# Using Photographs and Human Body Diagrams as Visual Aids to Help Children Talk About Bodily Touch

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**Abstract**

The present study aimed to examine whether using two separate visual aids (Human Body Diagram vs. photograph of subject) for different purposes (to clarify/elaborate reported touches vs. elicit unreported touches) effected the accuracy and amount of touch-related information reported by children aged between 5 and 6 years. It was found that children reported more correct touches from the scripted event when they were interviewed using a photograph of their bodies. Contrary to expectations though, the amount and accuracy of touch-related information did not significantly differ between interviewing conditions. Additionally, all children reported the most accurate information prior to touch-inquiry before visual aids were introduced. In light of these findings, it is suggested that visual aids may not provide any more substantial benefits compared to verbal prompting alone. Given the risks associated with their use (i.e., leading to increases in reported errors) the present study endorses future research that seeks to develop more effective verbal interviewing techniques, which assist in the retrieval of more complete and accurate statements from children.

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During a criminal investigation, the probability of a crime being solved may depend on the quality of memories recalled by an eyewitness (Hanna, Davies, Henderson, Crothers, & Rotherham, 2010). In courts of law, testimonial evidence is believed to comprise, on average, 80% of the total evidence presented (Schollum, 2005). Investigative interviewers face the challenging task of gathering accurately detailed reports from individuals that witness or are victims of crime. Given the persuasive nature of eyewitness evidence on investigators and juries (Schollum, 2005), it is paramount that investigative interviewers utilise empirically validated interviewing techniques and protocols when eliciting statements from eyewitnesses about their experiences. For vulnerable witnesses such as young children, the task of eliciting accurate, detailed, and legally defensible reports can be particularly difficult due to their developing cognitive and communicative capacities (Goodman & Melinder, 2007). Practitioners have therefore developed strategies intended to elicit more accurate and complete statements from children that have experienced instances of sexual or physical maltreatment (Lamb, Orbach, Hershkowitz, Esplin, & Horowirz, 2007). The current study aims to investigate the efficacy of using non-verbal aids – body diagrams and photographs - when paired with a highly reputable interviewing protocol in eliciting accurate and complete descriptions of experienced touch from young children.

## Child victims of sexual abuse in New Zealand

In the past decade, childhood sexual abuse has been a particularly topical issue in contemporary New Zealand society. Evidence from both incidence statistics and prevalence research also underscores the extent to which child sexual abuse is a significant social problem. In 2011 alone, both the New Zealand Police, and Child Youth and Family Services interviewed 4 407 children under the age of 16 to investigate suspicions of child maltreatment

(DS. N. Westera, personal communication June 12, 2012). Incidence statistics gathered from Child Youth and Family services found that between 2011 and 2012, 152 800 notifications of child maltreatment were received and 1 396 of these were incidences of sexual abuse (Bennett, 2012). Based on the latest offense statistics recorded between June 2012 and June 2013 by the New Zealand Police, 1 083 allegations of sexual assault against a child under 12 were made, with sexual abuse being substantiated in 654 of these cases (Statistics New Zealand, 2013).

To date three community-based studies have been conducted in New Zealand, which have each provided some insight into prevalence rates of childhood sexual abuse. Anderson, Martin, Mullen, Romans, and Herbison (1993) found that of the 2000 women that completed a survey for the Otago Women's Health Study, one-third had experienced some form of sexual abuse before age 16. The New Zealand Violence Against Women Study (Fanslow, Robinson, Crengle, & Perese, 2007) also surveyed a random sample of 2 855 women aged between 18 and 64 from the Auckland and North Waikato regions. Results showed 573 (20% of sample) women reported having experienced unwanted sexual touch before the age of 15. Finally, the New Zealand Youth 2000 survey series (Clark et al., 2013), which included almost 10 000 high school students under 18, found that 19.5% of girls and 9% of boys had reported some form of unwanted sexual experience. Across all three studies, prevalence rates for childhood sexual abuse sit between 9% and 32%, which paints a worrisome picture for the young people of New Zealand. Even more concerning is prevalence and incidence data likely reflect conservative representations of sexual abuse in New Zealand, given the frequency of non-disclosure by victims (Fegusson, Horwood, & Woodward, 2000; London, Bruck, Ceci, & Shuman, 2007).

The impact of sexual maltreatment on children at both an individual and societal level is considerable. The flow on effects of sexual abuse can result in victims being afflicted by

ongoing psychological, physical, and emotional issues (Banyard, Williams, & Siegel, 2001; Mullen, 1991). Additionally, due to the associated health, welfare, and legal expenditures, the annual cost of child sexual abuse to New Zealand society has been estimated at upwards of 2 billion dollars (Julich, 2004). Given the significant personal and financial cost, it is evident that the investigation of child sexual abuse is an important aspect of child protection. When investigating alleged maltreatment against children, if physical evidence is limited, as is often the case in child sex abuse allegations, eyewitness testimonies usually provide the only sources of criminal evidence (Bays & Chadwick, 1993). It is vital then that young witnesses give reliable and detailed disclosures of the crime, as their allegations are not only the key evidential source, but will also help decide whether future actions should be made regarding certain criminal and civil matters (Ceci & Bruck, 1995). These decisions might impact on an alleged perpetrator's freedom and integrity, as well as a child victim's physical, emotional, and psychological safety. To ensure the protection of both parties', it is essential that interviewers understand children's capacities to provide complete and accurate eyewitness statements (Ceci & Bruck, 1995; Lamb, Malloy, & La Rooy, 2011). The following section will examine children's capacities as eyewitnesses, and their abilities to provide accurate and complete recollections of experienced events.

**Children as eyewitnesses**

Historically, obtaining accurate and complete recollections from young children about their sexual maltreatment was viewed as unfeasible due to their developmental weaknesses (Ceci & Bruck, 1995; Herman, 2009; Lamb et al., 2011; Poole & Lamb, 1998). In fact, prior to the 1980's children vary rarely appeared as witnesses and thus research examining the quality of their recollections was nearly non-existent. This changed due to a group of high profile sexual abuse trials that took place in the early 1990's (e.g. the little rascals and McMartin preschool cases), which placed children on the stand, in front of juries

as primary witnesses (see Ceci & Bruck (1995) for a review). As children's appearance in the court setting has increased, so too has the research evaluating their competence to provide accurately detailed witness statements.

Methodologies typically used by researchers assessing children's eyewitness ability examine children's memories of prior experiences via two forms of experimental paradigms. Controlled laboratory studies involve experimenters staging a to-be-remembered (TBR) event and later, following varying delay intervals, children are asked to recall everything that occurred during the event (Chae, 2010). Other studies might also utilise scenarios whereby the event is unfamiliar to the experimenter, such as asking a child to recall a personal and emotionally salient memory (Quas, Goodman, Ghetti, & Redlich, 2000). In research where the TBR event is staged by the experimenter, both the accuracy and amount of information can be examined. The difficulty with known events is that although experimenters may strive to create novel and salient experiences, the nature of the activities will have limited similarity to the highly emotive experiences of children interviewed in the forensic context (Poole & Lamb, 1998). Thus, the degree to which such research can directly inform the forensic interviewer is sometimes challenged (Lyon, 2012)

In contrast to controlled laboratory studies, field studies involve analysis of interviews conducted in real-world contexts that ask alleged childhood abuse victims to recall and narrate information about their abusive experiences (Chae, 2010). The advantage of such an approach is that variables of interest can be examined within the context that they are likely to have an influence. Such research is typically limited, however, by having no objective record of the to-be-remembered event(s), which means the completeness and accuracy of children's accounts cannot be assessed (Chae, 2010).

Together both methodologies from laboratory and field studies have contributed to a better understanding of children's capacities to provide high quality and detailed memories of

past events. Providing appropriately detailed and highly accurate memories is fundamental to determining a witness's competency. Competent witnesses are said to be ones that can perceive and encode information in the environment, memorise these experiences and later retrieve then transform these experiences into structured narrative reports (Hoyano & Keenan, 2010). To some extent, these competencies parallel the fundamental processes underlying the three stages of human memory, which are encoding (perceiving), storage (memorising), and retrieval (reporting) (Gathercole, 1998). Children's capacity to encode, store, retrieve and report their experiences, and thus act as competent witnesses, has been an important focus of applied memory development research.

**Children's memory and eyewitness testimonies**

Memories recounting eyewitness reports are believed to be stored in episodic memory (Gathercole, 1998). An episodic memory holds information about specific experiences from the past (La Rooy, Malloy, & Lamb, 2011). Endel Tulving, considered the forefather of episodic memory, describes the sensation of episodic recollection as a sort of 'mental time travel' whereby an individual can mentally project oneself as to relive a past event. According to Tulving, the capacity to recall previous experiences does not emerge until age 2, and is fully developed by age 4 (Tulving & Thompson, 1973). The position of current research is that the developmental age for this ability lies somewhere between 2.5 and 3 years (Chen, McAnally, & Reese, 2013). At this age children can temporarily develop and verbally convey long-term memories of a specific and personal nature (Klemfuss & Ceci, 2009). By age 5 children are capable of organising their experiences into complex narratives (Pipe, Lamb, Orbach, & Esplin, 2004). Full development of episodic memory however, is not thought to be until 8 years of age, when children have mastered retrieval strategies (e.g. grouping and linking), which help organise memories into more accessible cognitive units (Jones, 2003).

During encoding children must invest cognitive resources in order to attend, filter and encode event information from their surroundings (Gathercole, 1998). When an event is novel and there are a large amount of details to encode, children tend to encode far less information than adults because they have fewer experiences, and thus established script-knowledge (knowledge about details shared by comparable events) of events, to draw from (La Rooy et al., 2011). Children also struggle to store all the information that might be encoded (Ceci & Howe, 1978). This is thought to be due to a combination of limited availability of storage in memory and inefficient techniques used to organise stored information (Klemfuss & Ceci, 2009).

Due to the reconstructive nature of memory, not everything that has been encoded is easily retrieved and reported (La Rooy et al., 2011). Compared with older children, younger children are less successful in accessing and employing mental strategies that facilitate retrieval (Ackerman, 1982). Subsequently their memory searches tend to be incomplete and restricted (Pipe et al., 2004). Additionally, when children are relaying their memories, their reports tend to lack sufficient structure, which often results in them asserting unimportant details and disregarding important ones (Poole & Lamb, 1998). An overarching conclusion that emerges from research on memory functioning is that the quantity of memories recalled is positively correlated with age (La Rooy et al., 2011). Thus, as children age their competency as witnesses propagates due to their growing ability to recall lengthier more informative memories, and hence increasingly detailed and complete eyewitness statements.

