3. Results

A full report on the approaches used for testing the reliability and validity of the data, including the generalisability of the results, response bias, testing of reliability using re-interviews of a sub-sample, validity of prevalence estimations, and reliability of laboratory test results is presented in the main study (Nelson Mandela/HSRC Study of HIV/AIDS, 2002:33–45).

The reader should note that the results are presented with actual N's while percentages are weighted data.

3.1 HIV prevalence among children 2 to 18 years

The HIV prevalence by age and sex of the children, who agreed to be tested, is presented in Table 3. The results show that the HIV prevalence among children aged 2 to 18 years is between 5.4 per cent. The overall HIV prevalence is examined separately in the three age groups to determine the possible routes of transmission: sexual or vertical. The prevalence is found to be highest in the 2 to 9 year old group of children, some of which could be accounted for by vertical transmission. The confidence intervals of the three age groups overlap, which means that the differences between them are not statistically significant.

As Table 3 shows, girls aged 2 to 18 seem to have a slightly higher HIV prevalence than boys of the same age, however this difference is not statistically significant.

Note: Caution is warranted in interpreting these findings, because the sample sizes of these groups are small and the resultant confidence intervals large.

Boys aged 2 to 9 years seem to have a higher HIV prevalence than girls, but again the differences are small and not statistically significant. A lower prevalence was recorded for boys aged 10 to 14 years than for boys aged 2 to 9 and 15 to 18 years, although the

Table 3: HIV prevalence by age and sex of children, South Africa, 2002

	2–18 years old	2–9 years old	10–14 years old	15–18 years old
Total N	3 295	1 377	973	945
Prevalence (%)	5.4	6.2	4.7	5.0
CI (95)*	[4.1,7.1]	[4.2,9.0]	[2.5,8.7]	[3.2,7.6]
Sex				
Male N	1 650	714	474	462
Prevalence (%)	5.1	6.5	3.5	4.7
CI (95)	[3.6,7.1]	[3.9,10.6]	[1.9,6.4]	[2.4,9.0]
Female N	1 645	663	499	483
Prevalence (%)	5.7	5.8	5.9	5.3
CI (95)	[3.7,8.6]	[3.2,10.4]	[2.3,14.2]	[3.0,9.1]

**CI (95)= Confidence Intervals at 95 per cent levels*
None of the differences are statistically significant

confidence intervals overlap to a large extent. For girls, a different pattern is observed with the HIV prevalence being similar across the three age groups. This finding will be discussed further below.

The numbers tested were insufficient to provide prevalence by race group. Tables 4 and 5 show figures for HIV prevalence by settlement type and perceived household situation.

Table 4: HIV prevalence among children, aged 2 to 18 years, by settlement type, South Africa, 2002

Settlement type	SE	N	Prevalence (%)
Urban formal	1.3	1 941	5.5
	CI (95)*		[3.444,8.593]
Urban informal	1.7	290	6.4
	CI (95)*		[3.688,10.73]
Tribal authority area	1.1	876	5.3
	CI (95)*		[3.491,8.019]
Rural formal	1.8	188	4.6
	CI (95)*		[2.112,9.563]
Total	0.8	3 295	5.4
	CI (95)*		[4.109,7.082]

**Confidence intervals at 95 per cent levels*

Table 5: HIV prevalence among children, aged 2 to 18 years, by household situation, South Africa, 2002

Household situation	N	Prevalence (%)	CI (95)
Not enough money for basics, such as food and clothes	1 299	5.0	[3.427,7.368]
Enough money for food and clothes, but not for many other things	1 108	6.8	[4.176,10.78]
Enough money for most things, including luxuries	667	4.7	[2.716,8.013]
'Don't know'	221	2.1	[.8446,5.115]
Total	3 295	5.4	[4.109,7.082]

3.1.1 Discussion on HIV prevalence among children

There has been some debate about the correct interpretation of the observed HIV prevalence ratio among children reported in the Nelson Mandela/HSRC Study of HIV/AIDS (2002). HIV prevalence turned out to be higher than expected and prevalence was nearly constant across the age range of children tested, with no significant differences between age groups. Assuming that HIV/AIDS progresses rapidly (from infection to death) in about half of the children infected through mother to child transmission (approximately 50 per cent are expected to die within 2 years) but more slowly in the other half, one can expect the prevalence curve to be U-shaped with infections increasing as children grow older and are exposed to sexual abuse and premature sexual activity. The results of this study do suggest a U-shaped curve, although not significant, in HIV infection for boys (see Table 3), the prevalence being 6.5 per cent for ages 2 to 9 years, 3.5 per cent for ages 10 to 14 years and 4.7 per cent for the 15 to 18 year age group. However, a U-shaped curve is not seen in girls, where prevalence is roughly the same in all three age groups. It is, however, difficult to draw firm conclusions from these results, because after division into sex and age groups, the numbers become small and the resultant confidence intervals large.

With no comparable data existing for South Africa, it is difficult to interpret or verify these prevalence data. Further studies are therefore necessary to confirm levels of HIV prevalence in children. Although some validation of oral fluid for testing serostatus in children has occurred (Tess *et al.*, 1996), further validation is necessary to confirm its reliability. If the prevalence levels reported in the HSRC study are correct, additional research is necessary to explain these findings. In particular, research will need to focus on the role of sexual abuse, on the incubation period for children and on nosocomial infections (health services acquired infections). A WHO model estimates that at least 5 per cent of all HIV infections may be due to unsterile needles. Gisselquist *et al.*, (2002) also argues that nosocomial infections are a significant factor in HIV transmission in Africa.

