Management of Children's Fever by Parents and Caregivers: Practical Measurement of Functional Health Literacy

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ABSTRACT

Functional health literacy is founded on general and numerical literacy and practical skills, and is required for the appropriate and effective management of health symptoms in children. This study aimed to assess the health literacy skills of parents and caregivers of preschool-aged children, using a progressive scenario describing a child with fever and presenting tasks relating to selection of a medicine and hypothetical dosing of their child. Participants (n=417) from 33 childcare- and health-related sites in Sydney, Brisbane, Melbourne and Auckland completed the study. Participants' responses were largely appropriate regarding actions in response to worsening symptoms, selection of an appropriate product (from a limited range), whereby 84.5% of responses were for a single-ingredient paracetamol product, and use of the package directions to state the frequency of dosing (93.1% of frequencies appropriate for paracetamol, 66.7% for ibuprofen). However, in only 50.8% of cases was an appropriate weight-based dose calculated, and doses were not measured to within 10% of the stated dose in 16.7% of cases. Future studies should focus on skill development via educational campaigns for parents and caregivers.

Keywords

Health literacy, medicines, dose, measurement, fever

INTRODUCTION

Health literacy refers to the abilities of individuals to obtain, understand and apply (or interpret) health care information in written, spoken or digital format, and subsequently make appropriate health-related decisions (Adams et al., 2009a; Finset and Lie, 2010; Jordan et al., 2010). Health literacy impacts an individual's ability to access health care and adhere to therapeutic treatment (DeWalt and Hink, 2009). It is estimated that around nine million Australians – nearly half of the population – have inadequate health literacy (Adams et al., 2009b). Limited health literacy affects the daily lives of individuals; they may ask fewer questions because health information may seem too difficult to understand, and they often misinterpret health-related instructions (Adams et al., 2009b).

Health literacy skills are required for the optimal care of young children, where parents or caregivers must interpret the child's symptoms and make responsible decisions about management of those symptoms. This includes when and how to administer medicines,

selection or calculation of an appropriate dose, measurement of that dose, determination of repeat dosing intervals, and decisions regarding when further medical attention is warranted. The most common medicine used in children from birth to two years of age in Australia is paracetamol (Trajanovska et al., 2010). However, studies suggest that the common use of paracetamol is associated with a large proportion of accidental paediatric overdoses (Daly et al., 2008), most of which would be averted with awareness of its appropriate use. In a study in California, 62% of paracetamol doses measured by parents were inaccurate (Sobhani et al., 2008). This may be related to differing product strengths, types of measuring devices and the increments on the measuring devices (Sobhani et al., 2008; Yin et al., 2010). These studies suggest that choosing the correct product and dose for children are difficult tasks for parents and caregivers (Sobhani et al., 2008; Yin et al., 2010). These types of decisions, founded on general and numerical literacy and practical skills, are indicators of functional health literacy. The principles of 'Quality Use of Medicines' – safe, effective, appropriate and judicious use of medicines (Australian Government Department of Health and Ageing, 2011) – is important in all populations, and may be more challenging to achieve in the paediatric population.

Various measuring devices are available to assist with administration of liquid medications to children; some devices are incorporated into the medicine's packaging.

The oral syringe is the most accurate measuring device for liquid medicines (Yin et al., 2010); other advantages are reduced risks of gagging, spillage and aspiration when dosing the child (Madlon-Kay and Mosch, 2000). Measuring cups are reportedly five times less accurate than syringes (Sobhani et al., 2008; Yin et al., 2010), although cups are commonly supplied with medicines (Yin et al., 2010). Household teaspoons are the least accurate device (Sobhani et al., 2008). However, a study in New Zealand that explored parents' perceptions of dosing devices reported that teaspoons were the most commonly-used device for administering medicines to children aged three to six years (Kairuz et al., 2007).

Researchers in Sydney, Australia pilot tested a method to determine the ability of caregivers to discern the severity of children's symptoms when presented with a scenario describing a fever. Additionally, the caregivers were asked to select an appropriate medicine and measure an appropriate dose for a child. This method was then repeated at an additional three research centres with varying, but complementary, sampling approaches. This paper reports the findings from the combined data from the four research centres. The aim of this analysis was to determine the key health literacy issues relating to management of children's fever by caregivers, assessed using a series of health literacy indicators measured in a hypothetical scenario referring to their own child.

