Measles and rubella immunisation: information and consent in children

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Informed consent is a prerequisite for all medical actions. Before the case of *Gillick v West Norfolk and Wisbech Area Health Authority*,¹ parents were held to be solely responsible for giving consent on behalf of their children under 16 years. Thereafter, doctors have had a responsibility to consider the child's view. This principle was enshrined in the Children Act, 1989.

Parents consider their child to be capable of making important health care decisions, and children want to have information and share in or make decisions themselves.²

The recent campaign for measles and rubella immunisation has provided a measure of the government's and health care professionals' intention to inform children and consider them as decision makers.

with age (girls, $r=0.241$, $F=14.97$, $P=0.0001$; boys, $r=0.376$, $F=34.83$, $P<0.0001$). There was no significant difference between girls and boys except for 14 year olds (95% confidence interval 0.13 to 1.12, $t=2.51$, $P<0.05$). The proportion of children stating that they alone made the immunisation decision increased with age (girls, $\chi^2=6.58$, $P<0.02$; boys, $\chi^2=6.38$, $P<0.02$), but most children (64%) shared decision making with their parents.

Few children (7%) were asked if they consented. Most did not believe that attending the immunisation session and cooperating implied that they consented to the procedure (65%), and most did not believe that health professionals should assume that they had consented (58%).

Subjects, methods, and results

To determine children's views on consent issues, 851 questionnaires (see table for content) were distributed to members of years 7-11 (ages 11-15) of two single sex secondary schools in Birmingham within 21 days of the national measles and rubella immunisation campaign procedure. In all, 513 (60%) were completed and returned. The table shows the responses. The proportion of children who believed they had sufficient understanding and maturity to decide about immunisation (85% for all children aged 11-15) increased with age (girls, $\chi^2=29.12$, $P<0.0001$; boys, $\chi^2=7.85$, $P<0.01$).

In all 11-15 year olds, the mean (SD) age of sufficient maturity and understanding to make a decision regarding immunisation was considered to be 12.3 (1.8) years. The age suggested increased significantly

Comment

As Alderson found for surgical procedures,² most children aged 11-15 believed they had sufficient maturity and understanding to make decisions about immunisation. The finding of increasing "decision making" age with increasing chronological age also supports her findings in a different area of consent. The starting point, or change in slope direction, of this relation to age has not been defined. Although the Department of Health has recognised that children can give or withhold consent, information for health professionals^{3,4} seems to have been directed towards parents as sole decision makers. Less than 1% of the children considered the information leaflet, which included the parent consent form,⁵ to be directed at children.

Questionnaire responses*. Values are numbers (percentages) of children unless stated otherwise

