

Child Health Information June 2000

Introduction

Our first publication provided an insight into the pre-school surveillance data, with particular focus on breast feeding and smoking (ref 99/14). In this, our second bulletin we move on to look at the recording and coding practices for problems relating to hips and undescended testes in Scottish children. Hip problems are often difficult to detect and the identification of testicular problems is thought to be important in preserving boy's fertility in later life. These two areas help to illustrate the value of child health surveillance. This bulletin examines the proportion of the child population recorded within the Pre-school Child Health Surveillance Programme (CHSP-PS) and identifies which healthcare professionals carry out the surveillance. Data from the hospital inpatient activity dataset (SMR01) is also included to complement this information.

ISD Scotland has a new web site. For further information on Child Health please go to http://www.show.scot.nhs.uk/isd/child_health/child_health.htm Our first Child Health Information Bulletin can be viewed at:- <http://www.show.scot.nhs.uk/isd/publications/pubsa-c.htm>



Conference 2000

A Child Health information conference is planned for 30 October 2000. The venue is Heriot Watt University, Riccarton Campus, Edinburgh. The working title is "Scotland's children, Better information, Better health" and the aim is to:

- explain what information is available - its limitations and strengths.
- explore how that information can be used.
- explore the latest and forthcoming developments in child health and surveillance.

A flyer is being prepared and will be available in July. Further information will be found on our web site.

News

- We have recently received an extract of data from SIRS (Standard Immunisation Recall System) and work has begun analysing the data. Information will be included on our web site and in the next bulletin planned for the Autumn.
- The team have been working with Lanarkshire and Lothian Health Boards to produce data at LHCC level. Recently breast feeding rates were produced for Lothian Health Board by LHCC and examining Health Visitor. We hope that this type of analysis can be used to improve the quality of breast feeding data.
- The Read Focus Working Group requested a review of the data collection and clinical coding practices in the Pre-School and School Health systems. Preliminary analysis has now taken place and a comprehensive report is scheduled for summer 2000. Enquiries to [Gillian Boyle](#), telephone 0131 551 8232.

Pre-school Surveillance: Uptake Rates and Workload

A good child health surveillance system is much wider than merely a screening tool for abnormalities. It will provide the infrastructure to allow professionals to build real partnerships with parents and children based on the promotion of good health rather than treatment of disease. Regular contact with Health Visitors and other professionals may pre-empt many problems since it enables parental concerns to be voiced and dealt with. Child health surveillance also encourages monitoring and documentation of a child's development so that, if problems do occur, there is a background of information to aid professionals. A good system which can produce aggregated data will also support service planning and population surveillance.

Table 1
Percentage of children born in 1999 who are on the pre-school system; by health board of residence.

Health board of residence	Children on CHI	Children on pre-school ¹	
	Number	Number	Percentage
Argyll & Clyde	4 369	4 295	98.3
Ayrshire & Arran	3 665	3 611	98.5
Borders	1 018	990	97.2
Fife	3 559	3 538	99.4
Forth Valley	2 912	2 869	98.5
Greater Glasgow	9 453	9 340	98.8
Lanarkshire	6 333	6 251	98.7
Lothian	8 453	8 394	99.3
Tayside	3 900	3 871	99.3
Total	43 662	43 159	98.8

1 Includes children who have had at least one review.

Source: CHSP-PS
ISD Scotland,
CHI.

Every child born in Scotland is assigned a unique community health index (CHI) number soon after birth. This allows each child in a participating health board to be entered onto the pre-school system which then schedules them for routine surveillance. An analysis on the coverage of the pre-school system is shown in Table 1. The CHI has been used as the denominator and represents a snapshot of children in each health board area. A high proportion (98.8 percent) of children receive at least one examination.

In Scotland there is much movement of children between health board areas. Almost 22 percent of children born in 1995 are no longer in the health board where they received their first visit. The pre-school system currently covers only nine of the fifteen health boards in Scotland, so when a child moves to an area not on pre-school they will not be scheduled for further surveillance. This is also true of children moving outwith Scotland. Table 2 below shows the proportion of children receiving each review and includes only children who have not moved health board areas.