METHOD

The study was conducted between August 2009 and February 2010 by pharmacy students at three universities in Australia and a fourth in New Zealand, under the guidance of academic supervisors. The study was initiated with one pair of researchers from The University of Sydney (denoted as 'Sydney'), followed by three pairs from The University of Auckland ('Auckland'), four pairs from The University of Queensland ('Brisbane'), and two pairs from Monash University ('Melbourne').

Data were collected from 33 sites in total, sampled for convenience, yet reflecting a range of childcare settings in areas expected to have a high proportion of young families; participants of varying health literacy were expected. In Sydney, parents and childcare workers were sampled from seven day-care centres in suburbs varying in socio-economic characteristics. Fifteen day-care centres were recruited in Melbourne, two in Brisbane and four in Auckland. The study also involved two community pharmacies in both Brisbane and Auckland. The remaining site was a surgical day-stay unit within a children's hospital in New Zealand.

At each site, data were collected from parents, caregivers and/or childcare workers recruited from these various settings. In all cases, the manager of the data collection site was approached by telephone or in person, and provided written consent to host the researchers. The parents, caregivers and/or childcare workers invited to participate from each of the Australian sites provided verbal consent, and in New Zealand and Sydney, provided written consent to participate. Inclusion criteria required participants to be a caregiver for a child under six years of age and fluent in English. The study was approved by the relevant university or health ethics committee(s) at each centre.

Data collection was standardised using an instrument developed at The University of Sydney based on a review of the literature. The instrument comprised a hypothetical 'fever' scenario and participants considered their child or children under the age of six years as the subject(s) of the scenario (Appendix 1). The scenario was designed to be progressive, in that the participant's child hypothetically had worsening symptoms, to identify the point at which the participant would administer a medicine for symptomatic relief. At that step, participants were asked to select a product from a range of 14 liquid non-prescription medicines (Table 1) which represented leading brands for management of common childhood ailments in both countries. Participants' preferences for alternative products or brands were noted, while those who indicated that they would not administer any medicine did not complete the subsequent hypothetical dosing task.

Where appropriate, participants determined the dose for their child(ren), selected the measuring device that they would normally use from the range of syringes, medicine cups and spoons provided, and measured the dose. Participants' preferences for other measuring devices were noted. The measured dose was confirmed by a researcher at three of the four research centres (dosing errors were not calculated in the Melbourne sample) either visually or by drawing the dose into a syringe. The measured dose was then returned to the bottle, and the measuring device was rinsed and dried for further use. Participants were asked whether they would give a second dose, and if so, at what time interval.

Demographic data collected included the participant's formal education, number of children, the birth order of the child in this study, and the child's gender, date of birth, weight and any other medical conditions. Minor variability between research centres in the manner of data collection was in accordance with requirements of the respective ethical committees. The researchers at each site were trained to conduct the scenario-based interview by their supervisors at each centre and practice interviews were conducted to ensure that data were collected competently and consistently. Researchers conducted the interviews in pairs, with both recording the participants' responses and

independently confirming and agreeing upon dose volumes to reduce error and increase reliability. For practical reasons, non-participation was not monitored.

Data spreadsheets from each research centre were compared and merged, with descriptive univariate and bivariate analysis undertaken using SPSS®. The analyses reported here are the responses to a series of medication-related decisions and tasks performed by caregivers of young children, as indicators of functional health literacy in caregivers. Differences in proportions were calculated using chi-square, with $p<0.05$ indicating statistical significance. Differences according to characteristics of the child have been reported where feasible.

RESULTS

The study involved 534 responses from 417 participants (range 3-38 responses per data collection site, and 95-207 per research centre). The children considered as the subjects of the scenarios were male in 51.5% of cases, and were predominantly one to four years of age (63.0%). Other demographic data, collected in the majority of research sites, indicated that 85.5% (219/256) of the responses were from parents (as opposed to caregivers), while 42.3% of families represented in the sample (167/395) were single-child families and 43.8% comprised two children (173/395). The child referred to as the

subject of the scenario was the first-born in 53.8% of cases (229/426). As a surrogate measure of socio-economic status, 71.9% of responses (307/434) were from participants who held a tertiary (university) qualification, and 75.3% of responses were from participants (293/389) in some level of paid employment.