3.2 Orphans

The UNAIDS estimated that about 660 000 children in South Africa have become orphans due to AIDS (UNAIDS, 2002). UNAIDS defines an AIDS orphan as a child, aged 0 to 14 years, who has lost one or both parents to AIDS. This study could not estimate the exact percentage of orphans who have lost parents to AIDS, because no information on the cause of death of parents was collected. It is unlikely, however, that such information would have been accurately reported, because of the potential stigma involved for children whose parents died from an HIV/AIDS related illness.

In the present survey, we asked children aged 12 to 18 years and the guardians of children aged 2 to 11 years, whether their mother and father were still alive. Our findings in terms of orphanhood as well as the demographic characteristics of orphans in South Africa are presented in Table 6.

The results of the study show that the overall maternal orphan rate (including children who may have lost a father) is 3.3 per cent for children 2 to 18 years of age. The rate is high in the 15 to 18 year age group, followed closely by the 2 to 9 year olds. Free State has the highest maternal orphaned rate. The figures for children 2 to 14 years old, who

Table 6: Demographic characteristics of orphans in South Africa, 2002

	N	Mother and father died	Maternal orphans	Paternal orphans	Both parents alive (or don't know)	P value
Total	3 988	59	114	343	3 472	
Percentage		2.2	3.3	10.1	84.4	
Gender						P=0.83
Male	1 992	2.3	3.0	9.5	85.2	
Female	1 997	2.2	3.5	10.8	83.6	
Age of respondents						P<0.001
2–9 years old	1 721	0.5	3.6	6.5	89.4	
10–14 years old	1 157	3.5	2.2	10.8	83.6	
15–18 years old	1 110	3.9	4.0	16.1	76.0	
Province						P=0.003
WC	527	1.7	3.1	7.4	87.7	
EC	621	1.0	4.9	13.8	80.3	
NC	283	0.7	4.9	5.2	89.3	
FS	225	1.7	6.2	9.8	82.3	
KZN	818	5.2	3.3	13.2	78.3	
NW	282	0.3	1.3	10.3	88.1	
G	548	1.6	1.3	5.6	91.5	
M	265	1.7	2.7	6.0	89.6	
L	419	1.8	2.9	9.5	85.8	
Locality type						P=0.027
Urban formal	2 347	1.4	2.5	8.4	87.7	
Urban informal	343	4.7	4.3	9.2	81.8	
Tribal	1 067	2.7	3.6	12.2	81.4	
Rural formal	231	0.7	3.9	5.0	90.4	
Race groups						P=0.008
Africans	2 416	2.6	3.4	11.0	83.0	
White	278	0.2	2.2	4.9	92.7	
Coloured	851	1.0	3.3	5.6	90.1	
Indians	443	0.0	1.0	5.7	93.4	

	N	Mother and father died	Maternal orphans	Paternal orphans	Both parents alive (or don't know)	P value
Household situation						P=0.009
Not enough money for basics, such as food & clothes	1 536	2.9	4.2	12.9	80.1	
Enough money for food & clothes, but not for many things	1 348	2.6	2.5	7.6	87.3	
Enough money for most things, including luxuries	1 104	0.3	2.4	8.4	88.9	

have lost a mother or father, are similar to those who lost their mother (1.9 per cent and 2.8 per cent of children) and/or father (9.5 per cent to 12.5 per cent) calculated from the 1995 October household survey conducted by Stats SA (Anderson, *et al.*, 2002). Comparing the rate of orphanhood in 1995 with the results of this study shows that the rate of orphanhood has not substantially increased, at least in the 2 to 14 year old age group.

The rate in orphanhood also did not vary by sex of the child. However, as expected, the likelihood of becoming an orphan increases with the age of the children. Table 7 shows that one tenth of children have lost a parent by the time they reached the age of 9 years, over 15 per cent have lost a parent by the age of 14, and in the 15 to 18 year age group, almost a quarter of all children have lost at least one parent.

When orphanhood was examined by province, the results show KwaZulu-Natal to have the highest proportion of children who have lost both parents. However, the numbers in this category (N=59) are small, hence they need to be treated with caution. The Free State has more maternal orphans than all other provinces, followed by the Northern Cape and Eastern Cape, while the numbers of paternal orphans are highest in the Eastern Cape and in KwaZulu-Natal (see Table 6).

Differences were also observed in orphanhood status by place of residence. Children living in urban informal settlements appeared more likely to have lost both parents or to be maternal orphans than children who live in rural or formal urban areas. Rates of paternal orphans were higher in tribal authority areas (see Table 6).

Table 7: Orphan status by three age cohorts, South Africa, 2002 (categories are not mutually exclusive)

Age	N	Both dead (%)	Mother dead, father alive (%)	Father dead (%)	At least one parent dead (%)	Both alive (%)
2–9	1 721	0.5	3.6	6.5	10.6	89.4
10–14	1 157	3.5	2.2	10.8	16.4	83.6
15–18	1 110	3.9	4.0	16.1	24.0	76.0

Note: Categories are not mutually exclusive

Table 6 also shows that African children were found to be more likely, than children of other races, to have been orphaned due to the death of both parents. They were also more likely to have lost their fathers than their mothers. Children living in poor households were more likely to have lost both parents than those from well-to-do households.