Table 2 Children born in 1995 - percentage who have received each review; by health board of treatment.

Health board of treatment	First Visits		% of children still in area who have had each review					
	Total Number	Number of children still in area						
			6-8 week	8-9 month	21-24 month	39-42 month	Pre-school ¹	Unscheduled
Argyll & Clyde	4 989	3 728	95.0	91.7	90.5	85.8	36.5	21.2
Ayrshire & Arran	3 171	2 712	11.9	36.3	67.7	79.2	1.1	15.6
Borders	1 150	897	98.4	97.4	97.9	95.1	23.2	17.4
Fife	3 393	2 581	94.9	95.2	97.4	87.7	26.7	15.3
Forth Valley ²	3 097	2 764	95.9	92.5	4.3
Greater Glasgow	3 559	2 748	86.4	88.9	93.4	84.6	15.0	19.3
Lanarkshire	6 632	4 269	95.4	91.1	94.4	86.5	56.4	48.9
Lothian	7 910	6 739	92.2	91.5	96.0	92.3	43.8	33.8
Tayside	922	765	90.3	94.2	95.4	89.2	8.5	28.4

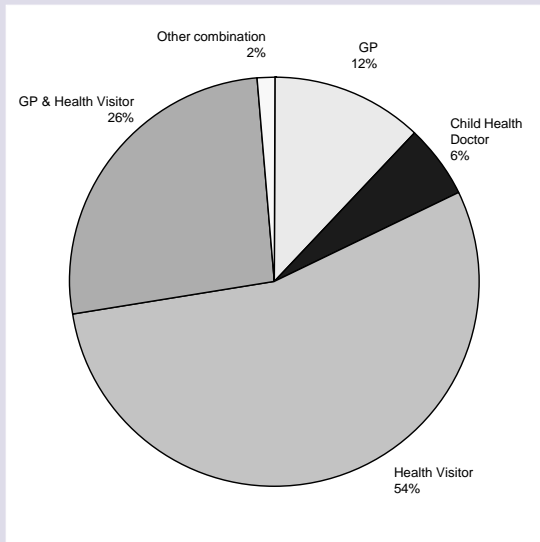
1 Not all children born in 1995 will have received their pre-school review yet.

2 Because Forth Valley did not join CHSP-PS until late 1997, their denominator is first visits done in 1998. Therefore the 21-24 month, 39-42 month and pre-school reviews do not apply.

Source: CHSP-PS
ISD Scotland.

The proportion of children who have received a first visit and who have also received subsequent reviews (Table 2) differs largely between health board areas and review types. The variation in the number of unscheduled reviews may be due to health boards carrying out routine surveillance outwith the standard age ranges. These are treated as unscheduled visits which could also account for a low uptake figure at one of the other reviews. In comparison with other areas, Ayrshire and Arran Health Board have a much smaller proportion of children receiving the early reviews. This may be due to a gradual introduction of the system across the health board but it is more likely to be related to local use of the system because only forms recording an abnormality are returned.