An increasing proportion of participants elected to 'give a product' as the three stages of the fever scenario progressed. In the first stage, where the child felt "hot and slightly irritable", 14.7% (61/416) of responses were to dose the child. This response increased to 55.0% (198/360) at the second stage, where the subject had "a temperature of 37.9°C but was still playing, eating and drinking," and further increased to 62.6% (142/227) at the third stage, where the subject had "a temperature of 39.1°C and symptoms of lethargy and irritability." As the scenario progressed, the proportion of responses indicating referral to a doctor also increased, from 0.7% to 5.0% to 30.4%. There was no significant trend in these responses according to whether the child was first born or later ($p<0.05$).

When identifying the medicine with which they would dose the child, 84.5% of responses (331/393) were to select a single-ingredient paracetamol medicine (Table 2), predominantly Panadol® 1-5 years. In half of the responses in which a medicine was chosen (50.8%, 128/252), the parent/caregiver identified a dose that was deemed by the

researcher to be suitable for the child's weight (or age, if this was the only known variable). Incorrect dose calculation was noted in particular in the Auckland group ($p<0.01$), at 70.6% of their sample (84/119), compared to 33.3% (14/42) in the Queensland and 28.6% (26/91) in the Sydney group.

When participants were asked to choose a device to measure the dose they had determined, the most common device chosen was the 5mL oral syringe. Participants generally chose an oral syringe or dropper to measure small doses (Table 3). Of the doses in the range of 0-1.9mL, 28 of 33 participants selected a syringe, while the remainder chose a dropper. Conversely, medicine cups were generally chosen to measure larger doses of medication. One interesting finding, however, was that 19 of 45 participants measuring a dose of at least 10mL elected to use a 5mL oral syringe. The most common range of doses that participants measured using spoons (a medicine spoon or household teaspoon) was 4.0-5.9mL. The researchers' verification of the measured dose indicated that one in six of the parents/caregivers (16.7%) measured a dose that was outside a 10% error margin of the intended dose. Chi-square analysis revealed that respondents' ability to accurately *measure* the required dose was unrelated to their ability to accurately *state* the dose they had determined for their child ($p>0.37$).

A repeat dose would be given after four to six hours by the majority of participants selecting a paracetamol-containing medicine (93.1%, 190/204), and six to eight hours for the majority selecting an ibuprofen-containing medicine (66.7%, 34/51) (Table 4).

DISCUSSION

This research presents a novel insight into the practical management of childhood fever by parents or caregivers of a child aged less than six years. The participants were guided through a progressive scenario based on management of their child, culminating in dosage measurement tasks. Collectively, these responses could be considered measures of functional health literacy (Adams et al., 2009a, 2009b) incorporating decision making about the point at which medical intervention was required, selecting an appropriate medicine, numeracy skills in determining an appropriate dose, and practical skills in selecting an appropriate measuring device and measuring the required dose. By comparison, other measures of functional health literacy reported in the literature include the Newest Vital Sign assessment (Weiss et al., 2005), involving consumers' interpretation of a nutrition panel of a packaged food, the Parent Health Literacy Activities test, involving 20 questionnaire items relating to infant care (Kumar et al., 2010), and tasks requiring medicine consumers to interpret a dispensed medicine label

(Emmerton et al., 2012). Subsequent research could engage participants in combinations of practical and paper-based exercises to contribute to validation of the measures.

This research method accommodates individual variability between the respondents, as the scenario focused the participants' attention on a familiar subject of the scenario (their child), and the intended dose was identified or calculated with respect to that child's age or weight. This offers some advantages over a standardised case study presented to all respondents, in that, for example, a parent of a young baby would not be asked to calculate and measure a dose for a hypothetical five-year-old child. There was minor variability in the research conduct and data entry between research centres, particularly in the range of sites recruited by each centre; this was considered to add richness to the data. The four datasets combined for analysis were standardised by including only common variables and were checked by a supervisor at each centre before merging. Similar research by Yin et al. (2010) was a single-site study in New York, reporting the accuracy of parents' measurement of liquid medicines not associated with a scenario to explore other aspects of health literacy. Another limitation is that the hypothetical scenarios might not reflect actual practice; despite the participants remaining anonymous, their responses may have been tempered by virtue of being observed by the researchers. Further, for brevity, our research did not include a validated measure of health literacy for comparison of the data from the practical tasks.