3.2.1 HIV prevalence by orphan status

Due to the small sample size of orphans, it was not possible to analyse the data by age cohort as was done for HIV prevalence in all children. Table 8 presents the findings on HIV prevalence by orphan status.

Table 8: HIV prevalence among children by orphan status, aged 2 to 18 years (HIV tested population), South Africa, 2002

	N	HIV prevalence (%)	P values
Total	3 295	5.4	
	CI (95)	[4.1,7.1]	
Orphanhood			P=0.276
Mother and father dead	50	12.7	
	CI (95)	[4.8,29.7]	
Mother dead	105	6.3	
	CI (95)	[2.5,15.4]	
Father dead	294	4.5	
	CI (95)	[2.1,9.2]	
Both parents alive (or 'don't know')	2 846	5.3	
	CI (95)	[3.8,7.2]	
Orphanhood			P=0.644
One parent dead (mother or father)	449	6.1	
	CI (95)	[3.8, 7.2]	
Both parents alive (or dont know)	2 846	5.3	
	CI (95)	[3.8,7.2]	

The results show that the prevalence of HIV among orphans who have lost both parents is highest, followed by maternal orphans, non-orphans and paternal orphans. Compared to all other children, those who lost both parents had the highest observed HIV prevalence, although the difference was not statistically significant.

3.2.2 Discussion

The finding that orphanhood has not substantially increased since 1995 suggests that South Africa has not yet felt the full impact of AIDS on orphanhood. Given the data

demonstrating that African children, children in poor households, children living in informal settlements and older children are most affected, relevant institutions should focus on these groups and explore the most constructive ways of dealing with orphanhood. Developing community-based support for orphans within the communities should be the main focus given the known negative impact of institutionalisation on children (Frank *et al.*, 1996).

Data on children not living with a biological parent also need to be investigated. Anderson et al. (2002) show that between 1995 and 1998 fosterage increased from 6.7 per cent (OHS Survey) to 15 per cent (SADHS Survey). The reasons for this increase are not clear. Child migration between families and localities, other adaptations in coping with economic constraints on childcare, and the burden of orphanhood must be further investigated. Future measuring methods must be developed to determine what proportion of orphanhood can be attributed to AIDS. These methods should be designed to avoid stigmatisation of the children.

3.3 Child-headed households

Children, aged 12 to 18 years, were asked who the head of their household. Three per cent of these children responded that they themselves were heads of their household. In further analysing the data we suggest that this figure is not a percentage of all households, because not all households have children of this age group. Also, some of the children sampled were from the same household. After correcting for these factors, the response to this question suggests that about 1.5 per cent of all households are headed by children aged 12 to 18 years. The visiting point questionnaire also contained a question relating to household headship. In response to this question, 0.5 per cent of households responded that they were headed by a child between the age of 14 and 18 years. This discrepancy suggests that some of the children, who lived with adults, considered themselves to be the head of the household when they were asked in private. While further examination of these data is required, less than 1 per cent of households appear to have a child head. However, this result is still higher than the results from the 1999 October Household Survey, which yields an estimate of 0.25 per cent of households being headed by children.

3.3.1 Discussion

As with orphan status, South Africa is not yet experiencing the full impact of AIDS on the number of households headed by children. Thus, there is still some time to anticipate and prepare for a substantial increase. Further research on causes for child-headed households, particularly the proportion of child-headed households due to AIDS, is needed.

3.4 Sexual debut and sexual experience

Children under 12 years of age were not asked about their age of sexual debut and sexual experience. Very few children in the 12 to 14 year age group reported that they had engaged in sex. Information about the sexual debut and experience of youth, aged 15 to 24 years, can be found in the main report (Nelson Mandela/HSRC Study of HIV/AIDS, 2002).

3.5 Risk factors and risk environments for children

Children are at risk of contracting HIV/AIDS through a number of sources. Besides vertical transmission from mother to child in pregnancy and early infancy, many South African children face the risk of sexual abuse within homes, schools and communities. Without appropriate education on sexual matters including STI's, early sexual experience, whether coerced or not, increases the risk of children for contracting HIV. Also, the role of children in caring for parents with HIV/AIDS-related diseases requires investigation, because few universal precautions against infections may be taken within the home setting. If this is the case, HIV infection in children may increase.

The present study identified three components of child vulnerability to HIV infection:
- Risk environments;
- Care and protection of children; and
- Knowledge and communication about sex and HIV/AIDS.

For ethical and legal reasons as well as to avoid the risk of secondary trauma to children, the questionnaires to caregivers of children, aged 2 to 11, and to children, aged 12 to 14 years, did not ask directly about sexual abuse (see 2.6 *Ethical considerations*). The numbers were also insufficient to reliably measure child HIV prevalence against risk environments, care/protection and knowledge/communication. However, we are able to provide a picture of the proportion of children at risk in different environments and gain some insight about their knowledge and communication about sex and HIV/AIDS.

3.5.1 Risk environments

Poverty, certain settlement types, such as informal settlements, businesses run from home and exposure to alcohol and/or drugs all constitute increased risk for children because of decreased protection and increased exposure to potential abuse. Table 9 shows the self-reported household situation levels for children 2 to 18 years of age.

Forty-five per cent of all children in the survey live in homes where there is not enough money for basics such as food and clothes. When comparing African children with children of other race groups, we see that African children are the most vulnerable in terms of poverty, with half of them lacking basic resources. However, the percentages for race groups other than African should be treated with caution because the numbers are small.