Figure 1 1999 Reviews; by examining Health Care Professional¹

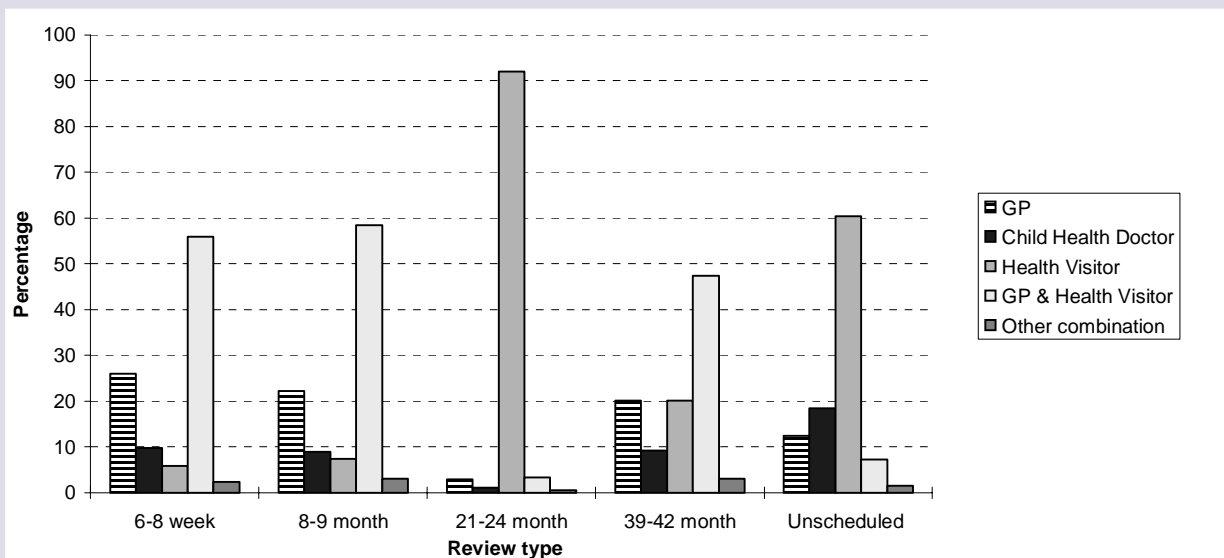


¹ It has been assumed that all first visits and pre-school reviews were carried out by a health visitor.

Source: CHSP-PS
ISD Scotland.

The pre-school surveillance programme requires the health visitor to be involved in the first visit, the 21-24 month (with or without a doctor) and the pre-school reviews. It has been assumed in Figure 1 that all first visits and the pre-school reviews were carried out by a health visitor and the chart shows around 80 percent of reviews involve their work. Figure 2 shows workload by review type. Health visitors complete over 90 percent of the 21-24 month reviews and almost 60 percent of unscheduled visits. A physical examination is completed at the other three reviews which may explain why the vast majority of these reviews involve the work of a General Practitioner.

Figure 2 1999 Reviews ; by examining Health Care Professional and review type¹



¹ Examiner type is not recorded on the first visit or the pre-school reviews.

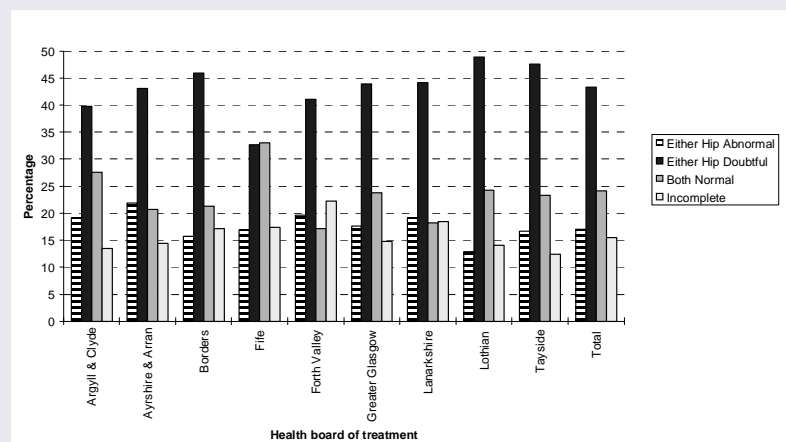
Source: CHSP-PS
ISD Scotland.

Hips

Hall (1996)¹ highlighted that “some defects are unlikely to be recognised even by the most astute parent and will only be detected by health professionals if a specific search is made”(p.82). Such defects include congenital dislocation of the hip and some babies are born with a greater than average risk of hip dislocation or dysplasia. These include those with a family history of a dislocated hip, babies who have congenital deformities of the lower limbs, babies who present by the breech but not necessarily born that way, caesarean section delivery, and those babies where the pregnancy was complicated by fetal growth retardation. Ideally babies with any of these risk factors should be seen at about six weeks of age for clinical assessment by an orthopaedic surgeon using ultrasound examination. Instability or dysplasia can then be picked up and treated at an age where success in treatment is high, and by relatively straightforward methods.

The number of children on the pre-school system recorded as having a Read coded hip problem is relatively small. Of those born during 1993-1999 there were 4875 children identified. 66 percent of these hip problems occurred in females and 84 percent relate to possible congenital dislocation.