A subsequent study, designed to engage participants for a longer period of time at their convenience and powered to detect differences between subgroups of participants, may explore such a comparison, given that our data are suggestive of variable functional health literacy. Findings may not be generalisable to the wider population, given that characteristics of non-participants were not documented.

The fever scenario was presented in three stages, with the intention that a product 'should' be given at the third stage, when the fever reaches 39.1°C and the child has symptoms of lethargy and irritability (Russell et al., 2003). The majority of participants had decided that the subject should be dosed by that stage, with just over half of them electing to dose their child prior to this when the fever was less than 39.0°C and the symptoms were mild. There is controversy surrounding reduction of fever in children, in that fever itself may not be harmful (Russell et al., 2003). However, it is recognised that fever may be associated with fatigue, arthralgia and myalgia, and may result in tachycardia, tachypnoea and febrile convulsion (Pearce and Curtis, 2005), and the World Health Organization recommends the use of paracetamol for children with a fever greater than 39.0°C (Russell et al., 2003). Paracetamol was found to be the ingredient of choice for the majority of our participants, consistent with research by Chiappini et al. (2012) in a survey of parents of preschool children in Italy. Ibuprofen is recognised as a valid choice for fever reduction, with a similar safety profile to

paracetamol (Perrott et al., 2004; Southey et al., 2009), and is marketed in Australia for infants over three months of age. Indeed, some research has reported ibuprofen to be more effective in reducing fever than paracetamol (Hay et al., 2009; Perrott et al., 2004). The present study did not explore reasons for preferences or the participants' product familiarity.

It is a concern that half of the participants identified an inappropriate dose. This is an aspect of health literacy that warrants further investigation: do parents/caregivers not 'see' the information, are they unable to comprehend or apply it, do they use doses recommended by others, or do they deliberately contradict the product directions? The labels of all of the antipyretic (fever-reducing) medicines presented to the participants listed doses by weight; however, only half of the participants identified an appropriate dose for the child's weight when this was known. While manufacturers' doses are presented as ranges to account for the body weight and composition of individual children, and inaccuracy in measuring devices is inherent, it should be borne in mind that under-dosing is therapeutically ineffective, and repeated over-dosing risks toxicity in paediatric patients. It is interesting to note that appropriate dosing with paracetamol in *obese* children is best determined by their 'ideal weight' rather than their actual weight. If using the actual weight to determine the dose for an obese child, this may lead to an overdose of the medication and risks of hepatotoxicity (NSW Health

Department, 2008). Despite the rising trend in childhood obesity (ABS, 2011; AIHW, 2004), our study did not determine the prevalence of overweight children in our sample, and therefore whether this adjustment should apply to the participants' child.

There are advantages and disadvantages of dosing regimens based on age or weight. Age-based regimens have the advantage of being used easily in a practical setting (Bartelink et al., 2006), and doses are simple to determine. However, they do not account for the variability of pharmacokinetics of individuals over the range of ages (Bartelink et al., 2006). Body weight-based regimens have the advantage that pharmacokinetic factors are commonly founded on weight rather than age, but may overdose children who are obese, and therefore, there is a need for a maximum dosage to be determined (Bartelink et al., 2006).

It was reassuring to note that the majority of participants recognised the pattern of increasing seriousness in the scenario. For those who indicated medical intervention such as taking the subject to a medical practitioner or hospital at the most serious stage, it was unclear whether they would give a medicine in the interim. A limitation of the study was requesting participants to nominate a single action. Walsh and colleagues (2007) identified that parents may perform multiple or stepwise actions in response to fever symptoms, that they initiated antipyretic medication at a temperature anywhere

from 37.0 to 40.0 degrees Celcius (mean 38.3 degrees), and that some parents alternated antipyretics when one medicine was considered ineffective, a practice that is supported by some health professionals, but can lead to overdosing and is not recommended by Health authorities (NSW Health, 2010). Similarly, Chiappini et al. (2012) reported that around one in five parents would alternate dosing with two antipyretic medicines, yet favoured physical methods for reduction of a mild fever. Another limitation was that the scenario did not indicate how the child's temperature had hypothetically been taken (e.g. mouth, armpit), and whether parents/caregivers recognised that this can influence the thermometer reading (Pearce and Curtis, 2005).