Table 9: Household situation by race among children, aged 2 to 18 years, South Africa, 2002

Race	N	Not enough money for basics (%)	Enough money for basics, but not for many other things (%)	Enough money for most things, including luxuries (%)	Don't know (%)
African	2 416	50.3	35.7	8.0	6.0
White	278	6.4	15.4	71.0	7.2
Coloured	851	27.6	40.8	22.7	8.9
Indian	443	10.1	28.0	57.4	4.6
Total	3 988	45.1	34.7	13.9	6.3

From the main report of the Nelson Mandela/HSRC Study of HIV/AIDS (2002), HIV prevalence is highest among adults in urban informal areas. These areas are also prone to numerous social problems including violence and sexual abuse. Children in these areas may therefore be more vulnerable. Table 10 shows the proportion of children living in different settlement types by household situation. The largest proportion of children, who do not have enough resources for basics, live in informal settlements.

Table 10: Household situation by settlement type of children, aged 2 to 18 years, South Africa, 2002

Settlement type	N	Not enough money for basics (%)	Enough money for basics, but not for many other things (%)	Enough money for most things, including luxuries (%)	Don't know (%)
Urban formal	2 347	32.5	35.6	26.4	5.5
Urban informal	343	63.4	26.9	2.5	7.2
Tribal authority areas	1 067	52.0	35.1	6.4	6.6
Rural formal	231	47.4	35.4	9.3	7.9
Total	3 988	45.1	34.7	13.9	6.3

The environment within and around the home can also be a risk to children. Of the households surveyed, with at least one child aged 2 to 14 years, 12.7 per cent run businesses from home, the majority of these being informal spaza shops and taverns.

Children and caregivers were also asked about exposure of children to drug and alcohol abuse in homes and in neighbourhoods. A small proportion of children (4.1 per cent) 2 to 14 years of age are exposed to someone within their home or neighbourhood who uses drugs at least once a month. A much larger percentage of children (31.9 per cent) are exposed to someone in their home or neighbourhood who gets drunk at least once a month. Among caregivers of children 2 to 11 years of age, 15.8 per cent reported to ever using alcohol and 0.3 per cent to ever using drugs. Among children 12 to 18 years of age, 6.3 per cent reported to ever using alcohol and 0.8 per cent reported to ever having used drugs.

3.5.2 Care and protection

Care and protection of children both at home and at school are key to preventing sexual abuse and HIV transmission. Several focused studies by the HSRC and other organisations show that protection within schools and communities is not adequate (Brookes & Richter, 2001, Higson-Smith, Richter & Bedell, 2002, Human Rights Watch, 2001). The present study is the first national study that measured levels of care and protection in homes,

schools and communities. Again, the numbers were insufficient to be able to measure HIV prevalence under varying conditions of care and protection. However, we are able to report the extent to which children are being protected at home and at school.

Caregivers are key to children's care and protection. Depending on the person taking care of a child and how the care is provided, some level of protection is ensured. In this study, the vast majority of children have a biological parent as their primary caregiver, followed by a grandparent. Table 11 shows that 4.6 per cent of children have a primary caregiver that is a non-family member.

Table 11: Primary caregivers of children, aged 2 to 14 years, South Africa, 2002

Caregiver	(N = 2 878)	Primary caregiver (%)
Biological parent	1 829	65.3
Grandparent	580	20.3
Sibling	138	4.2
Other family member	170	5.4
Non-family member	156	4.6
Nobody	5	0.2

The age of the caregiver may also be an important factor in the protection of children. Table 12 shows the percentage of children in the care of a caregiver aged 18 years and under as well as of caregivers aged 60 years and over.

Table 12: Age of caregivers of children, aged 2 to 11 and 12 to 14 years, South Africa, 2002

Age of caregiver	Age of child	
	2–11 (N=2 138)	12–14 (N=740)*
≤ 18	1.3 (%)	4.2 (%)
19–60	79.9 (%)	82.7 (%)
< 60	18.8 (%)	13.0 (%)

** Numbers do not add up to 100 per cent because of rounding errors.*

Tables 13 and 14 show data on monitoring of children by primary caregivers for children, aged 2 to 11 and 12 to 14 years respectively. While the vast majority appears to be well protected at home, we see that at least 5 per cent of children aged 2 to 11 years and over 10 per cent of children between ages 12 and 14 years are not receiving adequate monitoring.

Table 13: Monitoring by primary caregiver of children, aged 2 to 11 years (N=2 138), South Africa, 2002

When looking after the child	Sometimes/ hardly ever (%)	Most of the time (%)	Always (%)
Are you present at home?	6.3	23.3	70.4
Are you near enough to call?	5.5	22.4	72.1
Do you require the child to tell you where he/she is going?	5.1	10.4	84.5

Table 14: Monitoring by primary caregiver of children, aged 12 to 14 years (N=740), South Africa, 2002

	Sometimes/ hardly ever (%)	Most of the time (%)	Always (%)
In the morning			
Present at home	13.8	26.2	60.0
Near enough to call	13.3	23.2	63.5
Require child to tell you where he/she is going	8.7	9.2	82.2
In the afternoon			
Present at home	13.3	24.7	62.0
Near enough to call	13.7	25.8	60.4
Require child to tell you where he/she is going	10.6	8.4	81.0
At night			
Present at home	6.8	12.6	80.6
Near enough to call	6.1	13.8	80.1
Require child to tell you where he/she is going	6.9	6.3	86.8
On the week-end			
Present at home	11.1	24.2	64.7
Near enough to call	12.2	22.1	65.7
Require child to tell you where he/she is going	10.2	11.2	78.6
N=740	66	91	583

Tables 15 and 16 show high-risk practices that make children vulnerable to sexual abuse. Caregivers of children aged 2 to 11 and children aged 12 to 14 years were asked about the frequency of these high-risk practices in the past week prior to questioning.