Figure 3
1993-1999: Children with a Read coded hip problem by physical examination result¹

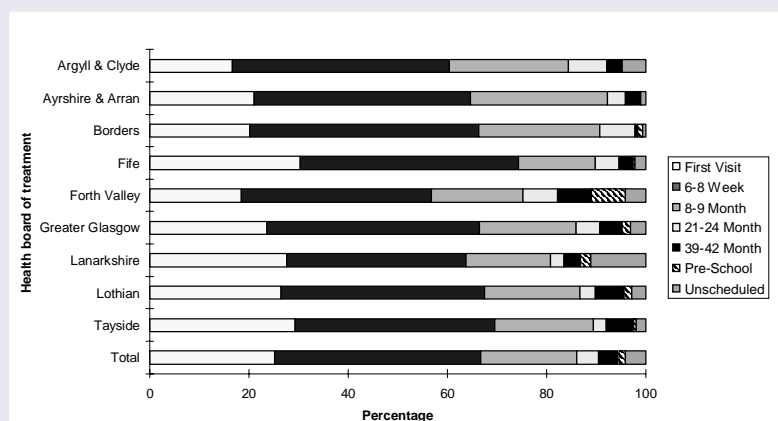


1 Physical examination is not recorded on the first visit or the pre-school reviews.

Source: CHSP-PS
ISD Scotland.

The pre-school system records hip problems in two ways. Firstly, the physical examination is coded as abnormal, doubtful, incomplete or normal. Secondly, if an abnormal result is found then a Read code should be assigned to that particular hip problem. Figure 3 shows how those children with Read coded hip problems are coded under the physical examination check. There seem to be discrepancies in coding practices with a higher proportion of children with Read coded hip problems coded as normal (25 percent) than those coded as abnormal (17 percent). Over 15 percent of cases were also coded as incomplete or missing. More than 40 percent are coded as doubtful illustrating that examinations most often identify a possible problem which requires further checking.

Figure 4
1993-1999: Review where a Read coded hip problem is first recorded by health board of treatment



Source: CHSP-PS
ISD Scotland.

Figure 4 shows when a Read coded hip problem is first recorded on the pre-school system. It can be seen that the proportion detected at each review is broadly similar across health boards. Almost 90 percent of recorded problems are picked up by the 8-9 month review.

1 Hall, David M. B. (Ed); 1996; Health for all Children: Report of the Third Joint Working Party on Child Health Surveillance; 3rd Edition; Oxford University Press; Oxford

If clinical examination suggests that there may be a congenital hip dislocation, most children would be referred to an orthopaedic surgeon for further assessment and management. If under six months old further assessment consists of an ultrasound examination. Beyond this age an x-ray is performed. If a dislocated or dysplastic hip is diagnosed in the first few weeks of life, it can be treated by putting the child in a special harness and the hip would be monitored on a fortnightly basis. The child is then monitored over the course of two to three years until the surgeon is happy that the hip morphology and development is normal.

Table 3
Read coded hip problems recorded in 1996; Referral codes by health board of treatment. ¹

Health board of treatment	Total number of reviews	Number with hip problems	Percentage referred to each specialist						
			Orthopaedic	Hospital Paediatrician	General Practitioner	Other Hosp. Specialist	Paediatric Surgeon	Community Paediatrician	Other ²
Argyll & Clyde	29 430	70	57.1	5.7	12.9	1.4	7.1	1.4	14.3
Ayrshire & Arran	11 162	33	27.3	-	6.1	-	-	6.1	60.6
Borders	6 913	31	51.6	9.7	9.7	19.4	-	6.5	3.2
Fife	19 648	130	81.5	6.9	5.4	1.5	-	2.3	2.3
Greater Glasgow	39 388	145	47.6	18.6	2.8	0.7	6.2	1.4	22.8
Lanarkshire	42 943	136	43.4	12.5	8.8	5.9	1.5	1.5	26.5
Lothian	54 713	243	40.7	10.3	9.1	4.1	3.3	1.2	31.3
Tayside	21 760	81	48.1	3.7	3.7	1.2	-	-	43.2
Total	225 957	869	50.3	10.1	7.1	3.3	2.8	1.7	24.6

¹ Forth Valley did not join system until 1997, so are excluded from this table.
² Other includes the code for 'Other' plus any other named specialist.

Source: CHSP-PS
ISD Scotland.

Over 65 percent of all of those recorded with a hip problem on the pre-school system are referred to a hospital specialist. Twenty-three percent of all cases receive treatment or are followed up by a specialist. It is disappointing to see, however, that almost 25 percent of referrals and 40 percent of overall outcomes are coded under 'other' or are blank. Tables 3 and 4 include children recorded in 1996 so it is unlikely that these cases are still unresolved four years on.

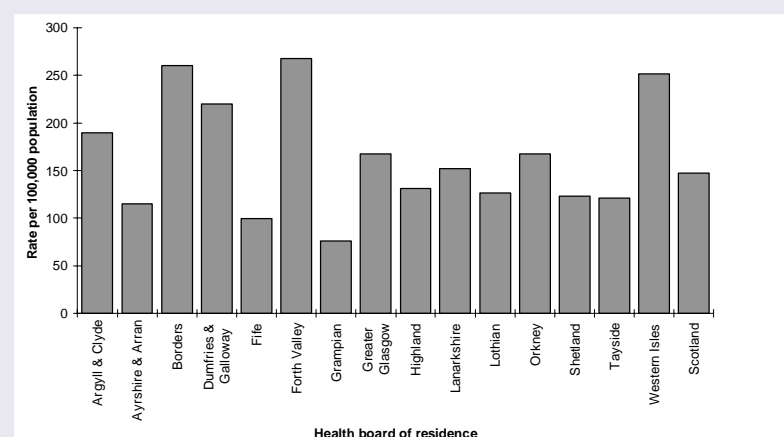
Table 4
Read coded hip problems recorded in 1996; Overall outcomes by health board of treatment. ¹

Health board of treatment	Total number of reviews	Number with hip problems	Percentage of each outcome code				
			Child Normal	Follow up by specialist	Child treated and discharged	Blank	Other
Argyll & Clyde	29 430	70	41.4	15.7	7.1	34.3	1.4
Ayrshire & Arran	11 162	33	27.3	6.1	6.1	57.6	3.0
Borders	6 913	31	51.6	16.1	16.1	16.1	-
Fife	19 648	130	40.8	16.2	4.6	36.9	1.5
Greater Glasgow	39 388	145	29.0	13.1	6.9	49.7	1.4
Lanarkshire	42 943	136	34.6	16.2	10.3	38.2	0.7
Lothian	54 713	243	39.5	12.8	12.3	35.0	0.4
Tayside	21 760	81	37.0	16.0	8.6	38.3	-
Total	225 957	869	37.1	14.3	9.1	38.7	0.9

¹ Forth Valley did not join system until 1997, so are excluded from this table.

Source: CHSP-PS
ISD Scotland.

Figure 5
Congenital deformity of hips ¹;
1996/97 hospital discharges by health board of residence ²



¹ Diagnosed using ICD 10 classifications Q65.-and R29.4
² Rates for Orkney, Shetland and Western Isles are based on small numbers.
ICD-10 International statistical classification of diseases and related health problems: volume 1 Tenth revision.

Source: SMR1/SMR01
ISD Scotland.

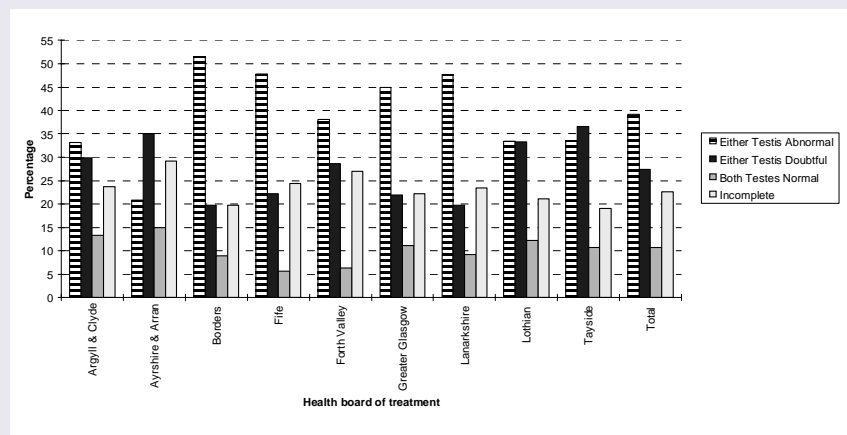
This graph shows data from SMR1/SMR01 (which records discharges from non-obstetric and non-psychiatric NHS hospitals in Scotland). Only children aged 0-4 with a diagnosis of congenital deformity of the hip have been selected. The overall rate per 100,000 is much lower than the number of hip problems recorded in the surveillance system. This is because few children with a Read coded hip problem will require hospital admission.