Syringes and droppers, generally chosen to measure smaller doses of medications, were appropriate choices (Yin et al., 2010; Chiappini et al., 2012) for measurement of the medicines in this study. Measuring larger doses (at least 10mL) using a 5mL oral syringe, as reported for 19 of 45 participants, introduces measurement error. Despite presenting a range of standard medicine measures, it was surprising that eight respondents chose to use a household teaspoon, recognised as the least accurate measure (Madlon-Kay and Mosch, 2000; Sobhani et al., 2008). A teaspoon's capacity can vary from 1.5-10mL (Madlon-Kay and Mosch, 2000; Sobhani et al., 2008).

The ability of most parents or caregivers to state the correct dose interval for paracetamol, if another dose were to be given, largely reflected the directions on the packaging of the respective products. More frequent dosing, as noted more commonly for ibuprofen, was presumed related to its longer stated dose interval (6-8 hourly compared to 4-6 hourly for paracetamol). This finding confirms the inappropriate dosing for children's fever reported by Walsh et al. (2007). Although this information is provided on the medicine packaging, it should be noted that continuous dosing of either paracetamol or ibuprofen at their respective specified dosage interval could exceed the maximum recommended number of doses in a 24-hour period.

CONCLUSION

Responsible and effective management of an unwell child requires a range of functional health literacy skills. In this scenario-based study conducted across 33 health or care-related sites, the ability of parents/caregivers to identify when it would be appropriate to administer a medicine, and to accurately identify and measure the dose, produced mixed findings. Positive findings were participants' response to the worsening symptoms, selection of an appropriate product (from a limited range) and use of the package directions to state the frequency of dosing. Findings of concern were the participants' determination of appropriate weight-based doses, and, to a lesser extent, selection of

appropriate medicine measure and measurement of an accurate dose. Skill development of caregivers is recommended, via educational campaigns and coaching by healthcare providers. An international comparison of fever management guidelines *versus* practice is also suggested.

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Table 1: Products Available for Selection by Participants (Australian Research Centres*)

Product	**Active Ingredient/s**
Panadol® Infant	Paracetamol 100mg/1mL
Panadol® 1-5 years	Paracetamol 120mg/5mL
Panadol® 5-12 years	Paracetamol 240mg/5mL
Nurofen® for Infants	Ibuprofen 100mg/5mL
Nurofen®	Ibuprofen (1-5years) 100mg/5mL Ibuprofen (5-12 years) 200mg/5mL
Dymadon® Infant (1 month to 2 years)	Paracetamol 50mg/1mL
Dymadon® Children (2 years - 12 years)	Paracetamol 250mg/5mL
Dimetapp® (3 months to 2 years)	Ibuprofen 40mg/1mL
Dimetapp DM®	Brompheniramine maleate 2mg/5mLPhenylephrine hydrochloride 5mg/5mLDextromethorphan 10mg/5mL
Demazin Cold®	Chlorpheniramine maleate 1.25mg/5mL Phenylephrine hydrochloride 2.5mg/5mL
Demazin Cough & Cold®	Brompheniramine maleate 2mg/5mL Phenylephrine hydrochloride 5mg/5mL Dextromethorphan hydrobromide 10mg/5mL
Claratyne®	Loratadine 5mg/5mL
Zyrtec®	Cetirizine 5mg/5mL
Phenergen®	Promethazine hydrochloride BP 5mg/5mL

*Equivalent brands were made available in the New Zealand research sites

Table 2: Fever Medicine Selected by Participants

Ingredient and Formulation		**n***	**%**
Paracetamol		331	84.2
	Infant formula 100mg/1mL (n=72)		
	Children 120mg/5mL (n=257)		
	Unspecified (n=2)		
Ibuprofen		61	15.5
	Infant 100mg/5mL (n=14)		
	Children 100mg/5mL (n=47)		
Paracetamol + ibuprofen		1	0.3
Total		**393**	**100.0**