Table 15: Proportion of children, aged 2 to 11 years, involved in high risk practices (N=2 138), South Africa, 2002

		Often (%)	Sometimes (%)	Never (%)
Sent out of the home yard on an errand alone?	Total	9.2	34.5	56.3
	Female	10.5	33.5	56.0
	Male	7.8	35.5	56.7
Left at home alone?	Total	3.1	12.4	84.4
	Female	3.7	9.1	87.2
	Male	2.6	15.8	81.6
Left at home in the care of a person 15 or younger?	Total	4.2	23.6	72.2
	Female	2.5	23.9	73.6
	Male	6.0	23.2	70.7
Left in the care of a male family member?	Total	7.0	26.7	66.3
	Female	5.4	23.5	71.1
	Male	8.5	30.1	61.4
Left in the care of a male non-family member?	Total	0.8	2.9	96.3
	Female	0.5	2.6	96.9
	Male	1.1	3.3	95.6
Left in the care of a female non-family member?	Total	3.8	12.2	84.0
	Female	3.5	14.3	82.2
	Male	4.2	10.0	85.8
Out of the home yard without adult supervision?	Total	6.1	25.8	68.1
	Female	6.4	25.7	67.9
	Male	5.9	25.8	68.3

The results in Tables 15 and 16 show high exposure to risk for many children. Almost half of children between 2 and 11 years are often or sometimes sent out on errands alone, while the corresponding per cent is 74.2 for children aged 12 to 14 years. There is little difference between male and female children. At least a third of children

Table 16: Proportion of children, aged 12 to 14 years, involved in high risk practices (N=740), South Africa, 2002

		Often (%)	Sometimes (%)	Never (%)
Sent out of the home yard on an errand alone?	Total	28.1	45.1	26.8
	Female	21.4	51.7	27.0
	Male	34.6	38.7	26.7
Left at home alone?	Total	12.3	35.9	51.8
	Female	7.6	36.9	55.6
	Male	16.7	35.0	48.3
Left at home in the care of a person 15 or younger?	Total	10.2	22.1	67.8
	Female	7.9	25.3	66.8
	Male	12.4	18.9	68.7
Left in the care of a male family member?	Total	12.1	30.4	57.5
	Female	9.9	26.3	63.8
	Male	14.3	34.3	51.4
Left in the care of a male non-family member?	Total	1.3	4.2	94.6
	Female	0.4	3.9	95.7
	Male	2.1	4.4	93.5
Left in the care of a female non-family member?	Total	3.9	9.8	86.3
	Female	2.8	12.5	84.7
	Male	4.9	7.2	87.9
Out of the home yard without adult supervision?	Total	12.3	54.4	33.3
	Female	8.9	58.3	32.8
	Male	15.6	50.7	33.7

aged 2 to 11 years are allowed outside the home yard without adult supervision. Two thirds of children between the ages of 12 and 14 years are allowed to do so. Again, the difference in the treatment of male and female children is small.

A considerable number of children are also left alone at home. The percentage increases with age, from 15 per cent of children aged 2 to 11 years to almost half of the children aged 12 to 14 years. The results show that males are more likely to be left alone at home, and that this increases with age. Almost a third of children aged 2 to 14 years are left in the care of a person 15 or younger. Among children aged 2 to 11 years, almost 30 per cent of girls and almost 40 per cent of boys are left in the care of a male family member.

Over a third of female children and almost half of male children, aged 12 to 14 years, are left in the care of a male family member.

Leaving children in the care of a non-family member, particularly male non-family members, is generally avoided. Nevertheless, the survey still shows that 3 per cent of children aged 2 to 11 years of age and 5 per cent of children aged 12 to 14 years are left in the care of a male non-family member. In general, male children were observed to be more likely to be left with a male non-family member than female children. It was found that female non-family members are more likely to be asked to care for children, particularly for female children.

Another key risk area for children is travelling to and from school. Between ages 6 and 14 years, 7 per cent of all children (9.7 per cent male and 4.2 per cent female) do not attend school. Of children between 2 and 11 years of age who attend some form of schooling (either a crèche, pre-primary or primary school), 18.7 per cent of children go to, and 19.8 per cent come home from, school unaccompanied. Thirty-one per cent of children in this age category are accompanied by an adult to school and 26 per cent of them are accompanied back home, while 44 per cent of the children go to school and 47.6 per cent return with someone of their own age. Between the age of 12 and 14 years, 34.2 per cent of children go to school and 29.3 per cent return home unaccompanied, 10.1 per cent of children are accompanied by an adult to school and 5.7 per cent from school, while 47.3 per cent are accompanied by someone of a similar age to school and 37.0 per cent from school.

Tables 17 and 18 show modes of transport used by children going to and from school. However, the vast majority travel to and from school on foot.

Research increasingly suggests that schools are unsafe environments for children (Brookes & Richter, 2001, Human Rights Watch, 2001). The safety and protection of children at school has become a national concern. Caregivers of children aged 2 to 11 may not be able to report accurately on the conditions at their children's schools, however we did

Table 17: Modes of transport to and from school used by children, aged 2 to 11 years (N=2 138), South Africa, 2002

Mode of transport	Home to school (%)	School to home (%)
On foot	75.7	75.4
Privately arranged	4.9	4.7
Private car	11.3	10.4
Local taxi	2.7	2.7
Minibus taxi	0.9	0.8
School bus	1.2	1.4
Public bus	0.5	0.8
Train	0.0	0.0
Other	0.8	0.8

Table 18: Modes of transport to and from school used by children, aged 12 to 14 years (N=740), South Africa, 2002

Mode of transport	Home to school (%)	School to home (%)
On foot	80.8	81.4
Privately arranged	2.4	2.0
Private car	8.4	6.3
Local taxi	2.1	2.1
Minibus taxi	0.4	0.4
School bus	2.8	3.0
Public bus	0.3	0.7
Train	0.2	0.2
Other	0.9	0.9

ask children aged 12 to 14 years to rate their schools on various aspects of safety. Table 19 shows the key issues the children were asked about. The data shows that four fifths of children say that their educators always attend classes, while 10 per cent of children say that they often do so. Only 46 per cent of children report that the educators always watch the children arrive and only 35 per cent report that the educators always watch the children leave school. A little over a third of children report that educators always watch children during breaks and almost a third say that educators monitor toilets, an area which qualitative studies show to be particularly unsafe (Brookes & Richter, 2001). Two thirds of children report that educators ensure that no unauthorised person enters the school property. These figures clearly indicate that not enough is being done to protect children at school.

Table 19: Safety of children at school, aged 12 to 14 years, (N=740), South Africa, 2002

Monitoring practices	Always (%)	Often (%)	Sometimes (%)	Never (%)	No information obtained (%)
Educators attend classes	79.7	9.4	6.7	0.7	3.5
Educators watch children coming to school	46.4	17.2	17.9	14.9	3.7
Educators watch children at break time	35.6	14.8	27.2	19.1	3.4
Educators watch children leaving school	35.6	14.8	27.2	19.1	3.4
Educators monitor the toilets	30.6	18.0	24.0	22.9	4.5
Educators ensure that no unauthorised person enters the school	63.8	10.5	11.6	10.4	3.6

Table 20 shows that sexual harassment at schools is a serious problem. Two fifths of children surveyed report that boys sexually harass girls and 15 per cent of children report that male educators propose relationships with girl pupils. Reporting by gender showed little difference in perceptions about sexual harassment of girls, although girls were more likely to report on sexual harassment of girls by boys.

Table 20: Sexual harassment of female children at school, aged 12 to 14 years, (N=740), South Africa, 2002

Sexual harassment	N	Always/Often/ Sometimes (%)	Never (%)	No information given (%)
Boys sexually harass girls by touching, threatening, or making rude remarks				
	Total = 740	40.3	55.2	4.5
	Female = 381	44.4	53.3	2.3
	Male = 359	36.5	57.0	6.5
Male educators propose relationships with girls				
	Total = 740	15.5	77.7	6.8
	Female = 381	16.4	77.6	6.0
	Male = 359	14.6	77.9	7.5

3.5.3 Knowledge and communication about HIV/AIDS

3.5.3.1 Communication about sex, sexual abuse and HIV/AIDS in homes

Communication is an important weapon in the battle against HIV transmission. In the present study, we asked caregivers of children 2 to 11 years of age and children 12 to 18 years of age about communication about sex, sexual abuse and HIV/AIDS. Tables 21 and 23 show the responses of caregivers of children aged 2 to 11 and children aged 12 to 14 years to questions about communication in these three areas.

Table 21 shows that caregivers are more likely to discuss sexual abuse with girls. They are also more likely to communicate about sex, sexual abuse and HIV/AIDS with girls than with boys. Table 22 shows that two thirds of caregivers of children aged 2 to 11 years claim to be comfortable talking about sex and related matters such as HIV/AIDS with the children, while 15.8 per cent are not.

Although two thirds of caregivers of children, aged 2 to 11 years, say they are comfortable talking about sex and related matters to the children, little more than two fifths of children among 12 to 14 year olds say their parents have actually talked to them about these issues, with sexual abuse being slightly more talked about than sex and HIV/AIDS. Parents of females are significantly more likely to have talked to them about all three topics, particularly about sexual abuse. When asked whether it was good for a parent to talk about these topics with their children, 82.3 per cent of 12 to 14 year olds agreed or strongly agreed while only 5.9 per cent disagreed or strongly disagreed.

Table 21: Communication between parents/caregivers and children, aged 2 to 11 years, about sex, sexual abuse and HIV/AIDS, South Africa, 2002

	N	Yes (%)	P Values
Have you ever discussed sex with this child?	2 138	10.2	
Gender			P<0.001
Male	1 092	5.7	
Female	1 047	16.0	
Have you ever discussed sexual abuse with this child?	2 138	28.8	
Gender			P<0.001
Male	1 092	21.3	
Female	1 047	38.7	
Have you ever discussed with this child how HIV/AIDS is transmitted?	2 138	11.9	
Gender			P=0.178
Male	1 092	10.3	
Female	1 047	13.5	
Have you ever discussed with this child how to prevent HIV/AIDS?	2 138	11.8	
Gender			P=0.068
Male	1 092	9.6	
Female	1 047	14.1	

Table 22: Attitudes of caregivers towards communication about sex and HIV/AIDS with children, aged 2 to 11 years (N=2 138), South Africa, 2002

	Strongly agree/ agree (%)	Neutral (%)	Disagree/Strongly disagree (%)	Not applicable (%)
I am comfortable talking with the children in my care about sex and related matters such as HIV/AIDS	67.0	9.0	15.8	8.2

Table 24 shows that of children between 12 to 14 and 12 to 18 years of age, a little over two thirds agreed that they were comfortable talking with a family member about HIV/AIDS. Again, females were significantly more likely to agree with this statement than males in the 12 to 14 and 12 to 18 year age groups.

Table 23: Communication between parents/caregivers and children, aged 12 to 14 years, about sex, sexual abuse and HIV/AIDS, South Africa, 2002

	N	Yes (%)	P values
Has a parent/caregiver:			
Ever talked to you about sex?	740	41.7	
Gender			P=0.001
Male		31.5	
Female		52.5	
Ever talked to you about sexual abuse?	740	50.4	
Gender			P=0.001
Male		38.2	
Female		63.2	
Ever talked to you about how HIV/AIDS is transmitted/prevented?	740	42.4	
Gender			P=0.004
Male		33.6	
Female		51.6	

Table 24: Proportion of children, aged 12 to 14 and 12 to 18 years, who feel comfortable talking to at least one family member about sex and related matters such as HIV/AIDS, South Africa, 2002

Comfortable	N	Strongly agree/ agree (%)	Neutral (%)	Disagree/strongly disagree (%)	P values
12–14	740	69.1	15.1	15.8	
Gender					P=0.005
Male	359	61.2	20.3	18.5	
Female	381	77.5	9.7	12.8	
12–18	1 850	71.5	11.4	17.1	
Gender					P<0.001
Male	919	65.0	15.8	19.2	
Female	931	77.9	7.1	15.0	

3.5.3.2 Sources of information about sex, sexual abuse and HIV/AIDS

The 12 to 14 year old children listed schools as the most important source of HIV/AIDS information (85.9%), followed by parents/caregivers (39.9%), and faith-based organisations (25.5%).

Table 25 shows that schools and teachers are the most important sources of information for children, aged 12 to 14 years, about sex and sexual abuse. Families are the next most important source of information, with the mother being more likely than any other family member to be the child's source of information. Of the child respondents, 19.3 per cent say that they have learned about sex and 30.3 per cent say that they have learned about sexual abuse from their mothers. These figures contrast strongly to those showing fathers to be a source of information on these issues: in the 12 to 14 year age group, only 1.5 per cent of children have learned about sex and 1.2 per cent of children have learned about sexual abuse from their fathers. Peer groups are the next most important source of information about sex. However, the media appears to be more informative than peer groups or acquaintances on sexual abuse.

Table 25 shows where information was actually obtained from.

Table 25: Most important sources of information about sex and sexual abuse for children, aged 12 to 14 years (N=740), South Africa, 2002

Source	Sex (%)	Sexual abuse (%)
School/teacher	53.6	47.2
Family/relative	22.4	34.2
Peer group/acquaintance	11.2	4.9
Nobody/self	4.7	2.1
Media	3.3	6.4
Other	3.3	3.3
No response	1.5	1.9

3.5.3.3 Knowledge about HIV/AIDS

Knowledge, among children aged 12 to 14 years, about how HIV/AIDS is transmitted and how it can be prevented is shown in Tables 26, 27, 28 and 29. Only half of all respondents agreed that HIV could be transmitted through unprotected vaginal sex. Knowledge of whether HIV could be transmitted by unprotected vaginal sex was higher among those children whose parents had spoken to them about sex and HIV/AIDS. Just over two thirds of children thought condoms could protect them from getting HIV, while only one fifth felt that avoiding penetrative sex would protect them. Females agreed more frequently than males that condoms would protect a person against HIV/AIDS. Again, knowledge of condoms as a means of prevention was greater among children whose parents had spoken to them about sex and HIV/AIDS.

Table 26: Knowledge of HIV transmission among children, aged 12 to 14 years (N=740), South Africa, 2002

	12–14 years
HIV is transmitted by:	Agree (%)
Unprotected vaginal sex	49.7
Sharing needles	30.1
Exchange of body fluids	12.1
Contaminated blood	25.4
Kissing	4.3
Drinking from the same cup	1.3
Sharing a cigarette	1.6

Table 27: Knowledge of 12 to 14 year olds about HIV transmission through unprotected vaginal sex by gender, living area, socio-economic status, education level and communication with a parent/caregiver about sex and HIV/AIDS, South Africa, 2002

How HIV is transmitted: unprotected vaginal sex	N	Yes (%)	No (%)	
Total	740	49.7	50.3	
Gender				P=0.10
Male	359	41.8	58.2	
Female	381	58.1	41.9	
Living area				P=0.281
Urban	509	53.4	46.6	
Rural	231	46.7	53.3	
Household situation				P=0.014
Not enough money for basics, such as food & clothes	284	45.6	54.4	
Enough money for food & clothes, but not for many other things	280	45.6	54.4	
Enough money for most things, including luxuries	176	68.8	31.2	
Education level				P=0.068
Up to end of primary school	526	47.1	52.9	
High school	214	59.5	40.5	
Has a parent/caregiver ever talked to you about HIV/AIDS?				P<0.001
Yes	386	65.3	34.7	
No	354	38.3	61.7	
Has a parent/caregiver ever talked to you about sex?				P<0.001
Yes	354	69.1	30.9	
No	386	35.9	64.1	

Table 28: Knowledge of protection against HIV among children, aged 12 to 14 years, South Africa, 2002

12–14 years What should you do to protect yourself from getting HIV?	Agree	P Values
Use a condom (N=740)	69.4	
Gender		(P=0.024)
Male (N=359)	63.3	
Female (N=381)	75.7	
Do not have penetrative sex	21.0	
Gender		(P=0.074)
Male	16.9	
Female	25.6	
Do not share needles	15.6	
Gender		(P=0.188)
Male	12.3	
Female	19.0	

Table 29: Knowledge of condom use as a form of protection against HIV/AIDS by gender, living area, socio-economic status, education level and communication with a parent/caregiver about sex and HIV/AIDS among children, aged 12 to 14 years, South Africa, 2002

Protection from HIV: use a condom	N	Yes (%)	No (%)	
Total	740	69.4	30.6	
Gender				P=0.024
Male	359	63.3	36.7	
Female	381	75.7	24.3	
Living area				P=0.540
Urban	509	67.5	32.5	
Rural	231	70.9	29.1	
Household situation				P=0.779
Not enough money for basics like food & clothes	284	67.7	32.3	
Money for food & clothes, but not for many other things	280	69.3	30.7	
Enough money for most things, including luxuries	176	73.3	26.7	

Protection from HIV: use a condom	N	Yes (%)	No (%)	
Education level				P=0.162
Up to end of primary school	526	67.6	32.4	
High school	214	75.9	24.1	
Has a parent/caregiver ever talked to you about HIV/AIDS?				P=0.020
Yes	386	77.2	22.8	
No	354	63.6	36.4	
Has a parent/caregiver ever talked to you about sex?				P=0.038
Yes	354	76.5	23.5	
No	386	64.2	35.8	

3.5.4 Discussion

One of the main limitations of this study was that, for ethical reasons, types and levels of child abuse could not be measured. This prevented determining the extent to which it contributed to the transmission of HIV, particularly in relation to vertical and nosocomial transmission. Further research on how to access and measure this kind of information in relation to the spread of HIV and the levels of infection in children is urgently needed. Furthermore, due to insufficient numbers of children recruited for the survey, we are unable to correlate child HIV prevalence with risk factors for children. In subsequent analysis we intend to examine the contribution of different risk factors to the probability of a child being infected. Preliminary analysis, however, enables us to show the proportion of children who are at risk in terms of their:

- Environment;
- Care and protection; and
- Knowledge of HIV/AIDS.

In terms of environment, at least 45 per cent of children report that they do not have enough resources for basic necessities such as food and clothes. We hypothesise that poor environments present a greater risk for HIV infection in children, because resources, both materially and in terms of personal care, are too low to ensure adequate protection. This hypothesis will be tested in further analysis. The majority of children without enough resources for basic needs live in urban informal settlements. This environment may increase the risk for HIV infection in children through sexual abuse, and data from this study does indicate a higher prevalence among children in these areas. Moreover, almost a third of children are exposed to someone in their home or neighbourhood who gets drunk at least once a month. Alcohol abuse may also be a factor in sexual abuse and HIV transmission.

The majority of children receive adequate monitoring at home. However at least 5 per cent of children aged 2 to 11 years and 10 per cent of children aged 12 to 14 years are not adequately monitored. Even more worrying is the proportion of children, who are involved in what we have called high risk practices, such as being sent alone on an errand. The awareness of parents and communities about these issues must be increased.

Going to and coming home from school also presents considerable risk for children, and clearly many children are not protected. Interventions are required to bring schools and communities together to help provide more adequate protection for children. In addition, existing levels of protection at schools need to be improved. Sexual abuse by educators and co-students remains a serious problem that must be addressed.

Adequate knowledge and communication about HIV/AIDS and related matters are an important resource for protecting children from contracting HIV. Although almost half of the children, aged 12 to 14 years, report that parents or guardians have discussed sex, sexual abuse, HIV/AIDS transmission and prevention with them, parent-child communication on these issues must clearly be improved. This is even more true for children aged 2 to 11 years. The results show that parental communication on these matters with children, aged 12 to 14 years, correlated significantly with a child's knowledge about how HIV is transmitted and (to a lesser extent) prevented. Overall parent-child communication is more frequent with female children, particularly by mothers. Fathers should be encouraged to communicate more with their children. More communication must be directed toward male children. Schools and educators are by far the major source of information for children on HIV/AIDS, although we cannot establish how effective this communication is in terms of knowledge and behavioural responses such as prevention. Nevertheless, schools and educators as well as mothers are clearly far more important pathways than the media in educating and protecting children. Thus, intervention programmes may be more effective if directed to these groups than through generalised media campaigns. Although levels of communication are considered reasonably good, knowledge of how HIV is transmitted is still deficient, particularly in the 12 to 14 year age group. In this group, only half of the children agree that HIV is transmitted through unprotected vaginal sex and only 21 per cent agree that abstinence is a form of protection. Since many children may not regard abstinence as a viable option, more research into how children understand the various aspects of transmission and protection is needed so that interventions can better improve existing levels of knowledge.