Questionnaire content	Boys						Girls						Boys and girls aged 11-15 (n=513)
	Age 11 (n=44)	Age 12 (n=58)	Age 13 (n=62)	Age 14 (n=41)	Age 15 (n=22)	Age 11-15 (n=227)	Age 11 (n=58)	Age 12 (n=74)	Age 13 (n=49)	Age 14 (n=61)	Age 15 (n=44)	Age 11-15 (n=286)	
Child believed that he or she had enough maturity and understanding to decide	30 (68)	44 (76)	55 (89)	35 (85)	20 (91)	184 (81)	39 (67)	63 (85)	47 (96)	58 (95)	44 (100)	251 (88)	435 (85)
Child believed his or her parents thought that he or she had enough maturity and understanding	26 (59)	41 (71)	49 (79)	33 (80)	19 (86)	168 (74)	33 (57)	49 (66)	44 (90)	52 (85)	35 (80)	213 (74)	381 (74)
Decision made by:													
Child	3 (7)	4 (7)	4 (6)	4 (10)	7 (32)	22 (10)	2 (3)	4 (5)	0 (0)	6 (10)	7 (16)	18 (6)	40 (8)
Parent	17 (39)	17 (29)	17 (27)	7 (17)	7 (32)	65 (29)	24 (41)	21 (28)	17 (35)	12 (20)	4 (9)	78 (27)	143 (28)
Both	24 (55)	37 (64)	41 (66)	30 (73)	8 (36)	140 (62)	32 (55)	49 (66)	32 (65)	43 (70)	33 (75)	189 (66)	329 (64)
Parents discussed benefits/risks and implications of immunisation with child	27 (61)	39 (67)	36 (58)	26 (63)	12 (55)	140 (62)	39 (67)	52 (70)	33 (67)	39 (64)	26 (59)	190 (66)	330 (64)
Child decided to have immunisation	41 (93)	54 (93)	57 (92)	38 (93)	21 (95)	211 (93)	55 (95)	66 (89)	44 (90)	54 (89)	38 (86)	257 (90)	468 (91)
Child would have had immunisation if he or she didn't agree with it but parents consented to it	34 (77)	44 (76)	51 (82)	25 (61)	12 (55)	166 (73)	49 (84)	52 (70)	36 (73)	35 (57)	27 (61)	199 (70)	365 (71)
Child believed attending session and holding arm out implies consent	13 (30)	14 (24)	25 (40)	17 (41)	11 (50)	80 (35)	10 (17)	24 (32)	18 (37)	26 (43)	22 (50)	100 (35)	180 (35)
Child believed health professionals should assume cooperation implies consent	24 (55)	22 (38)	20 (32)	17 (41)	9 (41)	92 (41)	26 (45)	29 (39)	23 (47)	22 (36)	21 (48)	121 (42)	213 (41)
Child or parent received information on immunisation	41 (93)	52 (90)	61 (98)	39 (95)	22 (100)	218 (96)	41 (71)	63 (85)	44 (90)	54 (89)	41 (93)	243 (85)	461 (90)
	(n=41)	(n=52)	(n=61)	(n=39)	(n=22)	(n=218)	(n=41)	(n=63)	(n=44)	(n=54)	(n=41)	(n=243)	(n=461)
Information directed at:													
Child	0	0	0	0	1 (5)	1 (0.5)	0 (0)	2 (3)	0	0	1 (2)	3 (1)	4 (1)
Parent	24 (59)	30 (58)	30 (49)	24 (62)	16 (73)	124 (57)	18 (44)	23 (37)	19 (43)	30 (56)	18 (44)	108 (44)	232 (50)
Both	16 (39)	20 (38)	30 (49)	16 (41)	6 (27)	88 (40)	15 (37)	29 (46)	21 (48)	23 (43)	16 (39)	104 (43)	192 (42)
Don't know	1 (2)	2 (4)	1 (2)	1 (3)	0 (0)	5 (2)	8 (20)	9 (14)	4 (9)	1 (2)	6 (15)	28 (12)	33 (7)
	(n=41)	(n=54)	(n=57)	(n=38)	(n=21)	(n=211)	(n=55)	(n=66)	(n=44)	(n=54)	(n=38)	(n=257)	(n=468)
Child was asked views on immunisation	2 (5)	4 (7)	4 (7)	4 (11)	1 (5)	15 (7)	2 (4)	3 (5)	2 (5)	1 (2)	1 (3)	9 (4)	24 (5)
Child was asked if he or she gave consent	4 (10)	4 (7)	5 (9)	4 (11)	2 (10)	19 (9)	4 (7)	3 (5)	1 (2)	5 (9)	2 (5)	15 (6)	34 (7)
	(n=42)	(n=56)	(n=56)	(n=39)	(n=20)	(n=213)	(n=49)	(n=64)	(n=47)	(n=49)	(n=36)	(n=245)	(n=458)
Mean (SD) age suggested as showing enough maturity and understanding to decide (years)	11.8 (2.0)	12.1 (1.9)	12.3 (1.3)	13.5 (1.0)	13.8 (1.5)	12.5 (1.7)	12.1 (2.5)	11.6 (1.7)	11.6 (1.2)	12.8 (1.3)	13.1 (1.4)	12.2 (1.8)	12.3 (1.8)

*Answers of "yes" or "specifically."

The benefits of immunisation to the population generally are undoubted, but children should be afforded the same freedom of choice as their parents. Professionals should not assume that attendance and cooperation by a child implies consent. Most children (71%) would be immunised if their parents wished it, even if they themselves did not, suggesting that children are willing to consider and comply with other viewpoints. This response may extend to the state's influence on the benefit of immunisation to the population. Appropriate and necessary involvement of today's socially aware older children may have secondary benefit in influencing the opinions and actions of tomorrow's parents.

The difficulties of informing many children at one time and assessing their competence to give consent provide no excuse for the apparent disregard of children's rights. In not informing children directly and in not ensuring that children were asked if they

consented, the Department of Health and health professionals generally seem to have acted against the spirit and principles of the Children Act, 1989. This has further shown that children's rights are little recognised, poorly respected, and inadequately supported by health professional advocacy.

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Conflict of interest: None.

- 1 Gillick v West Norfolk and Wisbech Area Health Authority [1985] 3 All ER 402.
- 2 Alderson P. *Children's consent to surgery*. Buckingham: Open University Press, 1993.
- 3 Department of Health. *Measles/rubella: information for health professionals*. London: DoH, 1994. (1525 95M 9/94.)
- 4 Department of Health. *Measles and Rubella Immunisation Campaign*. London: DoH, 1994. (PL CNO (94)12 and PL CNO (94)15.)
- 5 Health Education Authority. *Measles*. Department of Health, 1994. (9000m 8/94.)

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Fever can cause pyuria in children

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Rapid, accurate diagnosis of urinary tract infection in childhood is important, and pyuria is often considered critical in diagnosis in addition to the presence of large numbers of bacteria. Clinically important pyuria has been defined as more than 10×10^6 leucocytes/l of urine. Only 1.5% of healthy schoolchildren exceed this.¹ The view that pyuria might occur often in febrile children without a urinary tract infection, perhaps as a non-specific response to fever² has recently been described as untenable.³ We investigated further our clinical impression that pyuria does indeed occur in febrile children without a urinary tract infection.

Subjects, methods, and results

We studied 157 children (73 girls), mean age 2.7 years (range 12 days to 15 years) in a paediatric day unit. Seventy febrile children (temperature $\geq 38^\circ\text{C}$) attended for clinical assessment, and 87 afebrile children (temperature $\leq 37^\circ\text{C}$) attended for various investigations. The febrile and afebrile groups were similar in distribution of age and sex. No child had haematuria, proteinuria, or a urinary tract infection at the time of study, and none had renal tract disease. One of us (GMT) examined a urine sample within 30 minutes of collection by means of a Neubauer counting chamber and phase contrast microscopy at a magnification of 400. Leucocytes were counted in $0.9 \mu\text{l}$ of uncentrifuged midstream urine samples or bag collections of urine in which there were no bacteria present.⁴ Creatinine concentration and osmolality were measured in most specimens. When venesection was indicated clinically (32 febrile and 22 afebrile children) the blood neutrophil count was measured.

Moderate pyuria ($10\text{--}100 \times 10^6$ leucocytes/l) occurred in 30 (43%) febrile children but in only five (6%) afebrile children ($P < 0.001$; odds ratio 12.3 (95% confidence interval 4.9 to 30.8)). Obvious pyuria ($100\text{--}700 \times 10^6$ leucocytes/l) occurred in six (9%) febrile children but in none of the afebrile children ($P < 0.025$). Median values of urinary osmolality were similar in febrile and afebrile groups (660 and 670 mmol/kg). The higher urinary leucocyte counts in febrile children

were not due to increased concentration of urine but to a higher leucocyte excretion rate, estimated from the ratio of urinary leucocyte count to creatinine concentration ($P < 0.001$). Among the febrile children there was no significant relation between the degree of fever and age, sex, blood neutrophil count, or whether they had presented with a convulsion (29 cases).

Comment

This study shows that pyuria is common in feverish children without a urinary tract infection and that it is due to an increase in the urinary leucocyte excretion rate and is not a direct reflection of a raised blood neutrophil count. This suggests that pyuria may be a non-specific feature of fever in acute childhood illness and may reflect a generalised increase in white cell migration, perhaps mediated by changes in membrane permeability or white cell motility.

The fact that almost 9% of febrile children without a urinary tract infection have obvious pyuria is important, particularly now that pyuria may be readily identified by dipstick testing and is usually assumed to be diagnostic of a urinary tract infection. However, pyuria in a febrile child does not always indicate urinary tract infection; the false assumption that it does may lead to inappropriate antibiotic treatment and unnecessary investigations of the renal tract. Possibly more importantly, this assumption may also result in failure to consider other diagnoses in a feverish unwell child.

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- 2 Hogg RJ. A search for the "elusive" urinary tract infection in febrile infants. *Paediatr Infect Dis J* 1987;6:233-4.
- 3 Buys H, Pead L, Hallett R, Maskell R. Suprapubic aspiration under ultrasound guidance in children with fever of undiagnosed cause. *BMJ* 1994;308:690-2.
- 4 Vickers D, Ahmed T, Coulthard MG. Diagnosis of urinary tract infection in children: fresh urine microscopy or culture? *Lancet* 1991;338:767-70.

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