*No product selected: n=8

Table 3: Measuring Device Selected by Participants

Device	Stated Dose (mL)													
	0-1.9	%	2-3.9	%	4-5.9	%	6-7.9	%	8-9.9	%	>=10	%	Total*	%
Oral Syringe (5mL)	28	84.8	28	87.5	44	63.8	44	73.3	20	44.4	19	42.2	183	64.4
Medicine Cup	0	0.0	1	3.1	10	14.5	13	21.7	24	53.3	25	55.6	73	25.7
Medicine Spoon	0	0.0	1	3.1	8	11.6	1	1.7	0	0.0	0	0.0	10	3.5
Teaspoon	0	0.0	1	3.1	5	7.2	1	1.7	0	0.0	1	2.2	8	2.8
Dropper	5	15.2	1	3.1	0	0.0	0	0.0	1	2.2	0	0.0	7	2.5
Spoon Cup Hybrid	0	0.0	0	0.0	1	1.4	1	1.7	0	0.0	0	0.0	2	0.7
Other	0	0.0	0	0.0	1	1.4	0	0.0	0	0.0	0	0.0	1	0.4
Total	33	100.0	32	100.0	69	100.0	60	100.0	45	100.0	45	100.0	284	100.0
*Missing data due to unidentified measuring devices from one research centre														

Table 4: Dosing Intervals for Paracetamol and Ibuprofen Identified by Participants

Time interval (hours)	Paracetamol				Ibuprofen		
	Infant	Children	Unspecified	Total*	Infant	Children	Total*
1	0 (0.0%)	3 (1.5%)	0 (0.0%)	3 (1.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
2	1 (0.5%)	1 (0.5%)	0 (0.0%)	2 (1.0%)	0 (0.0%)	1 (2.0%)	1 (2.0%)
3	2 (1.0%)	2 (1.0%)	0 (0.0%)	4 (2.0%)	1 (2.0%)	2 (3.9%)	3 (5.9%)
4	52 (25.5%)	96 (47.1%)	2 (1.0%)	150 (73.5%)	1 (2.0%)	12 (23.5%)	13 (25.5%)
5	2 (1.0%)	4 (2.0%)	0 (0.0%)	6 (2.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
6	9 (4.4%)	25 (12.3%)	0 (0.0%)	34 (16.7%)	5 (9.8%)	21 (41.2%)	26 (51.0%)
7	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (2.0%)	1 (2.0%)
8	1 (0.5%)	3 (1.5%)	0 (0.0%)	4 (2.0%)	0 (0.0%)	7 (13.7%)	7 (13.7%)
12	0 (0.0%)	1 (0.5%)	0 (0.0%)	1 (0.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Total	67 (32.8%)	135 (66.2%)	2 (1.0%)	204 (100.0%)	7 (13.7%)	44 (86.3%)	51 (100.0%)

*Missing data from one research centre, where data were entered as 'correct' or 'incorrect'

Appendix 1: Fever Scenario

Name of Child:_____

Age of Child: _____

Weight of Child (kg):_____

SCENARIO

1. Your x year old child feels hot and is a bit irritable. What would you do?
   - ☐ Take a temperature – *step 2*
   - ☐ Give a product – *step 3*
   - ☐ Watch for more signs – *step 2*
   - ☐ Nothing – *step 2*
   - ☐ Doctor
   - ☐ Accident & Emergency
   - ☐ other: _____

2. The child's temperature is 37.9 degrees Celsius. What do you do?
   - ☐ Give a product – *step 4*
   - ☐ Watch for more signs – *step 3*
   - ☐ Nothing – *step 4*
   - ☐ Doctor
   - ☐ Accident & Emergency
   - ☐ other: _____

3. Later, the child's temperature is 39.1 degrees Celsius. What do you do?
   - ☐ Give a product – *step 4*
   - ☐ Nothing – *step 4*
   - ☐ Doctor
   - ☐ Accident & Emergency
   - ☐ other: _____

4. Select a product, state a dose for your child, select a measuring device and then measure the intended dose.:
    - Product selected:
        - ☐ Panadol Infant
        - ☐ Panadol 1-5 years
        - ☐ Panadol 5-12 years
        - ☐ Nurofen for Infants
        - ☐ Nurofen
        - ☐ Dymadon Infant
        - ☐ Dymadon Children
        - ☐ Dimetapp
        - ☐ Dimetapp DM
        - ☐ Demazin Cold
        - ☐ Demazin Cough & Cold
        - ☐ Other: _____
    - Dose stated by parent:_____
    - Device used:
        - ☐ oral syringe
        - ☐ measuring cup
        - ☐ teaspoon
        - ☐ other: _____
    - Quantity measured:_____

5. If you were to give another dose of this medicine, how much time would you leave between doses?_____

6. Would you give any other medicines in the next 24 hours?
   _____
   _____

Notes: