys have a retractile testis of which a proportion will become an undescended testis⁷⁻⁸.

Annually in England there are around 6,000 elective orchidopexies for undescended testes⁹. In 1994/95 75% were performed in DGHs but by 2004/05 only 50% were managed by a local DGH and in the East Midlands in 2012/13 around 75% of orchidopexies were performed in one of the two specialised Paediatric Surgical Units⁹⁻¹⁰.

Patients and their families will benefit from assessment and surgery performed locally with selected appropriate referral to a tertiary paediatric surgical centre. Children should receive surgery in a safe, appropriate environment, which is as close to their home as possible¹²⁻¹³.

This is not intended as a guide for management of patients requiring an emergency scrotal exploration for suspected testicular torsion.

Timing of surgery

The present evidence indicates that spontaneous descent of an undescended testis does not occur after 3 months, and that germ cell loss is preventable with early surgery.⁴⁵

In a child with an undescended testis the maldevelopment of germ cells has been linked with a higher risk of infertility^{41,42} and malignancy^{43,44} within the testis later in life.

In 2012 the British Association of Paediatric Urologists argued that undescended testes should be operated on between 3 and 12 months of age¹¹.

The surgical requirement for early operating on these children is tempered by the increased anaesthetic risk with children under 1 year.³⁵

Commissioning guide 2015

Paediatric Orchidopexy for undescended testis

The present evidence argues that spontaneous descent of an undescended testis does not occur after 3 months, and that germ cell loss is preventable with early surgery and early surgery is safe and reproducible.⁴⁵

The British Association of Paediatric surgeons, British Association of Paediatric Urology Surgeons, Association of Paediatric Anaesthetists and the UK National Screening Committee, have reviewed the evidence about timing of surgery and potential anaesthetic risk and have arrived at a consensus of opinion that surgery should occur around 12 months of age.

1. High Value Care Pathway for Orchidopexy in the undescended testes

1.1 Primary care

- All male infants should be assessed for testicular maldescent according to UK National Screening Committee Standards for 'Newborn and Infant Physical Examination'. This requires checks at 72 hours, 6-8 weeks postnatal examination^{14,34}
- If the testis is undescended the patient should be referred to a Consultant general paediatric surgeon or urologist with appropriate experience and skills¹⁵
- Patients should not be referred routinely to a paediatrician
- Imaging with ultrasound is not indicated¹⁶⁻¹⁷
- Patients with non-palpable testes should be referred to secondary or tertiary paediatric surgical service for assessment²⁰⁻²²
- Patients with associated penile abnormalities should be referred to a Tertiary Unit for specialist paediatric surgical assessment¹⁸⁻¹⁹
- In older boys retractile testis can be manipulated into the scrotum and remain there but require follow up due to a 3-20% risk of permanent ascension⁷⁻⁸. Follow up can be carried out in primary or secondary care
- Parents and carers should be provided with relevant information and action plan