Undescended Testes

“Careful inspection of the genitalia to detect undescended testicle ... and other anomalies is an essential part of the routine neonatal examination” (Hall, 1996)¹. At birth 6 percent of males have one or both testes undescended. Compared to full-term babies the rate in low birth weight infants is five times higher. By the age of 3 months the majority of undescended testes have descended normally. However, 1.6 percent remain undescended and they are unlikely to descend after this age.

Figure 6 shows how physical examinations are coded on the pre-school system when a Read code for undescended testis is entered. Here, the majority are recorded as abnormal but there is still a significant proportion (11 percent) who have both testes coded as normal. Again, this varies between health boards with Borders having the highest proportion of abnormal examinations and Ayrshire & Arran the lowest.

Figure 6
1993-1999 reviews: Boys with a Read code for undescended testis; by physical examination result¹

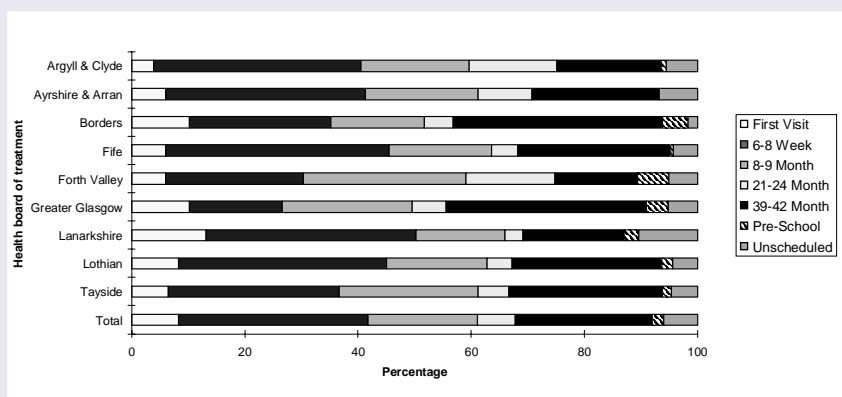


¹ Physical examination is not recorded on the first visit or the pre-school reviews.

Source: CHSP-PS
ISD Scotland.

Compared to hip problems, undescended testes appear to be picked up later in the pre-school system. Approximately 50 percent of recorded problems are picked up by the 8-9 month examination with the majority of the remainder not picked up until the 39-42 month examination. This is probably due to the fact that a physical examination is not required at the 21-24 month review.

Figure 7
Undescended testis: review where first Read coded by health board of treatment



Source: CHSP-PS
ISD Scotland.

Following diagnosis, if the testis is palpable, orchidopexy (a simple operation to replace the testis in the scrotum) is likely to proceed between the first and second years of life. If the testis is impalpable then laparoscopic localisation will be carried out as a preliminary to a planned retro-peritoneal exploration or abdominal approach to the undescended testis.

¹ Hall, David M. B. (Ed); 1996; Health for all Children: Report of the Third Joint Working Party on Child Health Surveillance; 3rd Edition; Oxford University Press; Oxford

Table 5
Read coded testicular problems recorded in 1996; Referral codes by health board of treatment. ¹

Health board of treatment	Total number of reviews	Number of undescended testes	Percentage referred to each specialist					
			General Practitioner	Paediatric Surgeon	General Surgeon	Community Child Health Doctor	Hospital Paediatrician	Other
Argyll & Clyde	15 124	151	41.7	26.5	2.6	13.9	5.3	9.9
Ayrshire & Arran	5 698	37	8.1	10.8	16.2	2.7	8.1	54.1
Borders	3 489	32	40.6	31.3	15.6	3.1	3.1	6.3
Fife	9 930	150	42.0	25.3	14.0	10.0	3.3	5.3
Greater Glasgow	20 385	139	14.4	30.2	2.9	1.4	7.9	43.2
Lothian	28 190	364	22.3	20.3	4.1	1.9	4.7	46.7
Tayside	11 171	216	16.7	15.7	10.2	1.4	4.2	51.9
Total	116 440	1 327	24.9	21.3	6.3	5.0	4.6	37.9

1 Forth Valley did not join system until 1997, so are excluded from this table.
2 Other includes the code for 'Other' plus any other named specialist.

Source: CHSP-PS
ISD Scotland.

Tables 5 and 6 show the referrals and overall outcomes for undescended testes recorded in 1996. It is generally recommended that if scrotal hypoplasia is suspected or there is difficulty palpating the testis during an examination then referral should be made to a paediatric surgeon or a general surgeon with a declared interest in children's surgery. However, less than a third of children with undescended testes are coded as being referred to surgeons.

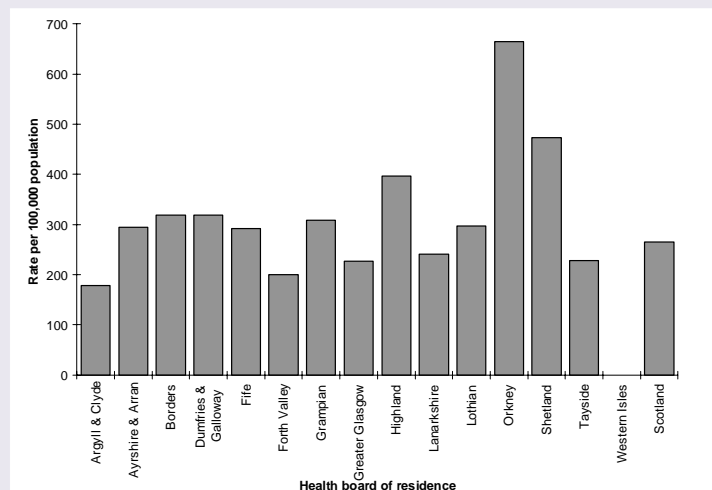
Table 6
Read coded testicular problems recorded in 1996; Overall outcomes by health board of treatment. ¹

Health board of treatment	Total number of reviews	Number of undescended testes	Percentage of each outcome code				
			Child Normal	Follow up by specialist	Child treated and discharged	Blank	Other
Argyll & Clyde	15 124	151	29.8	5.3	4.0	57.6	3.3
Ayrshire & Arran	5 698	37	-	10.8	2.7	78.4	8.1
Borders	3 489	32	9.4	34.4	43.8	9.4	3.1
Fife	9 930	150	19.3	3.3	6.0	68.7	2.7
Greater Glasgow	20 385	139	8.6	15.8	10.1	61.9	3.6
Lothian	28 190	364	29.4	8.2	8.8	47.5	6.0
Tayside	11 171	216	34.3	10.2	9.3	40.3	6.0
Total	116 440	1 327	25.9	8.3	8.4	52.6	4.7

1 Forth Valley did not join system until 1997, so are excluded from this table.

Source: CHSP-PS
ISD Scotland.

Figure 8
Discharges for Orchidopexy¹; 1996/97 by health board of residence²



1 Based on operation codes OPCS 4NO8.- and NO9.-.

2 Rates for Orkney, Shetland and Western Isles are based on small numbers.
OPCS Office of population censuses and surveys Version 4

Source: SMR1/SMR01
ISD Scotland.

Figure 8 shows data from SMR1/SMR01 for boys aged 0-4 who have had an orchidopexy. Although this data is only for the 0-4 age group, around 50 percent of orchidopexies are carried out after the age of five, though the risk of infertility is thought to be increased if surgery takes place beyond three years of age. It is difficult to interpret what has happened to these children as over half of the problems remain unclosed on the pre-school system (Table 6). It is assumed however that the majority of undescended testes diagnosed through pre-school are resolved before an orchidopexy becomes necessary.

Table 7 shows the range of Read codes presently used on the pre-school system for problems relating to hips and undescended testes. It is recognised that coding practices vary significantly throughout the service. Guidelines regarding the practice of Read coding are planned for production and it is hoped that this will provide some consistency.

Table 7
Read codes used on the pre-school system for hips and undescended testes.

Hips

Read code	Description	Read code	Description
2H28.	O/E - hip joint abnormal	N364.	Acquired genu valgum/varum
2H433	O/E - reduced movement of hip	PE3..	Congenital disloc/sublux hip
52A..	Plain X-ray hip/leg	PE30.	Congenital dislocation of hip
52A3.	Plain X-ray hip joint	PE300	Unilat.congen.dislocation hip
64N3.	Child exam.: hips	PE301	Bilat.congen.dislocation hip
7K2..	Hip joint operations	PE30z	Congen.dislocation hip NOS
7K2y.	Oth spec operations on hip jnt	PE31.	Congenital subluxation of hip
7K6aF	Manipulation of other joint	PE310	Unilat.congen.subluxation hip
7Kz..	Other bone & joint ops NOS	PE31z	Congen.subluxation hip NOS
7L0G.	Corr congen deformity of hip	PE32.	Cong.disloc.1 hip+sublux.1 hip
7L0G0	Opn red congenital disloc hip	PE33.	Congenital clicking hip
7L0Gy	Corr congen deformity hip OS	PE34.	Dysplastic hip
7N85.	[SO]Muscle of hip or thigh	PE340	Unilateral dysplastic hip
7N853	[SO]Adductor mscl of hip,unsp	PE341	Bilateral dysplastic hip
7N85y	[SO]Spec muscle hip thigh NEC	PE35.	Unstable hip
7NA8.	[SO]Femur	PE350	Unilateral unstable hip
7NAG2	[SO]Hip joint	PE351	Bilateral unstable hip
7NB11	[SO]Hip region NEC	PE3z.	Congen.dislocation hip NOS
8344B	Hip spica	PE8y6	Congen flex contracture-hip
8D450	Hip abduction orthosis	PE8y7	Congen abduct contracture-hip
N064K	Transient arthropathy-hip	PF62.	Congenital coxa vara
N090K	Effusion of hip	PF63.	Other congen.hip joint deform.
N094K	Arthralgia of hip	PF630	Congen.antevers.-femoral neck
N095K	Stiff hip NEC	PF631	Congenital hip dysplasia
N0999	Clicking hip	PF63X	Cong deform hip,unspecified
N2151	Bursitis of hip	PF63z	Other cong.hip joint def.NOS
N363.	Acquired deformities of hip	S45..	Dislocation/subluxation of hip
N3632	Coxa vara - acquired	S453.	Opn trmtc subluxation hip jt
N3634	Persistent femoral anteversion	S45z.	Dislocation of hip NOS
N363z	Acquired hip deformity NOS		

Undescended testes

Read code	Description	Read code	Description
7C05.	Bilateral orchidopexy	PC5z.	Undescended testicle NOS
7C05z	Bilat place testes scrotum NOS	PC5z0	Undescended testis, unilateral
7C06.	Unilateral orchidopexy	PC5z1	Undescended testis, bilateral
7C06z	Unilateral orchidopexy NOS	PCy12	Congenital aplasia - testicle
PC5..	Undescended testicle	PCy21	Hypoplasia - testis
PC50.	Cryptorchidism	PCy4.	Anorchism
PC500	Cryptorchidism, unilateral	PCy5.	Monorchism
PC501	Cryptorchidism, bilateral		
PC50z	Cryptorchidism NOS		
PC51.	Ectopic testis		

With thanks to George G. Youngson, Professor of Paediatric Surgery, Royal Aberdeen Children's Hospital, and Miss Pat Costigan, orthopaedic member on the Scottish Colleges Committee on Children's Surgical Services for providing information on the pathway of care for undescended testes and congenital hip dislocation respectively.

Comments regarding the content and interpretation of this briefing are welcome. These and any other enquiries relating to child health information should be directed to:

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