1.2 Secondary and Tertiary Care

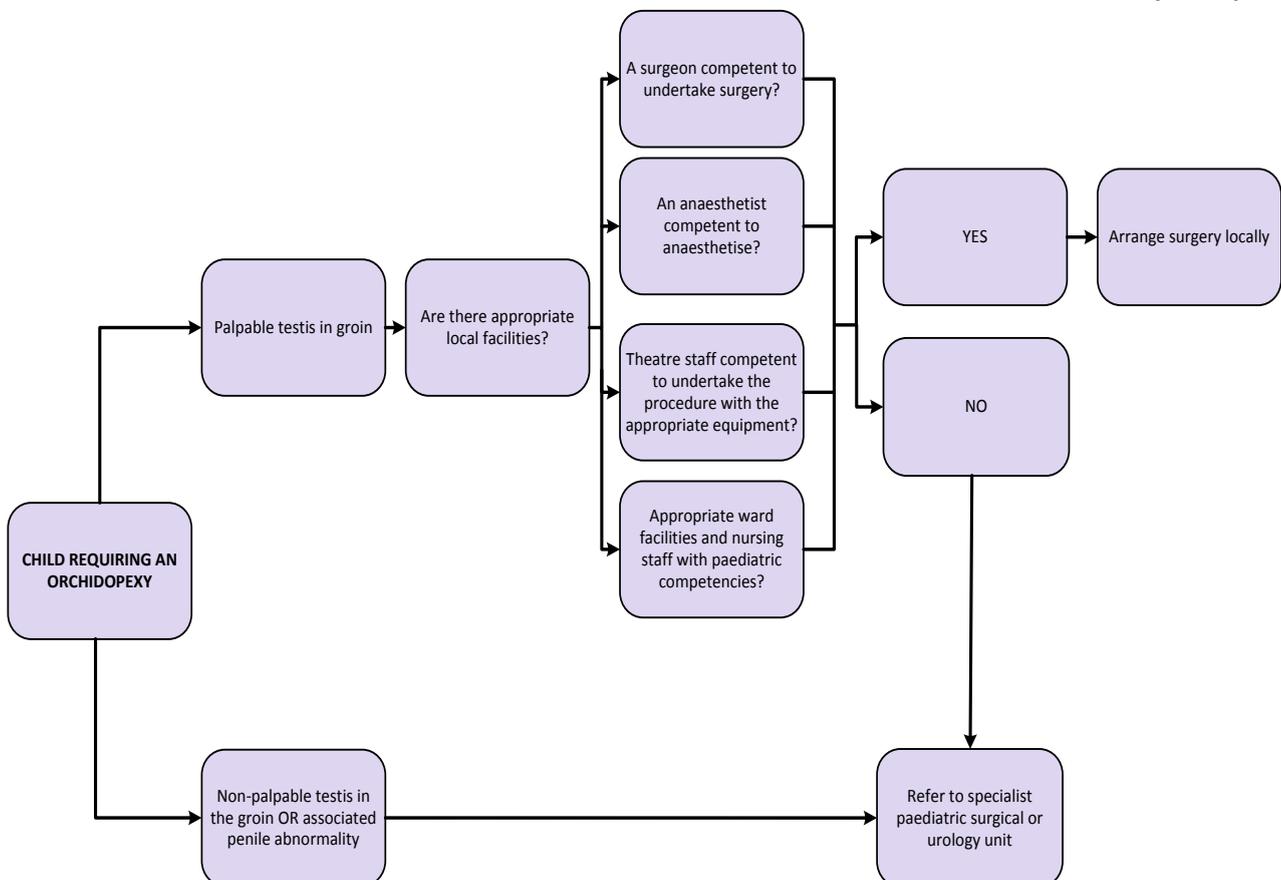
- Care should be provided within a managed clinical network of secondary and tertiary care providers

Commissioning guide 2015

Paediatric Orchidopexy for undescended testis

- GP referrals should be seen and assessed by aged 6 months - there is evidence that early orchidopexy benefits the testis^{15, 23-25}
- Imaging, including ultrasound is not indicated prior to surgery but consideration should be given to any pre-assessment requirements
- Infants with a non-palpable testis require laparoscopy and should be referred to a Tertiary Unit^{20, 22, 31}
- If orchidopexy is indicated it should be performed around 12 months of age^{15,26,27}
- Patient information should be given to parents or carers prior to surgery
- The majority of cases can be performed as a day-case procedure²⁸⁻³⁰
- Children must be cared for in an appropriate child friendly environment
- Children undergoing surgery must have a pain management plan on discharge
- There should be defined arrangements for emergency transfers
- All staff who come into contact with children and young people are trained in safeguarding to an appropriate level as defined in the intercollegiate framework *Safeguarding Children and Young people: roles and competences for health care staff*^{32,33}

Secondary care pathway



Commissioning guide 2015

Paediatric Orchidopexy for undescended testis

2. Procedures explorer for the provision of orchidopexy for an undescended testis

Users can access further procedure information based on the data available in the quality dashboard to see how individual providers are performing against the indicators. This will enable CCG's to start a conversation with providers who appear to be 'outliers' from the indicators of quality that have been selected.

The Procedures Explorer Tool is available via the [Royal College of Surgeons](http://www.rcs.org) website.



The screenshot shows activity for orchidopexies across England, for patients under 17 years in the year July 2013 to June 2014.

The OPCS and ICD-10 codes used to capture data on orchidopexy are:

Primary OPCS:

N08: Bilateral placement of testes in scrotum

N09: Other placement of testes in scrotum

Secondary OPCS:

N/A

Primary ICD-10:

Q53: Undescended testicle

Commissioning guide 2015

Paediatric Orchidopexy for undescended testes

3. Quality dashboard for the provision of orchidopexy for an undescended testes

The quality dashboard provides an overview of activity commissioned by CCGs from the relevant pathways, and indicators of the quality of care provided by surgical units.

The quality dashboard is available via the [Royal College of Surgeons website](#).

4. Levers for implementation

4.1 Audit and peer review measures

The following measures and standards are those expected. Evidence should be able to be made available to commissioners if requested.

	Measure	Standard
Primary care	Assessment	All male infants assessed at 72 hours and 6-8 week postnatal examinations
	Referral	To secondary/tertiary care by 6 months of age
Secondary/ Tertiary care	Organisation	Patient care is delivered through a managed clinical network of secondary and tertiary care providers
	Intervention	Orchidopexy performed around 12 months of age
		Surgery performed as a day-case procedure
	Patient experience	Provider demonstrates collection and monitoring of parent/carer feedback
	Network audits	Participation in regional audits

Commissioning guide 2015

Paediatric Orchidopexy for undescended testis

4.2 Quality Specification/CQUIN

Commissioners may wish to include the following measures in the Quality Schedule with providers. Improvements could be included in a discussion about a local CQUIN.

Measure	Description	Data specification (if required)
Age	Age at time of procedure	HES
Day case	Provider demonstrates > 90% (excluding those with co-morbidities)	HES

5. Directory

5.1 Patient Information

Name	Publisher	Link
Orchidopexy for a palpable testicle	British Association of Paediatric Surgeons (BAPS)	www.baps.org.uk/resources/documents/orchidopexy-for-a-palpable-testicle/
Orchidopexy	British Association of Urological Surgeons (BAUS)	www.baus.org.uk/Resources/BAUS/Documents/PDF%20Documents/Patient%20information/Orchidopexy.pdf
Undescended testes	Patient.co.uk	www.patient.co.uk/health/undescended-testes
Undescended testicles	NHS Choices	www.nhs.uk/Conditions/undescendedtesticles/Pages/Introduction.aspx

Commissioning guide 2015

Paediatric Orchidopexy for undescended testis

5.2 Clinician information

Name	Publisher	Link
Standards for Children's Surgery - 2013	Children's Surgical Forum (RCSEng)	www.rcseng.ac.uk/publications/docs/standards-in-childrens-surgery
Surgery for Children: Delivering a First Class Service- 2011	Children's Surgical Forum (RCSEng)	www.rcseng.ac.uk/publications/docs/CSF.html
Guidance for Provision of Paediatric Anaesthesia	Royal College of Anaesthetists	www.rcoa.ac.uk/gpas2014
Management of pain in children	College of Emergency Medicine	www.collemergencymed.ac.uk/Shop-Floor/Clinical%20Guidelines/College%20Guidelines/
Newborn and Infant Physical Examination: Standards and competencies-2008 <i>(Pending changes)</i>	UK National Screening Committee	http://newbornphysical.screening.nhs.uk/standards

6. Benefits and risks of implementing this guide

Consideration	Benefit	Risk
Patient outcome	<ul style="list-style-type: none"> • Ensure access to effective and timely local clinical management • Improve fertility • Reduce risk of later malignancy 	<ul style="list-style-type: none"> • Patients unnecessarily referred to tertiary centres
Patient safety	<ul style="list-style-type: none"> • Patients have access to appropriate surgical care where needed • Reduce risk of complications • Avoid late referrals 	<ul style="list-style-type: none"> • Unnecessary referral and examinations
Patient experience	<ul style="list-style-type: none"> • Improve access to parent/carer information 	
Equity of access	<ul style="list-style-type: none"> • Improve access to effective 	<ul style="list-style-type: none"> • Patients and carers required to travel greater distances to receive

Commissioning guide 2015

Paediatric Orchidopexy for undescended testis

	procedures	care
Resource impact	<ul style="list-style-type: none"> Reduce unnecessary referral and investigations 	<ul style="list-style-type: none"> Resource required to maintain and establish managed clinical networks Lack of infrastructure to support secondary care

7. Further information

7.1 Research recommendations

- Does orchidopexy around 1 year of age improve fertility?
- Does orchidopexy around 1 year of age reduce the incidence of malignancy?
- Incidence of ascending testis requiring orchidopexy

7.2 Other recommendations

- Establishment and maintenance of general paediatric surgery (GPS) managed clinical networks

7.3 Evidence base

- Berkowitz GS, Lapinski RH, Dolgin SE et al. 1993. Prevalence and natural history of cryptorchidism. *Pediatrics*; 92:44-9
- Scorer CG. 1964. The descent of the testis. *Arch Dis Child*; 39:605.
- Sijstermans K, Hack WW, Meijer RW, et al. 2008. The frequency of undescended testis from birth to adulthood: a review. *Int J Androl*; 31:1
- Guven A, Kogan BA. 2008. Undescended testis in older boys: further evidence that ascending testes are common. *J Paeds Surg*; 143(9):1700-4.
- Hutson JM, Clarke MC. 2007 Current management of the undescended testicle. *Semin Pediatr Surg*; 16(1) 64-70
- Wenzler D.L., Bloom D.A., Park J.M. 2004. What is the rate of spontaneous testicular descent in infants with cryptorchidism? *J Urol*; 171(2)849-851.
- Keys. C, Heloury. Y. 2012 Retractable testes: a review of the current literature. *J Pediatr Urol*; 8(1)2-6
- Stec AA, Thomas JC et al. 2007. Incidence of testicular ascent in boys with retractile testis. *J Urol*; 178 (4) 1722-4
- Trends in Children's Surgery 1994-2005: Evidence from Hospital Episode Statistics Data. 2007. *Cochrane & Tanner*
http://webarchive.nationalarchives.gov.uk/20070506093704/dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsStatistics/DH_066322
- Dr Foster East Midlands Data <http://drfosterintelligence.co.uk/>

Commissioning guide 2015

Paediatric Orchidopexy for undescended testis

11. BAPU consensus document. 2012 <http://www.bapu.org.uk/documents/consensus/>
12. Children's Surgical Forum. 2010. Ensuring the provision of general paediatric surgery in the district general hospital: Guidance to commissioners and service planners. *Royal College of Surgeons* http://www.rcseng.ac.uk/publications/docs/general-paediatric-surgery-guidance/download/pdf/guidance_GPS_2010.pdf
13. Surgery for children: Delivering a first class service. 2007. *Royal College of Surgeons* <http://www.rcseng.ac.uk/publications/docs/CSF.html/@@download/pdf/CSF.pdf>
14. Ritzen, EM. 2008. Undescended testes: a consensus on management. *Eur J Endocrinol*; 159:87-90
15. McCabe JE, Kenny SE. 2008. Orchidopexy for undescended testis in England: is it evidence based? *J Pediatric Surg.*; 43(2):353-7
16. Hrebink RL, Bellinger MF. 1993. The limited role of imaging techniques in managing children with undescended testes. *J Urol*; 150:458.
17. Elder JS. 2002. Ultrasonography is unnecessary in evaluating boys with a nonpalpable testis. *Pediatrics*; 110:748.
18. Kaefer M, Diamond D et al. 1999. The incidence of intersexuality in children with cryptorchidism and hypospadias: stratification based on gonadal palpability and meatal position. *J Urol*; 162:1003-6
19. Iwatsuki S, Kojima Y. et al. 2011. Endocrine assessment of prepubertal boys with a history of cryptorchidism and/or hypospadias: a pilot study. *Journal of Urology*; 185(6):2444-50
20. Elyas R, Guerra LA. et al. 2010. Is staging beneficial for Fowler-Stephens orchiopexy? A systematic review. *Journal of Urology*; 183(5):2012-8.
21. Singh RR, Rajimwale A, Nour S. 2011. Laparoscopic management of impalpable testes: comparison of different techniques. *Pediatric Surgery International*; 27(12):1327-30.
22. Comloj E., Mian M. et al. 2011. Single-vs. Two-stage fowler-stephens orchidopexy: Are two operations better than one? A retrospective, single-institution critical analysis. *Current Urology*; 5 (1) 12-17.
23. Kollin C, Hesser U. et al. Testicular growth from birth to two years of age, and the effect of orchidopexy at age nine months: a randomized, controlled study. *Acta Paediatrica*. 95(3):318-24,
24. Tasian GE, Hittelman AB. et al. 2009. Age at orchiopexy and testis palpability predict germ and Leydig cell loss: clinical predictors of adverse histological features of cryptorchidism. *Journal of Urology*; 182(2):704-9,
25. Kim SO, Hwang EC et al. 2011. Testicular catch up growth: the impact of orchiopexy age. *Urology*; 78(4):886-9,
26. Gapany C, Frey P, Cachat F, Gudinchet F, Jichlinski P, Meyrat BJ, Ramseyer P, Theintz G, Burnand B. Management of cryptorchidism in children: guidelines. [Review] [57 refs] *Swiss Medical Weekly*. 138(33-34):492-8, 2008 Aug 23
27. Ritzen EM, Bergh A, Bjerknes R et al. 2007. Nordic consensus on the treatment of the undescended testes. *Acta Paediatr* ;96:638-43
28. Surgery for children: Delivering a first class service. 2007. *Royal College of Surgeons* <http://www.rcseng.ac.uk/publications/docs/CSF.html/@@download/pdf/CSF.pdf>
29. APA Consensus Guideline on perioperative fluid management in children. 2007. *Association of Paediatric Anaesthetists*. http://www.apagbi.org.uk/sites/default/files/Perioperative_Fluid_Management_2007.pdf

Commissioning guide 2015

Paediatric Orchidopexy for undescended testis

- 30.** Perioperative fasting in adults and children. 2005. *Royal College of Nursing*
http://www.rcn.org.uk/data/assets/pdf_file/0009/78678/002800.pdf
- 31.** Escarcega-Fujigaki P, Rezk GH. Et al. 2011. Orchiopexy-laparoscopy or traditional surgical technique in patients with an undescended palpable testicle. *Journal of Laparoendoscopic & Advanced Surgical Techniques*; 21(2):185-7
- 32.** Children's Surgical Forum. 2013. Standards for children's surgery. *Royal College of Surgeons*.
<http://www.baps.org.uk/content/uploads/2013/04/Standards-for-childrens-surgery-2013-Final.pdf>
- 33.** Royal College of Paediatrics and Child Health. 2014. *Safeguarding children and young people*. London: RCPCH;
<http://www.rcpch.ac.uk/child-health/standards-care/child-protection/publications/child-protection-publications>
- 34.** Newborn and Infant Physical Examination: Standards and competencies.2008.*UK National Screening Committee* <http://newbornphysical.screening.nhs.uk/standards>
- 35.** Sinner B, Becke K, Engelhard K. 2014. General anaesthetics and the developing brain: an overview. *Anaesthesia*; 69(9):1009-22
- 36.** Barthold JS, Gonzalez R. 2003. The epidemiology of congenital cryptorchidism, testicular ascent and orchidopexy. *The Journal of urology*.;170:2396-401.
- 37.** Hutson, J.M, Hastrophe, S. 2004. Testicular descent and cryptorchidism: the state of the art in 2004. *J Pediatr Surg*; 40:297-302.
- 38.** Heyns. C.F, Hutson JM. 1995. Historical review of theories on testicular descent. *J.Urol* ; 153:754-67.
- 39.** Heyns CF. 1987. The gubernaculum during testicular descent in the human fetus. *J Anat*; 153:93-112.
- 40.** Cortes D., Thorum J.M, Beck B.L. 1995. Quantitative histology of germ cells in the undescended testes of human fetuses, neonates and infants. *J Urol*; 154:1188-92.
- 41.** Hadziselimovic F, Herzog B, Buser M. 1987. Development of cryptorchid testes. *Eur J Pediatr*; 146: 8-12.
- 42.** Hadziselimovic F, Huff D. 2002. Gonadal differentiation--normal and abnormal testicular development. *Adv Exp Med Biol* ;511:15-21
- 43.** Huff DS, Fenig DM, Canning DA, Carr MG, Zderic SA, Snyder HM, 3rd. 2001. Abnormal germ cell development in cryptorchidism. *Hormone research* ;55:11-7.
- 44.** Hadziselimovic F, Herzog B, Seguchi H. 1975. Surgical correction of cryptorchidism at 2 years: electron microscopic and morphometric investigations. *J Pediatr Surg*; 10:19-26
- 45.** Virtanen HE, Bjerknes R, Cortes D et al. 2007. Cryptorchidism: classification, prevalence and long-term consequences. *Acta Paediatr*; 96:611-6

Commissioning guide 2015

Paediatric Orchidopexy for undescended testis

7.4 Guide development group for Orchidopexy

A commissioning guide development group was established to review and advise on the content of the commissioning guide. This group met twice with additional interaction taking place via email.

Name	Job Title/Role	Affiliation
Mr Salem Al-Hamali	Consultant General Surgeon	Royal College of Surgeons
Nicole Barnes	Patient representative	
Dr Polly Davies	Consultant Anaesthetist	Royal College of Anaesthetists
Dr Emma Fernandez	Clinical and Training Standards Manager	Royal College of Surgeons
Mr Robin Gupta	Consultant General Surgeon	Royal College of Surgeons
Dr Suganthi Joachim	Consultant Anaesthetist	Royal College of Anaesthetists Association of Paediatric anaesthetists of Great Britain and Ireland.
Dr Puran Khandewal	Consultant Anaesthetist	Royal College of Anaesthetists
Dr Julian Law	GP	Royal College of General Practitioners
Samantha Little	Lead Commissioner Children & Families	West Leicestershire CCG
Dr Paul Martin	Consultant Anaesthetist	Royal College of Anaesthetists Association of Paediatric anaesthetists of Great Britain and Ireland
Donna Mason	Paediatric Ward Matron	Royal College of Nursing
Mr Feilim Murphy	Consultant Paediatric Urologist	British Association of Paediatric Urology Surgeons
Miss Jane Patterson	Consultant General Surgeon	Royal College of Surgeons
Mr John Quarmby	Consultant General Surgeon	Royal College of Surgeons
Mr Ashok Rajimwale	Consultant Paediatric Urologist	Royal College of Surgeons
Dr William Russell	Consultant Anaesthetist	Royal College of Anaesthetists
Mr Manoj Shenoy	Consultant Paediatric Urologist	British Association of Paediatric Urology Surgeons
Dr John Somers	Consultant Radiologist	Royal College of Radiologists

Commissioning guide 2015

Paediatric Orchidopexy for undescended testis

Mr Richard Stewart	Consultant Paediatric Surgeon	Royal College of Surgeons British Association of Paediatric Surgeons
Sharon Verne	Senior quality improvement Lead	East Midlands Strategic Clinical Network
Mr Haradikar Varadaraj	Consultant Urologist	Royal College of Surgeons
Mr Alun Williams	Consultant Paediatric Urologist	British Association of Paediatric Urology Surgeons
Dr Neil Williams	Consultant Anaesthetist	Royal College of Anaesthetists

7.5 Funding statement

The development of this commissioning guidance has been funded by the following sources:

East Midlands Strategic Clinical Network funded the cost of the guide development group, literature searches and contributed towards administrative costs.

The Royal College of Surgeons of England and the British Association of Paediatric Surgeons provided staff to support the guideline development.

7.6 Conflict of interest statement

Individuals involved in the development and formal peer review of commissioning guides are asked to complete a conflict of interest declaration. It is noted that declaring a conflict of interest does not imply that the individual has been influenced by his or her secondary interest. It is intended to make interests (financial or otherwise) more transparent and to allow others to have knowledge of the interest.

The following interests were declared by group members: None noted