Even though younger children may provide fewer details than older children, eyewitness research has also shown that young children are just as competent as older children in providing accurate statements (Goodman & Reed, 1986). Baker-Ward, Gordon, Ornstein, Larus, and Clubb (1993) interviewed 124 five and seven year old children about a physical medical examination they had experienced with a doctor. The authors found that 5

year olds provided correct accounts just as well as 7 year olds, and in fact outperformed them when they were interviewed immediately after the examination. Additionally, young children's memories of past events can endure over long periods of time (Ornstein, Gordon, & Larus, 1992). This was demonstrated in Pipe, Sutherland, Webster, Jones and La Rooy (2004) study, which found that children aged 7 and 8, were still able to report details from an event they experienced when they were just 5 and 6. Analogous eyewitness research has indicated that, as with adults and older children, young children's accounts may also include some erroneous details (Baker-Ward et al., 1993; Saywitz, Goodman, Nicholas, & Moan, 1991). The types of errors that tend to emerge are of two varieties, commission or omission errors (Bruck, 2009). Commission errors appear when children report false information and omission errors occur due to a denial of, or failure to include details that did occur (Steward, Bussey, Goodman, & Saywitz, 1993). Given the brevity that typically characterizes young children's narratives it is not surprising that they are more prone to making errors of omission rather than commission (Ceci & Bruck, 1995).

Based on this review it is clear that young children can competently recall accurate information. However, compared with older children their statements tend to be less detailed. Additionally, young children are able to retain information over a long period of time, but they might be more inclined to incorporate some erroneous details. Evidently, children's developmental progression mirrors an increasing capacity to provide accurate accounts of their experiences. This is in part due to them developing increasingly refined functional capacities like narrative and memory abilities (Lamb & Brown, 2006; Lamb et al., 2011). Other factors can also influence young children's capacity to provide accurate and complete eyewitness statements. These will now be discussed.

**Factors affecting children's memory abilities**

A child's ability to provide an accurately detailed eyewitness report is influenced by how vivid their experience is in memory (La Rooy et al., 2011). A more salient incident is likely to be recalled with more ease. Although one might presume forensically relevant memories to be more distinctive than everyday events, this in not necessarily always the case (Quas et al., 2000). For example, sexual abuse may not be the central feature of an abusive interaction, but it may instead take place in the context of other activities (e.g. dressing or bathing) (Brown, Pipe, Lewis, & Lamb, 2007). When abuse occurs alongside an activity, children may not attend to specific actions or be aware of their experienced abuse. Sadly, many children also experience abusive acts repeatedly over prolonged periods of time. As such, any individual occurrence may not be especially salient, or may be represented in memory as a script of what typically transpired across multiple instances or episodes (Lamb, Hershkowitz, Orbach, & Esplin, 2008).

Children's motivation to report their abusive experiences can also influence their eyewitness statements (Goodman & Melinder, 2007). Due to the sensitive nature of sexual abuse, abused children may experience shame, embarrassment, guilt or fear (Lamb & Brown, 2006). In turn this may influence their motivation to disclose as well as the level of detail they choose to include. Children may also be fearful of the consequences if they do tell, or might feel ashamed or responsible for the actions taken against them (Poole, Bruck, & Pipe, 2011). Their relationship to the perpetrator or exposure to threats can also diminish their motivation to disclose their experiences (Lyon, 2012). Low disclosure rates as disseminated in prevalence research, suggests that motivation plays a key role in whether children choose to divulge their abuse (London et al., 2007; Lyon, 2007).

Children's abilities to verbalise their experiences also impacts on the quality and quantity of their statements (Lamb et al., 2011). During forensic interviews children must be able to

recognise what information the interviewer requires, provide a coherent report, monitor their reports and modify them according to the interviewers changing questions (Lamb & Brown, 2006). Naivety about the type of information and level of detail an interviewer requires, coupled with a presumption that adults know about their experiences, may mean children do not include important information about their experiences, even if they have encoded it (Brown, Lamb, Pipe, & Orbach, 2008). Thus children's reports may lack important details required to establish the validity of an allegation.

Children's ability to retrieve and report information from experienced events is powerfully shaped by the verbal strategies employed by forensic interviewers (Hardy & Van Leeuwn, 2004). In particular, recall memory probes like open-ended prompts (e.g tell me everything about that time) are likely to elicit more accurate information than recognition memory probes such as closed questions (e.g. did he touch you on your body?) (Lamb et al., 2007). This is because open-ended questions rely on the individual recalling and reporting information from their own memory, whereas closed questions offer respondents to confirm or deny whether a piece of potentially suggested information transpired. Younger children frequently make affirmations towards closed questions as they interpret it as the interviewer's expectations (Krahenbuhl & Blades, 2005; Rocha, Marche, & Briere, 2013). In addition to influencing the accuracy of children's statements, the prompts adopted by interviewers affect the amount of information reported by child witnesses (Quas et al., 2000). Significantly more information is typically elicited by open-ended than closed questions (Sternberg, Lamb, Orbach, Esplin, & Mitchell, 2001). Furthermore, open ended prompts have been shown to assist children in providing more coherent and organised accounts than closed questions, and increase the likelihood of children reporting details critical to establishing the particulars of an investigation (Brown & Lamb, 2009; Orbach & Lamb, 2000).

Despite this, forensic interviewers frequently pose directive and often leading questions in order to obtain more complete reports from children (Hershkowitz, Fisher, Lamb, & Horowirz, 2007; Orbach et al., 2000). Furthermore, even after forensic interviewers have been trained and educated against the use of suggestive and developmentally precarious interviewing techniques, lack of adherence to best practice guidelines persists (Brown & Lamb, 2009). The National Institutes of Child Health and Human Development's (NICHD) Investigative Interviewing Protocol was developed to translate best practice recommendations into operational guidelines (Orbach et al., 2000). The premises of this protocol and some research that has emerged alongside it will now be discussed.

**The NICHD Investigative Interviewing Protocol**

The NICHD Investigative Interviewing Protocol provides a structured interviewing plan that covers four main phases of an investigative interview conducted with children (Lamb et al., 2007). The first stage is the *pre-substantive phase* where ground rules, interviewer-interviewee rapport and interviewing competency are established. Ground rules for the interview are conveyed to the child (e.g., truth/lies ceremony), and the child is presented with various questions intended to ensure they understand their ability to exert control over the interviews proceedings (e.g., the acceptability of responding with "I don't know", "I don't understand", or correcting the interviewer). During this pre-substantive phase, the interviewer is responsible for generating a supportive and relaxing environment, as well as building rapport with the child. This preliminary phase also introduces and familiarizes children with the questioning style adopted in the substantial phase of the interview. This is done by using open-ended invitations to prompt the child to describe a recently experienced novel event in detail (Lamb et al., 2007).

The interviewer makes the transition from the pre-substantive phase to the *substantive phase* of the interview by using a series of prompts that relate non-suggestively to the event

being investigated. Once the child makes an allegation, open-ended prompts are initiated to examine the child's account, and interviewers employ more focused questions to elicit or clarify information as needed. The NICHD protocol emphasises that interviewers prioritise their use of less focused prompts and only use recognition prompts towards the end of the interview, when completely necessary (Lamb et al., 2007). Importantly, when interviewers use more focused prompts they follow them with a return to an open style of prompting to elicit elaborative responses about any new information reported. Finally, when the child cannot report anything further the interviewer establishes *closure* and shifts conversation to a *neutral* topic, which makes up the third and fourth stages (Lamb et al., 2007).

A central feature of the NICHD protocol is the child centered interviewing approach. The interviewing cues to prompt further information utilise the child's own self-generated responses (e.g. "you mentioned he touched you on the bottom, tell me all about that") (Orbach et al., 2000). Research has demonstrated that interviewers who use the protocol better adhere to recommended interviewing practices, and elicit more details from children in free recall (Orbach et al., 2000; Orbach & Lamb, 2000; Sternberg et al., 2001). Younger children (between five and six years), however still provide relatively spare accounts of their experiences in response to all types of prompts elicited by the NICHD protocol (Lamb et al., 2003). Thus even when interviewed with an empirically validated protocol, children may still omit important details needed for an investigation. As a result, interviewers may use non-verbal techniques like anatomical dolls and human body diagrams (HBDs) to supplement verbal interviewing strategies. These non-verbal props may elicit important details that have not been provided in response to verbal prompting (Salmon, Pipe, Malloy, & Mackay, 2012).

**Props**

Dolls and Human Body Diagrams (HBDs) are props that may be introduced in an investigative interview to facilitate children's reports of forensically relevant details like

touch (Steward & Steward, 1996). When investigators are formulating a case, understanding the full extent of sexual touching during an incident of sexual abuse is critical. Young children's report of touch can influence the level of charge that may be laid against a perpetrator (Bonnar-Kidd, 2010). As a result highly specific information about the nature and location of physical contact is needed. However, young children are prone to omitting such essential pieces of information in their reports (Steward & Steward, 1996). When young children are struggling to recall instances of touch, interviewers may introduce dolls or HBDs to assist children in describing touch experienced during an abusive incident.

Dolls are three-dimensional objects that may be anatomically detailed (with genital body parts) or presented clothed or lacking in genital features. HBDs are line drawings of the front and back view of a human figure that may be clothed/unclothed and gender/non-gender specific (Brown, 2010). These props allow children to elaborate on their abusive encounters in a non-verbal manner by means of demonstrating actions (in the case of dolls) or indicating locations of abuse-related touch (Pipe & Salmon, 2009). Children's capacity to use props like body diagrams and dolls is based on their abilities to identify each prop as independent objects and comprehend that they also functions as a symbol intended to represent their own bodies. This skill is known as dual representation (DeLoache, 1991).

The rationale for using these props is based on the belief that they assist children with retrieval and reporting by acting as representations of the self at the time the critical event was experienced (Dickinson, Poole, & Bruck, 2005). This reasoning is based on Tulving's Encoding Specificity Principal which states that when information at retrieval overlaps with features present at the time the event was encoded, memory is substantially facilitated, and mental representations of target information are more readily available (Tulving & Thomson, 1973). During retrieval, these props can act as physical cues for a child's own body, which then evokes recall of event related details (Ceci & Bruck, 1995). Additionally, because these

props provide a non-verbal means of communicating, they assist children in overcoming previously described communication, motivational and developmental issues which can act as barriers to them reporting their abuse (Aldridge et al., 2004; Teoh, Yang, Lamb, & Larsson, 2010). These props can also be used more formally to confirm and clarify children's knowledge of body part names and locations (Poole & Dickinson, 2011). The use of props in interviews began to emerge in forensic contexts with young children during the 1980's and largely in the absence of any evidential research. Only once they had been firmly established did researchers begin to study the influences their use had on the amount and accuracy of information reported by young children during investigative interviews (Brown, 2010; Pipe & Salmon, 2009).

**Dolls as visual aids**

As research has developed so too has criticism towards the use of dolls as supplementary techniques when interviewing young children suspected of sexual maltreatment. Several conclusions have emerged from research with dolls. Firstly, although dolls may lead to more touch-related information being reported, they also decrease the overall accuracy of children's statements (Poole et al., 2011). Secondly, some field studies have shown that dolls increase children engaging in play related actions and enhance the number of fantastic details reported (Thierry, Lamb, Orbach, & Pipe, 2005). Thirdly, supporters of dolls believe that children's behaviour towards the objects can be evidential of sexual abuse. However, studies have refuted this claim consistently showing that abused and non-abused children do not differ in the way they engage with dolls (Dickinson et al., 2005). Due to their dubious effects, research has essentially concluded that dolls should be used as an absolute last resort. Not only can dolls reduce testimonial accuracy, but their promotion of play can prevent children from remaining on task, thus rendering their statements more susceptible to suggestive content (Poole et al., 2011).

**Human Body Diagrams**

More recently human body diagrams have been viewed as safer alternatives to dolls. In doing so, HBDs serve the same purpose as dolls. They provide a means to indicate touch related experiences. However, children may be less likely to engage in exploratory play with diagrams, which may be interpreted as communication of abusive experiences. Also, given that drawings are defined as representation of other things, body diagrams may be more easily recognised as representing the child's own body. HBDs may thus overcome, to some extent, the problem young children may have with the dual representation that dolls carry (as both a plaything and as a representation of themselves).

To date, only a small body of literature has examined the effects of interviewing children with HBDs on the amount and accuracy of information disclosed in their reports. Such studies have drawn varying conclusions (see Table 1 for a summary). Of these studies, five found HBDs to increases information but diminish accuracy (Brown, Pipe, Lewis, Lamb, & Orbach, 2012; Bruck, 2009; Otgaar, Horselenberg, Kampen, & Lalleman, 2012; Poole & Dickinson, 2011; Steward & Steward, 1996). Two studies found HBDs had no effect on amount of information but a significant reduction in accuracy (Brown et al., 2007; Willcock, Morgan, & Hayne, 2006). Two field studies (Aldridge et al., 2004; Teoh et al., 2010) demonstrated that HBDs aided the provision of more forensically relevant information, but accuracy could not be evaluated. Finally Salmon et al. (2012) found HBDs did not significantly affect the amount or accuracy of information reported by children.

Summarising findings across laboratory research suggests that while HBDs *may* have positive effects on the amount of information reported, this may be at the expense of the accuracy of children's statements (Brown et al., 2007; Brown et al., 2012; Bruck, 2009; Otgaar et al., 2012; Poole & Dickinson, 2011; Steward & Steward, 1996; Willcock et al., 2006). Conclusions from field research suggest that HBDs may assist children in

Table 1

*A Summary of Previous research According to Key Experimental Features and Associated Findings*

| Study | Age | Event type | Nature of touch | Number of touches | Interview type | Purpose of HBD | Control | Findings |
|---|---|---|---|---|---|---|---|---|
| Steward & Steward (1996) | 3 - 6 YO | Pediatric Examination | Invasive (touch that breaks bodily boundaries i.e. enters orifices) and non-invasive bodily touch | 2 – 23 (*M* = 13.69, *SD* = 5.44) | Verbal interview comprised of open and specific Qs in combination with HBD | HBDs to elicit new information | Yes (verbal only) | Increase in amount of information/decrease in accuracy |
| Aldridge et al. (2004) & Teoh et al. (2010) | 4 - 13 YO | alleged incidents of childhood sexual abuse | Invasive and non-invasive bodily touch | Undisclosed | Verbal interview based on NICHD protocol first; HBDs introduced last | HBDs to clarify previous information & elicit new information | No | Increase in amount of information/decrease in accuracy |
| Willcock et al. (2006) | 5 - 6 YO | Dressed up as a fireman by a confederate | Incidental touch | 5 | Verbal interview comprised of open and specific Qs first; HBDs introduced last | HBDs to elicit new information | No | No effect on amount of information BUT decrease in accuracy |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Brown et al. (2007) | 5 - 7 YO | Dressed up as a pirate by a confederate | Incidental touch | 7 | Verbal interview based on NICHD protocol first; HBDs introduced last | HBDs to elicit information | Yes (verbal only) | No effect on amount of information BUT decrease in accuracy |
| Bruck (2009) | 3 - 7 YO | Participated in a magic show | Incidental touch | 7 (study 1)/ 4 or 6 (study 2) | HFD first/verbal interview comprised of open and specific Qs second OR verbal interview first/HBD second | HBDs to elicit information | No | Increase in amount of information/decrease in accuracy |
| Poole & Dickinson (2011) | 4 - 9 YO | Science demonstration | A mixture of incidental and overt bodily touch | 2 | Body diagram focused interview. Diagram were used at all phases of a verbal interview comprised of open and specific Qs | HBDs to confirm body part labels and elicit recollection/ new information | Yes (verbal only) | Increase in amount of information/decrease in accuracy |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Brown et al. (2012) | 5 - 7 YO | Dressed up as a pirate by a confederate | Incidental touch | 7 | Verbal interview based on NICHD protocol first; HBDs introduced last | HBDs to elicit information | Yes (verbal only) | Increase in amount of information/decrease in accuracy |
| Otgaar et al. (2012) | 4 - 5 YO | Body measurements | Overt touch | 10 | Verbal interview based on the Dutch Interview Protocol first; HBD introduced last | HBDs to elicit information | No | Increase in amount of information/decrease in accuracy |
| Salmon et al. (2012) | 5 - 7 YO | Dressed up as a pirate by a confederate | Incidental touch | 12 | Verbal interview based on NICHD protocol first; HBDs introduced during the interview after touch had been reported | HBDs to clarify recently reported touch | Yes (verbal only) | No effect on amount of information/ accuracy |

elaborating on their descriptions (Aldridge et al., 2004; Teoh et al., 2010). Field researchers noted however, that HBDs were often paired with verbal questions that in themselves are associated with eliciting inaccurate responses, and accuracy could not be directly assessed. At present it is difficult to synthesize the findings from the published literature, as methodologies adopted to test the effectiveness of HBDs have varied in important ways, qualifying the conclusions that can be reached.

Previous research has examined different facets of touch across a range of to-be-remembered events. The touch incorporated across these to-be remembered events has varied in its salience. Research has shown that children recall invasive-bodily touches to genital and anal regions more frequently and accurately than non-invasive touches (Steward & Steward, 1996). Although such invasive forms of touch may be more recognisable, due to ethical obligations they are more difficult to study in a laboratory setting. Laboratory studies have mostly examined non-invasive touch that has occurred in the context of other event activities (e.g. participating in a science demonstration or magic show, being dressed by a confederate as a fireman or pirate and being measured in different body regions) (Brown et al., 2007; Brown et al., 2012; Bruck, 2009; Otgaar et al., 2012; Poole & Dickinson, 2011; Salmon et al., 2012; Willcock et al., 2006). Across HBD laboratory based research children's free-recall of non-invasive incidental touch experienced has fluctuated between 3% (Bruck, 2009) and 29% (Salmon et al., 2012). Children's poor recollection of these touches suggests the to-be-remembered events incorporated into lab studies were not well encoded. This may be because the use of touch in these events was not overly salient to children, such as when the touch was incidental and experienced when a confederate was dressing them in an outfit. While understanding children's ability to report touch that has occurred within an activity is important, a range of touch

experiences need to be examined, particularly as overt touch is likely to be the central component of an abusive experience. As such it is important that children's recall of both types of touch (i.e, those occurring incidentally during a broader experience and those that define the experience) are evaluated. In order to extend findings regarding the usefulness of HBDs, the current study will examine children's recollections of touch in an event where the activities are defined by physical contact with a partner.

The manner in which the HBD is utilized during the interview and when it is implemented can vary and only some of these variations have been studied. Body diagrams can be used: 1) at the *beginning* of an interview to establish idiosyncratic names for body parts and to elicit recall of to-be-remembered events (Poole & Dickinson, 2011); 2) *during* the interview to elicit touch related events or to clarify touch locations as they are reported (Salmon et al., 2012) and 3) at the *end* of an interview to elicit new information about unreported touch incidents, which has been the main focus of prior research (Aldridge et al., 2004; Brown et al., 2007; Brown et al., 2012; Bruck, 2009; Otgaar et al., 2012; Steward & Steward, 1996; Willcock et al., 2006).

To date only Aldridge et al.'s (2004) field study has specifically enquired about using HBDs at the *end* of a verbal interview to clarify and elicit more information by encouraging children to elaborate on previously reported touch. Although Aldridge and colleagues (2004) found an increase in the amount of forensically relevant details children reported, the reliability of that information could not be tested. Thus, there is a significant need for laboratory studies to test the effects of HBDs on the quantity and quality of information provided, when they are introduced at the end of a verbal interview to clarify and elicit more information about previously reported touches, as opposed to entirely new instances of unreported touch.

The current study will present children with body diagrams at the end of a verbal interview to encourage children to elaborate on their accounts of previously reported touch. The study will also incorporate an additional phase in which children are given the chance to report new information. New information will be elicited by interviewers probing children with recognition prompts about touch that did and did not occur during the to-be-remembered event. The purpose of including a third phase is it allows us to compare whether using HBDs in these different manners; 1) to clarify and elicit more information, or 2) to elicit new information, has varying effects on the quality and quantity of information provided by children. In doing so, the interviewing techniques (visual aids vs. verbal only) and interviewing manners (clarify/elaborate previous touch vs. elicit unreported touch) associated with positive and detrimental effects on the amount and accuracy of children's reports, can be better understood.

Previous research has also significantly varied in the nature of the verbal interviewing strategies employed. For three studies (Bruck, 2009; Steward & Steward, 1996; Willcock et al., 2006) the verbal interview comprised of open-ended questions to elicit free recall, followed by more specific and potentially leading questions. Therefore, inaccurate information provided by children about touch may have been a result of poor interviewing techniques. Additionally, without examining HBDs in conjunction with a validated forensic interviewing protocol, the results have limited generalizability to the forensic setting. The current study therefore employs the National Institute of Child Health and Human Development's (NICHD) Investigative Interviewing Protocol modified for use with a staged event (Brown et al., 2013). By using an empirically validated investigating interviewing protocol any erroneous

information disclosed by children cannot be contributed to the verbal interviewing strategies. Findings can also be better transferred to the forensic context.

Additionally, the current study will incorporate a control condition, which only half of the studies in the literature have employed (e.g., in Willcock et al. (2006) there was no verbal only control condition). A control condition will allow an evaluation of children's recall of salient touch independently of any contribution of visual aids. Also, any differential effects between the control and HBD conditions can then be observed. This allows the examination of the effects of the visual aids on the quantity and quality of children's reports.

In addition to building on previous HBD research, the current study will examine an alternative visual aid, a photograph that has otherwise not been studied in this capacity. HBDs studied in extant research have varied in their degree of bodily representation from semi-realistic line drawings (Bruck, 2009) to cartoon figures (Willcock et al, 2006). When compared with these variations of HBDs, a photograph of the child subject may provide a more realistic and concrete representation of the child's own body. By being more realistic and thus personally applicable, a photograph may require less cognitive resources than a HBD in dually representing the prop as both a symbol denoting the child's own body, and an object in its own right. By reducing the cognitive load imposed by HBDs, a photograph may increase children's potential to recall and report any previously experienced touch.

Additionally, the photograph may act as a stronger retrieval cue than a HBD. As the photograph is a more elaborate and concrete representation of the child, retrieval of touch related information is likely to be more effortless and substantial in response to their use. A photograph may also decrease the suggestibility imposed by HBDs and their representation of ambiguous body locations. A photograph of the

child subject may better indicate known body parts and thus aid children in locating where touch was experienced on their body.

**The current study**

In summary the current study aims to examine the effectiveness of two different visual aids – a HBD and a photograph – in supporting children 5 and 6 years to; 1) elaborate on previous descriptions of touch episodes experienced during a staged event, and 2) provide new descriptions of touch episodes that were not freely recalled. In contrast to previous studies the current study will; 1) incorporate more salient touch that will be examined as the central feature of a staged event, and 2) include an exhaustive interviewing protocol to enhance both the reliability of the study and similarity to a typical forensic investigate interview, and 3) include a verbal only interview condition to help determine the validity of the visual aid conditions.

**Hypothesis**

Due to the increase in salience of touch experienced at the staged event, it will be hypothesized that children will disclose a higher *number of touches* overall relative to previous research. Additionally, given that visual aids are intended to act as cues to assist children in relaying the touches experienced on their bodies, it is also predicted that children interviewed with visual aids will disclose more scripted touches compared to the verbal only condition.

In order to attribute children's recollections of touch from the given event and not some prior experience that incorporated similar health and safety themes, the staged event for the present study will incorporate both *typical and atypical touches*. Typical instances of touch are commonly associated with health and safety activities, whereas atypical touches are unusual and not commonly associated. Measuring children's recollection of atypical and typical touches will provide a manipulation

check to distinguish whether children were in fact recalling touches from the present study rather than reciting what usually occurs. Therefore, it will be predicted that children's recollections of touch will include both typical and atypical instances that were incorporated in the staged event.

For the *amount* of touch-related details provided previous research has more consistently demonstrated that when visual aids are used to elicit new information, they are associated with a significant increase in the total amount of touch-related information reported by children. Additionally, the current study will incorporate touch as the central and thus more salient component of the staged event. As a result it will be hypothesized that visual aid will assist children in providing more information pertaining to touch, compared with children interviewed in the verbal only condition.

For the *accuracy* of touch-related details the previous research has demonstrated that when visual aids are used to elicit new information from children, they produce more inaccurate touch-related details. Therefore, in terms of the current study it will be expected that children will provide the least accurate information when visual aids are used in combination with recognition cues for the purpose of eliciting new information. When visual aids are used in this manner, it will be expected that children will begin to comply with demand characteristics (i.e., that they are expected to respond to the visual aids and recognition cues in some way) and produce less accurate information overall. Additionally, it will be expected that children will produce more accurate information when visual aids are used with retrieval cues to clarify previously reported touches in comparison to being used to elicit completely new incidents. This is based on the premise that when interviewers implement prompts that encourage children to retrieve their memories independently, disclosures are of a high quality.

One final prediction will be posed regarding variation in the accuracy and amount of information between each visual aid. It will be tentatively predicted that a photograph will elicit more correct instances of touch and related details compared with a HBD. A photograph may be more superior in eliciting touch as it is a more precise representation of a child's own body, thus it should act as a more effective cue regarding touches experienced at the staged event. This will be a tentative hypothesis however, given that no previous research has been conducted and this is essentially an exploratory study.

## Method

### Design

The current study examined the efficacy of visual aids (body diagrams and photographs) in eliciting more complete and accurate reports of touch experienced by young children during a staged health and safety event. The experiment used a mixed design. The interviewing technique was manipulated between subjects, and had three levels; verbal control, photograph and Human Body Diagrams (HBDs). All children experienced the same structured interview (within subjects), which consisted of four phases; rapport/ground rules (phase 1), free-recall (phase 2), follow up (phase 3) and specific questions (phase 4). The dependent variables were the amount and accuracy of touch related information reported during phases 2 - 4. Ethical approval was granted for the study by the School of Psychology Human Ethics Committee under delegated authority to the Victoria University Human Ethics Committee.

### Participants

Eighty-five children aged between 5 and 6 years participated in a health and safety event at their school. Sixty-five of the children were later interviewed and included in the analysis. Children were not interviewed if they did not have parental

consent ($n$ = 10), and excluded from the analysis if English was a second language ($n$ = 7), or they persistently denied that the event had occurred ($n$ = 3). Table 2 shows the characteristics of the sample. An analysis of variance revealed no significant difference in the age of participants between conditions ($F(2, 62) = 2.26$, $p = .11$).

Table 2
*Sample Characteristics by Interviewing Condition; Mean (SD) Age in Months, and Frequency of Gender and School*

| | Interviewing Condition | | |
|---|---|---|---|
| | Verbal Control ($n$ = 23) | Photograph ($n$ = 21) | HBD ($n$ = 21) |
| Age in months | 64.6 (2.2) | 65.3 (3.3) | 66.5 (3.3) |
| Gender | | | |
| Female | 17 | 15 | 14 |
| Male | 6 | 6 | 7 |
| School | | | |
| 1 | 10 | 11 | 9 |
| 2 | 6 | 8 | 8 |
| 3 | 7 | 2 | 4 |

*Note.* HBD = human body diagram; SD = standard deviation

## Procedure

### Recruitment

Schools were contacted by phone to ascertain their interest in participating and then sent a letter (Appendix A) outlining the details of the study. Information letters and consent forms were sent to the parents and caregivers (Appendix B) of all children in the classes of the participating schools. All children participated in the event (unless their parents had withheld consent to do so) and those with parental consent were interviewed. To thank both the school and the children for their participation, schools received a voucher for purchasing resources, and children received a small gift (e.g. stickers, coloured pencil, pencil sharpener or rubber).

### Target event

A staged event based on health and safety was used to provide young children with a known experience of innocuous bodily contact. The content of the event was

modified from a previous study by Brown et al. (2013). The health and safety event was approximately 40 to 50 minutes in duration. The interactive lesson was conducted at the schools during class time. Children participated in small groups of four to eight and moved around four stations, which were presented by different research assistants (RAs). An additional RA coordinated the event by handling the introduction and indicating when groups were to move to subsequent stations.

The event was comprised of four stations: *heartbeat, temperature, dangers* and *care of cuts*. The heartbeat and temperature stations incorporated innocuous bodily contact between participants (total number of contacts = 8, see Table 3). The bodily contact experienced consisted of normal or typical areas (e.g., measuring pulse on the wrist) and unusual or atypical areas (e.g., measuring pulse on the ankle).

Table 3

*Instances of Typical and Atypical Innocuous Bodily Contact Experienced*

| | Bodily Contact | |
|---|---|---|
| Station | Typical | Atypical |
| Heartbeat | Chest<br>Wrist | Stomach<br>Ankle |
| Temperature | Forehead<br>Armpit<br>Ear | Knee |

At the *heartbeat* station children began by learning about the primary functions of the heart. Children then paired up and took turns to use a stethoscope to listen to their partner's heartbeat on the chest and the stomach; they also felt their partner's pulse with their two fingers on the wrist and ankle. At the *temperature* station children first learnt about the role of temperature as a general indicator of health. Children proceeded to work in pairs and tested their partner's temperature on their forehead with their hand, under their arm and behind their knee with an

electronic clinical thermometer, and finally with a tympanic thermometer in their partner's ear. Children recorded their ear temperature on a worksheet. At the *dangers* station the research assistant showed children a series of 12 coloured A3 posters that depicted dangerous scenarios. For each of the pictures the children were instructed to first look at the picture and identify and inform the research assistant of the hazard in the picture (e.g., children running within the pool area) and then to suggest a way to make the scenario in the picture more safe (e.g., children walk within pool area). At the *care of cuts* station children watched a short one-minute cartoon, on a laptop, about a character getting a cut, and then viewed a PowerPoint presentation that showed the steps of how to care for a small cut (e.g. 1. apply pressure, 2. raise above heart, 3. wipe with antiseptic wipe and 4. apply plaster). After viewing the PowerPoint presentation, the research assistant drew a small red line on children's left index finger to simulate a small cut; the children then practiced the steps on how to care for a cut. Afterwards, the research assistant photographed the children with their plasters on.

In order to capture any deviations from the script as well as to assess the accuracy of children's recollections captured during the interview, all of the events were video recorded, and research assistants made notes of any off-script events. The entire event followed a standard script from beginning to end with children spending approximately eight minutes at each station.

Five health and safety events were staged across three schools over a five-month period. The events took place in the school assembly halls; due to space availability problems one of the events took place in a classroom. Seven research assistants were required for each event: one to provide overall co-ordination and direction, one for each of the stations *dangers* and *care of cuts* and two research

assistants for each of the stations *temperature* and *heartbeat*. Twelve assistants in total were recruited by poster and trained three weeks prior to the first event. Given the extended time between each of the events, subsequent training sessions were utilised to remind assistants of their event roles. The training sessions consisted of a one-hour course run by an experienced PhD student.

**Event interview**

All children were interviewed using the standard NICHD Investigative Interviewing Protocol (Orbach et al., 2000), which was modified for experimental use (Brown et al., 2013). A research assistant trained in administering the interview protocol, but unknown to the children, returned to the schools shortly after the health and safety event and interviewed each child individually about what they remembered from the event (see Appendix C for interview script). The delay between the event and the interviews ranged from three to eleven days ($M$ = 5.2, $SD$= 2.5). Interviews lasted 23.2 minutes on average ($SD$ = 10.8, range = 11.39 – 46.52) and duration did not differ according to condition ($F(2, 62) = .20$, $p = .82$). Prior to the interview, children were quasi-randomly allocated to one of the three conditions: verbal only prompts, verbal prompts and HBD, or verbal prompts and photographs (controlling where possible for gender and school). The event interview consisted of the four phases: *(1) pre-substantive, (2) substantive, (3) touch follow up* and *(4) specific touch questions*. Phases 1 and 2 were the same for all children, whilst phases 3 and 4 differed according to the presence and type of visual aid employed.

*Pre-substantive phase.* The interviewer began by introducing herself and gaining assent from the child to be interviewed. The interviewer then established a set of ground rules for the interview. These rules consisted of establishing the difference between true and false statements and asking the child to tell the truth, encouraging

the child to say "I don't know", or "I don't understand" if needed, and to correct the interviewer if they said something incorrect. Children practiced implementing each of these rules. Children then practiced narrating an episodic memory by reporting on the days' events; in doing so the child was exposed to the format of questions likely to be asked during the interview.

*Substantive phase*. A series of scripted prompts were then used to make the transition from the pre-substantive phase to the substantive phase of the interview. The initial prompt to orient the child comprised of the interviewer saying "I heard that a couple of weeks ago some people came to talk to your class about health and safety. I wasn't there but I would like to know all about what happened. Do you remember when they came?" If the child failed to recall the event, the interviewer used up to three additional prompts to elicit their recollections "I heard that when the health and safety people came (1) you got some stickers, (2) you went to the hall/classroom and (3) you learnt about hearts". The average number of prompts ($M$ = 1.42, $SD$ = 1.25) used to elicit information did not differ by condition ($F(2, 62) = .53$, $p = .59$).

After the children acknowledged that they remembered the health and safety event the interviewer used an *open-invitation* prompt to elicit information, instructing the child to "tell me everything that happened when the health and safety people came, right from the beginning to the very end". Based on guidelines outlined by the NICHD Investigative Interview Protocol the interviewer used *open-invitation* prompts to elicit the child's account, and employed a range of prompts based on children's disclosures to elicit more detailed information as required. The Protocol is a flexible and child-directed approach to interviewing and so the number of each type of prompt and when in the interview they occurred varied for each child. Importantly, when a more focussed prompt was used, it was subsequently followed up with an open

invitation (e.g. "tell me more about that). Interviewers were encouraged to prioritise their use of prompts in the following order *open-invitations*, *cued-invitations*, *direct questions* and *option-posing prompts*. Definitions and examples of these utterances are provided in Table 4.

Table 4
*Definition of Interviewer Utterances*

| Interviewer utterances | Definition | Example |
|---|---|---|
| Open-invitations | Questions or statements that elicit free-recall responses | "Tell me some more things" |
| Cued-invitations | Questions or statements which utilized details disclosed by the child | "You mentioned that Sally touched you with the stethoscope. Tell me everything about that." |
| Direct questions | Questions or statements that ask for more specific information or details previously mentioned by the child | "You mentioned Sally touched you with the stethoscope at the heartbeat station, where did Sally touch you with the stethoscope?" |
| Option-posing prompts | Questions or statements that require the child to choose a response from a series of options provided | "You mentioned that someone touched you at the temperature station, was that someone the same person at the heartbeat station or a different person or something else?" |

Once the children's recall was exhausted the interviewer took a break to review the information gathered thus far. During this time they planned any additional questions needed to clarify ambiguous information, or to follow up on children's previous statements. Once this phase was concluded and interviewers had exhausted their use of follow up questions, the interviewer moved onto the next interviewing phase.

*Touch follow up phase.* The interviewer transitioned into the third interviewing stage by reminding the child of the aforementioned ground rules and informing them that they had some more questions to ask about previously disclosed information. The interviewer emphasised that it was okay for the child to repeat information they had already mentioned. This phase varied in one of three ways depending on the children's allocated condition.

For the *verbal only* condition children were asked to verbally elaborate on each touch episode previously reported in the substantive phase of the interview. This was approached in a systematic manner, beginning with the interviewer reiterating an episode of touch as disclosed by the child, in the order they had disclosed, and encouraging further elaboration (e.g., "you mentioned Sally put the heart thing on your tummy, tell me again exactly where on your body that was?"). Once children had responded either by verbally (e.g., "it happened on my tummy") or behaviourally (e.g., "it happened here", with the child physically gesturing to the stomach) indicating the location of the touch episode, the interviewer then invited the children to elaborate on the experience (e.g., "so I know you told me about that before, but tell me everything you can remember about that"). When new incidences of touch were disclosed, elaborative accounts were elicited as in the substantive phase.

In the *HBD* condition a human figure drawing (see Appendix D) depicting both the front and back views of an unclothed gender-neutral body was presented to children with the following introduction "See this picture? This picture is a child just like you". The interviewer proceeded to instruct children to place an orange dot sticker on the HBD to indicate where previously recalled touch episodes had occurred on their body. The interviewer's prompts were formulated from the children's own descriptions of their touch experiences disclosed during the substantive phase (e.g.,

"you mentioned before that Sally put the heart thing on your tummy, so show me on the picture with this orange sticker exactly where Sally put the heart thing on your tummy"). Similar to the verbal condition, children were invited to again describe each reported episode of touch. If new touch incidences were reported, the child placed an orange dot sticker on the HBD indicating the location and the interviewer elicited a description of the incident.

For the *photograph* condition an iPad was used to photograph the front and back views of the children's body prior to the beginning of the interview. Children were presented with the iPad that contained both images side-by-side in view on the screen. Children were asked to indicate on the photograph of their bodies by pointing and then tapping on the iPad screen each individual touch experience as previously mentioned in the substantive interviewing phase. As children tapped the iPad screen with their finger an orange coloured dot would then appear in that place. Similar to previous conditions, children were asked to elaborate on each of these touch incidences. When new touch incidences were reported they were instructed to indicate these by pointing and tapping on the iPad. Again, open prompts were utilised by interviewers to explore each newly reported incident, with more focussed prompts being employed when information reported was unclear.

Across all three conditions each touch episode was assessed (e.g., clarified and explained) systematically, before progressing to the subsequent touch. The order in which they were explored followed the sequence of their disclosure during the substantive phase of the interview. At the conclusion of this phase children were invited to report on any other touches that they might not have yet disclosed (e.g., "did anything happen on any other part of your body when you were learning about

health and safety?"). Affirmations were considered new incidences and explored according to the children's condition.

*Specific touch questions phase*. During this phase the interviewer asked a series of option posing questions about touch episodes. Eight of the questions concerned the eight instances of touch that had occurred during the event (e.g., "did your partner touch you on the forehead?"). The five other prompts were false questions; three were about touch that had not occurred at the health and safety event (e.g., "did your partner touch you on the elbow/mouth/arm?") and two were about touch that occurred but with a different partner to the one that the child had actually been paired with (e.g., "did Tilly touch you on the ear?" when in fact Sam had touched the child in question on the ear). The number of questions each child was asked varied depending on the number of scripted touches they had previously reported (questions were only posed about touch that had not been reported). If a child responded affirmatively to a question, they were encouraged to elaborate on their responses (e.g., "tell me everything about that"). Depending on whether or not children were in the HBD or photograph conditions, they were then asked to place a sticker/point and tap on the HBD/iPad. When children produced a "no" response, the question was asked again, with the addition of an action and object associated with the touch episode (e.g., "did your partner put their hand on your forehead?"). If children's response was "yes" they were then asked to elaborate using open-ended prompts. Additionally, children in the HBD or iPad condition were asked to show the location of the touch on their respective aids. If their response was "no", the interviewer proceeded to the next question. Once all questions had been exhausted the interviewer ended with a closing statement in which they thanked the child. The children then received a small gift for their time (pencil, pencil sharpener or rubber).

Interviews were video recorded and then transcribed and included descriptions of any nonverbal behaviour (e.g. nodding, demonstrations of activities).

**Coding**

A checklist was used to collate and score the amount and accuracy of touch-related information that was disclosed by the child. Touch-related information was classified as specific information that provided details of a touch episode that occurred during the health and safety event. More specifically, those details were defined as who performed the touch, why the touch happened, what happened, where it happened and what was used to perform the touch. Each piece of information was further coded according to which phase it was elicited in. Touch-related information was coded for quality as correct, incorrect intrusion, incorrect distorted or other (see Table 5 for definition of codes). All verbal and non-verbal (e.g., when the children pointed to their chest to show that was where they listened to their hearts) touch-related information was coded. According to this process, one statement could be coded under multiple units. For example "I put the stethoscope on Sally's chest" would receive four correct codes for *put* (action), *stethoscope* (object), *Sally* (who performed the action) and *chest* (location). The coding checklist further categorised children's recollections of touch locations according to whether they were scripted (actually occurred) or false (did not occur at all) and typical or atypical. Typical and atypical locations were coded as per Table 3. When minor or idiosyncratic pieces of information were mentioned that could not be captured by the checklist (such as "Sally also touched me with the stethoscope on my neck") they were recorded and later checked (when possible) for accuracy against the video record or event notes.

Table 5

*Definition of Information Quality Codes*

| Code | Definition | Examples |
|---|---|---|
| Correct | Any touch-related information that reflected what actually occurred at the event | "My partner touched me with the stethoscope on my chest" |
| Incorrect intrusion | Any touch-related information that did not reflect what actually happened at the event | "My partner put the thermometer in my mouth" |
| Incorrect distortion | Any touch-related information that was a distortion of an actual event | "My partner put the thermometer on my forehead" |
| Other | | |
| Subjective | Subjective perception | "And my temperature was really warm" |
| Ambiguous | Any statements that did not have enough information for the coder to understand the child's utterances | "I used the thingy on my arm" where things could be multiple objects and arm could allude to multiple areas etc. |
| Unverifiable | Any information that the coder could not verify. | Anything that happened outside of the camera's view and was not written down in the event notes |
| Repeated | Touch-related information previously disclosed by the child | If a child had already talked about being touched on the ear by a thermometer then later information relevant to this statement was coded as repeated |

**Reliability**

The primary coder coded 55% and a second coder coded 45% of the transcripts. Additionally, each coder re-coded 50% of the other coder's transcripts to establish the reliability of the coding technique employed. Both coders aligned their coding according to the rules and guidelines outlined in the coding manual (see Appendix E for coding manual). In training the primary coder first demonstrated the coding of one transcript to the secondary coder, they then coded one transcript

together and two transcripts separately. The independent score for the quality of information examined using Cohen's kappa was $k = .95$, which is considered to be of a high standard (Field, 2013).

**Analysis**

Univariate ANOVAs were used to examine the effects of condition on the total number of scripted touches reported, the total number of details reported about touch and the overall accuracy of children's accounts. A 3 (*condition*: verbal, Human Body Diagram (HBD) and Photograph) X 3 (*phase*: substantive, touch follow up and specific touch questions) repeated measures ANOVA was used to analyse differences in the amount and accuracy of touch-related information reported as a function of both condition and phase of interview. Paired sample t-tests and univariate ANOVAs were also used where necessary to further examine significant effects, interactions and to conduct additional analysis.

## Results

The analyses examined whether the amount and accuracy of information reported about touch differed between the experimental conditions and across interviewing phases. Touch-related information and the number of scripted touches were the primary focus in this initial analysis. A univariate ANOVA was first used to examine the effect of condition. Each analysis then used a 3 (*condition*: verbal, Human Body Diagram HBD and Photograph) X 3 (*phase*: substantive, touch follow-up and specific touch questions) repeated measures ANOVA to examine the influences of condition and phase of interview. The number of scripted touches reported correctly was a score obtained by collating the number of script-based touches (maximum possible score = 8) recalled correctly. Amount was calculated for touch-related information by collating all information pertaining to touch regardless

of its quality. Accuracy of touch-related information was calculated by first collating the amount of correct information reported and then dividing it by the total amount of information reported. In doing so, accuracy was assessed as a proportional score.

Arcsine transformations were performed on proportional data (Field, 2013); all means presented reflect the raw data. A significance level of $p < .05$ was adopted throughout and partial eta squared ($\eta_p^2$) employed to indicate the extent of the effect size. When interpreting a significant result, 0.10 or less indicates a small effect, 0.30 a medium effect and 0.50 or greater a large effect (Field, 2013). Additionally, when a non-significant effect was detected, observed power ($\beta$) was used as an estimate of the probability of incorrectly failing to detect an actual effect size (Field, 2013). Cohen (1992, as cited in, Field, 2013) has recommended that in order to detect an effect, the power should correspond to at least .80. This premise was adopted throughout the analysis. For the two global measures amount and accuracy of touch-related information normalcy of distribution and outliers were examined. When outliers were detected, they were rescored to fall within 2 standard deviations above or below the mean whilst maintaining ranking (Field, 2013).

**Preliminary analysis**

Analysis of variance was used to indicate whether there was a main effect of gender on amount and accuracy of touch-related information. No main effect was found for gender for amount ($F(1, 63) = 1.9$, $p = .17$, $\beta = .27$) or accuracy ($F(1, 63) = 1.00$, $p = .32$, $\beta = .17$) of touch-related information. The delay between the event and the interviews ranged from three to eleven days ($M = 5.2$, $SD = 2.5$) and significantly differed across interviewing condition ($F(2, 62) = 4.21$, $p = .02$, $\eta_p^2 = .12$). A post hoc Tukey test indicated that the photograph condition ($M = 6.43$, $SD = 2.64$) differed significantly at $p < .05$ from both the control condition ($M = 4.74$, $SD = 2.49$) and the

HBDs condition ($M$ = 4.48, $SD$ = 1.94). Pearson's correlation revealed no significant relationship between the delay period and the amount and accuracy of touch-related information reported ($r$ = -.13, $n$ = 65, $p$ = .32). Given that there was no association between delay period and the amount or accuracy of touch related information report, and the difference between conditions in real terms was minimal (2 days), this factor was not considered further in the analysis. Pearson's correlation revealed a significant positive relationship between age and total touch-related information reported ($r$ = .31, $n$ = 64, $p$ = .01), but no significant relationship was found for accuracy ($r$ = .13, $n$ = 65, $p$ = .30), which is consistent with previous research (Goodman & Melinder, 2007; Goodman & Reed, 1986).

The normalities were tested across the amount and accuracy of touch-related information values to see whether the data was normally distributed. The total amount of touch-related information reported (Control $D(23)$ = .14, $p$ = .20; HBD $D(21)$ = .158, $p$ = .18; Photograph $D(21)$ = .133, $p$ = .20) and the accuracy of the information ($D(23)$ = .162, $p$ = .12; $D(21)$ = .125, $p$ = .20; $d(21)$ = .164, $p$ = .14) did not significantly differ from normal across all three interviewing conditions.

**How well were the touches remembered?**

Children correctly recalled 86% ($M$ = 6.86; $SD$ = .15) of the 8 scripted touches experienced at the health and safety event. The mean and standard deviations of the number of scripted touches reported by children according to interviewing condition and interview phase are presented in Table 6.

Table 6
*Mean (SD) Amount and Accuracy of Touch Related Information and Number of Scripted Touches Correctly Reported by Children According to Interviewing Condition and Interview Phase*

| Condition | Phase | Number of scripted touches | Amount | Accuracy |
|---|---|---|---|---|
| Verbal | Substantive | 3.74 (2.12) | 21.61 (12.27) | .74 (.27) |
| | Touch follow up | .43 (1.12) | 2.04 (3.38) | .45 (.48) |
| | Specific touch questions | 2.22 (1.65) | 20.04 (5.54) | .53 (.23) |
| Photograph | Substantive | 3.53 (1.99) | 21.29 (11.81) | .85 (.21) |
| | Touch follow up | .29 (.56) | 1.43 (2.56) | .35 (.43) |
| | Specific touch questions | 3.52 (1.89) | 19.14 (6.68) | .56 (.18) |
| HBD | Substantive | 3.81 (2.09) | 21.14 (11.38) | .76 (.33) |
| | Touch follow up | .00 (.00) | 1.43 (2.56) | .34 (.46) |
| | Specific touch questions | 3.05 (1.69) | 17.71 (4.85) | .64 (.19) |

A univariate ANOVA revealed that the number of scripted touches recalled correctly significantly differed across interviewing condition ($F(2, 62) = 3.62$, $p = .03$, $\eta_p^2 = .11$). A post hoc Tukey test revealed that children in the photograph condition ($M = 7.33$, $SD = .25$) recalled significantly more correct scripted touches than children in the control condition ($M = 6.39$, $SD = .24$). Children in the HBD condition ($M = 6.91$, $SD = 1.0$) did not differ significantly from those in either the control or photograph conditions.

A repeated measures ANOVA with condition as the between subjects factor and phase as the within subjects factor revealed (again) a main effect of condition ($F(2, 62) = 3.57$, $p = .03$, $\eta_p^2 = .10$), but no interaction between condition and interview phase ($F(4, 124) = 1.29$, $p = .28$, $\beta = .4$). A repeated measures ANOVA revealed that the number of scripted touches correctly recalled significantly differed across interviewing phase ($F(2, 124) = 57.64$, $p = .00$, $\eta_p^2 = .48$). On average

participants recalled more correct scripted-touches in substantive and specific touch questions phases than in the touch follow up phase and these differences (Substantive 3.45, BCa 95% CI [2.92, 3.95]; Specific touch questions -2.66, BCa 95% CI [-3.18, -2.14]) were both significant ($t(64) = 12.02$, $p = .00$; $t(64) = -10.29$, p = .00). However, the difference (.78, BCa 95% CI [-.03, 1.61]) in the number of correctly reported scripted touches in substantive and specific touch questions phase was non-significant ($t(64) = 1.78$, $p = .08$).

**How detailed were children's reports of touch?**

Children recalled on average 39.9 ($SD = 1.51$) pieces of touch-related information in their reports throughout the entirety of the interview. The mean and standard deviations of the amount of touch-related information reported by children according to interviewing condition and interview phase are presented in Table 6 whilst a graph of the means are seen in Figure 1.

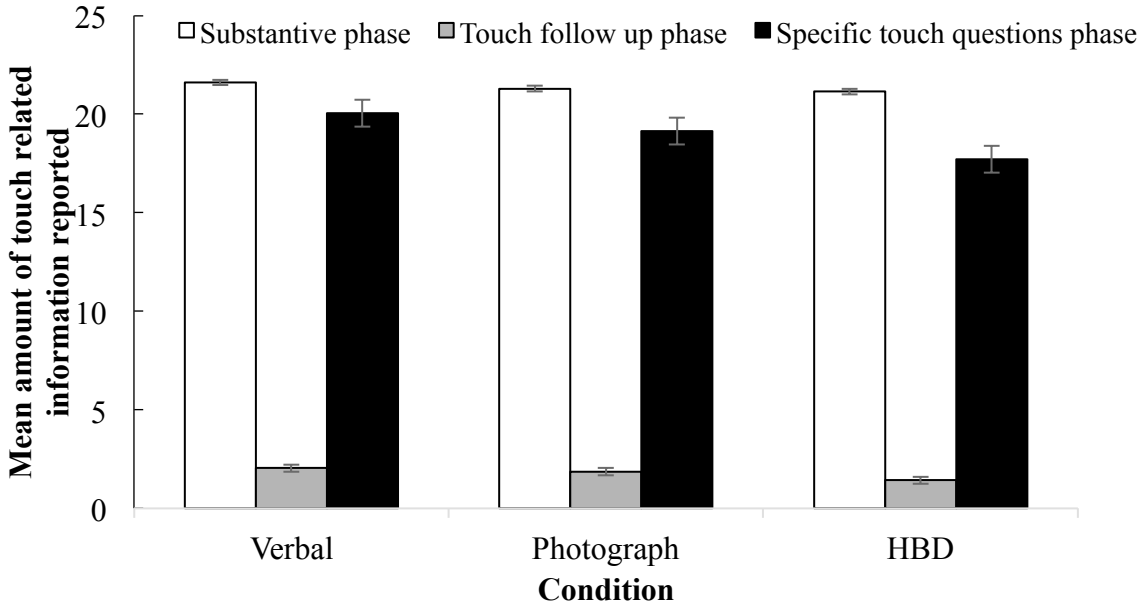


*Figure 1.* The mean amount of touch-related information reported by children according to interviewing condition and interview phase. The error bars represent the standard error.

A univariate ANOVA revealed no significant effect of condition on the total amount of touch-related details reported, collapsed across interview phase ($F(2, 62) = .252$, $p = .78$, $\beta = .09$). A repeated measures ANOVA with condition as the between subjects factor and phase as the within subjects factor revealed no main effect of condition ($F(2, 62) = .47$, $p = .63$, $\beta = .12$), and no interaction between condition and interview phase ($F(4, 124) = .09$, $p = .99$, $\beta = .07$). A significant main effect of phase on the amount of touch-related details reported was evident ($F(2, 124) = 108.77$, $p = .00$, $\eta_p^2 = .64$). On average, participants recalled more touch-related details during the substantive and specific touch questions phases than touch follow up and these differences, (Substantive 19.57, BCa 95% CI [16.60, 22.52]; Specific touch questions -17.22, BCa 95% CI [-18.82, -15.52]), were both significant ($t(64) = 13.79$, p = 00; $t(64) = - 20.04$, $p = .00$). The difference (2.35, BCa 95% CI [-1.39, 5.87]) in the amount of touch-related details recalled during the substantive and specific touch questions phase was non-significant ($t(64) = 1.29$ $p = .2$).

**How accurate were children's descriptions of touch episodes?**

The overall accuracy of children's reports (collapsed across condition) was 76% (.02% SD). The mean and standard deviations of the accuracy of touch-related information reported by children according to interviewing condition and interview phase are presented in Table 6 whilst a graph of the means are seen in Figure 2.

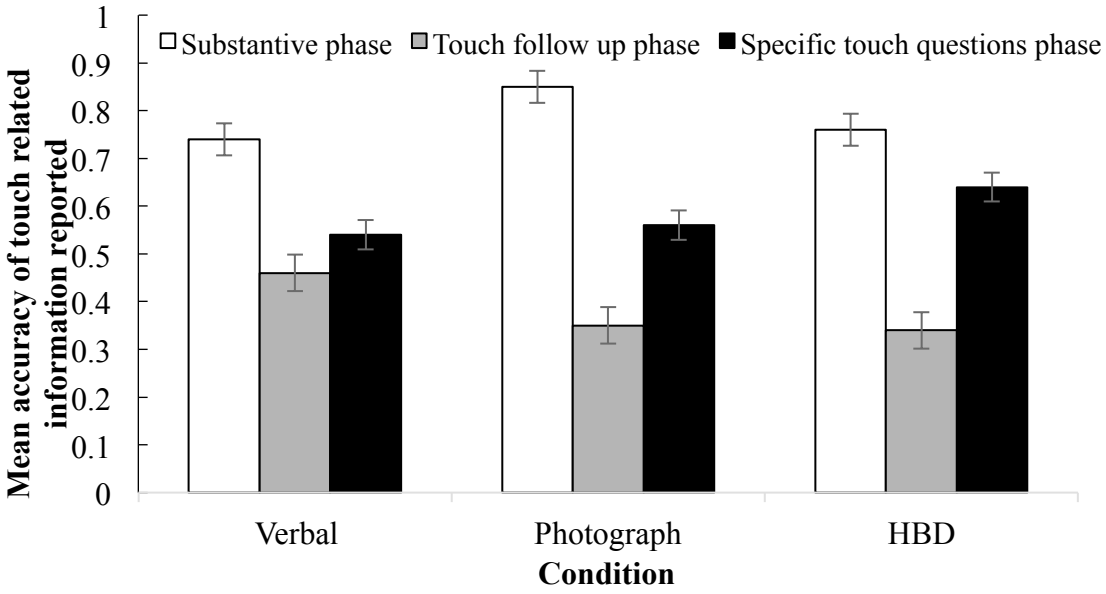


*Figure 2.* The mean accuracy of touch-related information reported by children according to interviewing condition and interview phase. The error bars represent the standard error.

A univariate ANOVA revealed no significant effect of interviewing condition on the overall accuracy of children's statements ($F(2, 62) = .75$, $p = .48$, $\beta = .173$). A repeated measures ANOVA with condition as the between subjects factor and phase as the within subjects factor revealed no significant main effect of condition ($F(2, 62) = .01$, $p = .99$, $\beta = .05$), and no significant interaction between interview condition and phase ($F(4, 124) = 1.27$, $p = .29$, $\beta = .39$) . A significant main effect of interview phase emerged ($F(2, 124) = 17.06$, $p = .00$, $\eta_p^2 = .22$). Children were more accurate during the substantive phase than both touch follow up and specific touch questions phase and these differences (Touch follow up .44, BCa 95% CI [.27, .61]; Specific touch questions .36, BCa 95% CI [.26, .47]), were both significant, ($t(64) = 4.85$, $p = .00$; $t(64) = 7.1$, $p = .00$). The difference (-.08, BCa 95% CI [-.24, .08]) in children's accuracy during the touch follow up and specific touch questions phase was not significant ($t(64) = -.81$, $p = .42$).

**How much of children's touch-based recollections can be attributed to the scripted event?**

An analysis was conducted to identify whether children's recollections of touch episodes were largely comprised of typical touches. The analysis examined whether children's recollections of specific incidents of touch simply reflected their general (ie., script based) knowledge of typical touch associated with health and safety, or based on episodic recall of both typical and atypical touches experienced at the staged event. The number of typical and atypical touches reported were expressed as the proportion of touches experienced (typical $n = 5$, atypical $n = 3$). A repeated measures ANOVA was conducted on these scores to see if a significant difference existed between the proportion of typical and atypical touches recalled as a function of condition and touch type.

Children recalled on average 42.4% ($SD$ = 1%) of the 5 typical touches and 40% (SD = 2%) of the 3 atypical touches. A repeated measures ANOVA with condition as the between subjects factor and touch type (atypical vs. typical) as the within subjects factor revealed a significant main effect of condition ($F(2, 62) = 4.30$, $p = .02$, $\eta_p^2 = .12$). As this analysis was collapsed across touch type it essentially replicated the previous analysis, which examined whether the number of correct scripted touches recalled differed between interviewing conditions, thus it will not be further considered. There was no significant difference in the number of typical or atypical touches reported ($F(1, 62) = .10$, $p = .75$, $\beta = .06$), and no significant interaction between interview condition and touch type ($F(2, 63) = 2.83$, $p = .07$, $\beta = .54$).

**How many reports did children make about false touches that never occurred?**

This analysis examined the number of false touches reported by participants. In doing so the number of intrusions made during children's testimonies about touches that had not occurred during the staged event were collated. A repeated measures ANOVA was conducted to see whether this score differed significantly across phase and condition.

The majority of children reported at least one false touch ($M$ = 1.87, $SD$ = .18). The frequencies of children reporting at least one false touch for the control condition was 74% ($n$ = 17), body diagram condition was 81% ($n$ = 17) and photograph condition was 86% ($n$ = 18). A repeated measures ANOVA revealed that the number of falsely reported touches did not significantly differ across interviewing condition ($F(2, 62) = 2.46$, $p = .09$, $\beta = .50$), and there was no interaction between interviewing condition and phase, ($F(4, 124) = 1.16$, $p = .33$, $\beta = .36$). There was a main effect of interviewing phase ($F(2, 124) = 69.54$, $p = .00$, $\eta_p^2 = .53$). Children reported more false incidents of touch during specific touch questions than substantive and touch follow up phases and these differences (Substantive -1.28, BCa 95% CI [-1.54, -1.00]; Touch follow up -1.38, BCa 95% CI [-1.66, -1.1]) were both significant ($t(64) = -8.45$, $p = .00$; $t(64) = 1.19$, $p = .24$). The difference (.12, BCa 95% CI [-.03, .25]) between the number of falsely reported touches in substantive and touch follow up was non-significant ($t(64) = 1.19$, $p = .24$).

## Discussion

The present study aimed to examine whether introducing two different visual aids – a HBD and a photograph – following an exhaustive interview to; first clarify and elicit more information about previously reported touch, and then to elicit new

information about unreported touch, increased the amount and accuracy of touch related information reported by children aged between 5 and 6.

Findings showed that children reported more correct touches when they were interviewed with a photograph compared with the verbal only condition, which is in line with the present studies hypothesis. However, the amount and accuracy of touch-related information disclosed by children did not significantly differ between interviewing conditions. Therefore, the expectation that visual aids would assist children in providing more accurate details of touch compared to a verbal only condition was not supported. The interviewing phase further dictated the amount and accuracy of information reported by children. That is, children reported more information during both the substantive and specific touch questions phases than the touch follow up phase, but information was most accurate during the substantive interviewing phase. Each finding is further discussed.

**Number of scripted-touches**

In line with the present studies expectation, children correctly reported 86% of scripted touches overall, which is substantially more than previous research whereby touch has been infrequently reported. Additionally, relative to the verbal only condition, children interviewed with a photograph as a visual aid reported significantly more correct scripted touches. Each finding will now be considered.

Over half of the overall proportion of scripted touches were correctly reported during the substantive phase of the interview. Previous research has found it to be uncommon for children to report spontaneous instances of touch (rates of reporting ranged from 3% (Bruck, 2009) to at most 29% (Salmon et al., 2012)). A possible explanation for this might be because previous research has incorporated incidental touch that has occurred peripheral to event activities (e.g., touch that was experienced

when a confederate was dressing the subject in a costume). As a result touch may have been poorly encoded and thus more difficult to retrieve and report in previous studies. In the present study, overall, children recalled close to all touches that took place during the health and safety event, which likely reflects the nature of touch examined. Unlike previous research, this study incorporated touch as the central feature of a new target event. Findings indicate that by increasing the salience of touch incorporated into the staged event, children's spontaneous reports of experienced touch is much higher than previous research. Additionally, children may have been further assisted in their spontaneous reports of touch by the interviewing protocol that was implemented during the substantive interviewing phase. In support of the scripted-event as a useful measure of salient touch is the finding that children did not differ in their admissions of typical and atypical forms of touch. Thus, children's reports of touch reflected episodic script-based recall as opposed to scripted-knowledge recall, which is in line with the present studies expectation.

It is important to consider, however, that children reported the remainder of touches during the final interviewing phase when they were asked specific questions about true and false incidents of touch. This suggests that only after children were prompted with recognition questions were they able to provide more complete reports of touch episodes. Therefore, although children can competently disclose typical and atypical touch episodes when they are probed using an interviewing protocol that favours open ended questioning styles, and the touch is incorporated as a salient component of a TBR event, by no means are children complete in their recall.

An alternative consideration for why the present study found more correctly reported touches relative to previous research can be offered by comparing the delay periods between the event and the interview. Previous literature has attempted to

increase external validity by incorporating longer delay periods, ranging from 1-week to several months between the event and the interview. The current study interviewed children on average five days following the experienced event. According to memory development research, a memories quality is likely to decline as time intervals increase between encoding and retrieval, an effect that is commonly magnified amongst children (Gathercole, 1998). Therefore, children's poor recall in the previous literature might be a result of the lengthier delays experienced between encoding the event and it's retrieval. This suggests that children may have retrieved more correct reports of touch in the present study when compared with previous literature because they were interviewed following a shorter delay period (sometimes three day post-event). However, Willcock et al. (2006) found children's reports of touch was still relatively poor even one day after the experienced event. Therefore in order to establish how well scripted-touches incorporated in the present studies event are encoded, there is a need to study longer delay intervals between the event experienced and the retrieval interview.

The present study also found that children interviewed using a photograph as a visual aid disclosed almost one more correct scripted-touch on average than children interviewed without a visual aid. This suggests that when compared to verbal only condition a photograph of the subject may elicit more correct reports of touch by children. In a forensic setting, if a child discloses one additional touch this can be significant, especially if that touch clarifies the nature of offending or reveals additional instances of abuse. Prior research has not yet examined a photograph as a visual aid; given the potential practical benefits associated with their use the present study presents a new possible scope of exploration for eyewitness research.

Children may have reported more correct touches in response to a photograph than being verbally prompted because the visual aid may have provided additional support not otherwise provided by a verbal prompt. A photograph is an additional physical cue of children's own bodies that allows children to reflect on the experienced event, which may further aid their retrieval and reporting of touch episodes. Additionally, an external cue like a photograph may engage children more than verbal prompts, thus redirecting their attention to the task at hand. Therefore a photograph of a victim or witness may aid the retrieval of touch experienced when being prompted about an abusive encounter. Future research would benefit from examining the utility of a photograph as a visual aid.

**Amount of touch-related information**

The present study found that there was no significant difference in the amount of touch-related information elicited in response to HBDs, a photograph or verbal only prompts across all phases of the interview. This suggests that there was no substantial difference between using a photograph or a HBD as a visual aid to assist children to report more details about touch experienced. Thus although a photograph led to better recall in terms of the number of instances of touch recalled, they were no more effective than HBDs or verbal prompting in encouraging children to provide detailed descriptions of these instances.

Overall, children only reported 1.5 pieces of additional details when visual aids were used to clarify and elicit more information about previously reported touch, which did not differ substantially from the verbal only condition. By failing to elicit more information, this suggests that using visual aids for this purpose are no more beneficial than verbally prompting children to elaborate and clarify previously reported touch. Additionally, overall children elicited much less information when

they were asked to clarify and elaborate on previously reported touch when compared to all other interviewing phases. That is, children reported significantly more touch-related details during both the substantive and specific touch questions phases compared to the touch follow up phase of the interview. Thus, despite interviewing condition, children provided relatively sparse accounts when probed by interviewers to clarify and elaborate on previously reported touch.

Children likely reported less information during follow up when compared with the substantive interviewing phase because each interviewing phase held different purposes. During the substantive phase the interviewer prioritised their use of open-ended questions to obtain information from children about what they generally recalled from the health and safety event. The purpose of follow up was to prompt children to elaborate and clarify touch that was previously mentioned in the substantive interviewing phase. Children might have reported all possible details during the substantive interview, leaving very few details left to elicit during follow up. This suggests that perhaps visual aids did not elicit more information when they were used to clarify and elaborate on previously reported touch because children were limited in what they had to recall, having reported most touch related details during the substantive interviewing phase.

The present studies results are in line with Salmon et al. (2012) laboratory study that also used HBDs to clarify and elaborate on similar types of touches. Together the present study and Salmon et al.'s (2012) study suggest that perhaps when HBDs are used for the purpose of clarifying and elaborating on reported touch, their benefits are minimal and no more substantial than when children are only verbally interviewed. Nevertheless, both studies differ in their findings to Aldridge et al.'s (2004) field study. Aldridge et al.'s (2004) field study found significant increases in the amount of

forensically relevant information reported when HBDs were used to clarify and elaborate on previously reported touches. A possible explanation for the lack of replication could be attributed to the markedly different events that children in each of these studies were being interviewed regarding.

Aldridge et al. (2004) conducted interviews with young victims of abuse in an attempt to gain insight into the nature of touch associated with their mistreatment, whilst the present study interviewed young children about innocuous bodily touch from a novel experience of participating in a health and safety event. Consequently, children might differ in their motivation for relaying their respective touches experienced. That is, abused children may be more resistant to talking about sexually explicit touch in the verbal component of an interview due to experiencing shame or embarrassment on account of the invasive actions taken against them. These children may then be more compelled to report experienced touch in a non-verbal manner by indicating on a body diagram the located touch. This might account for the increase in forensically relevant details reported in Aldridge et al.'s study (2004) following the introduction of HBDs.

Children in the present study were not afflicted with the same level of motivational challenges that might refrain them from disclosing their experienced touch from the health and safety event. Therefore children may have been more willing to disclose as much as cognitively possible in the substantive phase of the interview, leaving very little details available for retrieval during follow up. This might further explain why, unexpectedly, there was no significant difference in the amount of touch-related information reported when visual aids were used to clarify and elicit more information about previously reported touch.

These implications highlight fundamental challenges of laboratory and field studies in forensic research. Laboratory studies enable touch to be examined in a highly controlled setting, but the events children are being questioned regarding poorly replicate the nature of touch experienced in forensic contexts. Comparatively, field studies allow experimental interventions to be applied in their intended forensic context, however they are constrained, as the accuracy of children's statements cannot be verified. Additionally, children in laboratory studies are restricted in the amount of information they can relay based on the number of actions they partook in during the staged event. Furthermore, children subject to abuse are more likely to have encountered multiple episodes of abusive experiences. Therefore, compared to a child that experiences one staged event in analogue studies, a child prompted to disclose abuse will likely have more details to divulge about their lived experience. Thus when they are prompted to clarify and elaborate on previously reported touch, children that have been subject to abuse might very well have additional details to provide, whilst children that experienced one novel event very likely disclosed all possible details during the substantive interviewing phase, and thus have very little to add in follow up. This notion is further supported by the present study's findings, which demonstrate minimal amount of information being reported when children were prompted during the touch follow up phase.

When visual aids were used for the purpose of eliciting new pieces of information in conjunction with highly specific questions, children reported at best 19 details, which did not substantially differ from the verbal only condition. This suggests that when children are posed recognition questions about true and false touches, visual aids are no better at eliciting new information about unreported touch than verbal prompting alone. Despite this, children still reported more details during

the touch-specific questions phase compared to touch follow up. This was likely because interviewers used highly specific prompts for the purpose of eliciting new pieces of information, whereas follow up focussed on clarifying prior disclosures. Previous research has mostly found that using visual aids for the purpose of eliciting new information about touch has led to an increase in touch related details reported. Therefore, the current study's findings are not in line with prior research.

A possible explanation for these findings could be attributed to the present study incorporating a tightly controlled methodological paradigm. This has otherwise been lacking in previous research. For example, the substantive interviewing phase in the present study followed guidelines outline by the NICHD Investigative Interviewing Protocol, which advocates exhaustive open-ended recall. Previous research has often failed to align their substantive interviewing component with an empirically validated interviewing protocol (Steward & Steward, 1996; Willcock et al., 2006; Bruck, 2009). Therefore, children's poor submissions of touch incidents and the context in which they occurred, may have been mediocre prior to touch inquiry on account of the interviewing techniques used to elicit information. As a result when prior research introduced visual aids, information was still available for retrieval, as it had not been properly exhausted during the substantive interviewing phase. This might account for why prior research has found an increase in information reported following the introduction of visual aids.

Additionally earlier research has not consistently incorporated a verbal only control condition (Aldridge, et al., 2004; Willcock et al., 2006; Bruck, 2009; Otgaar et al., 2012). Instead, comparisons in the amount of information elicited have taken place between pre and post visual aid use. The difficulty with making this comparison is that it does not solidify that HBDs are associated with more details being reported

above and beyond verbal questioning. It might be that introducing more focussed questions about touch result in increasing amounts of touch-related information reported. By incorporating a verbal only control condition, the present study was able to identify whether visual aids alone were associated with an increase in reported information by children. Taken together these implications suggest that when more tightly controlled measures are incorporated into the methodological paradigm, visual aids may not increase the amount of touch related information reported by children.

An alternate explanation could be associated with the nature of information children were recalling during the touch-specific questions phase, which may have further influenced the effectiveness of visual aids in eliciting new information. The substantive phase likely exhausted the amount of freely recalled information available as per guidelines outlined by the NICHD Investigative Interviewing Protocol for which the phase was modelled on. An effect further supported by the low amount of details reported by children during the touch follow up phase. Therefore, touch-related information that had not yet been reported was likely poorly remembered and could only be retrieved by increasing the specificity of verbal prompts employed by the interviewer. All children reported similar amounts of information during the touch-specific questions phase, suggesting they all needed this same level of support. As a result visual aids did not make any unique contribution during this phase as children required more interviewer-led assistance in retrieving and reporting these unreported details.

It is important to further highlight this effect as it reflects an ongoing issue for investigative interviewers. That is, even after utilising an empirically validated interviewing protocol; children's reports are still incomplete, requiring more focussed recognition prompts to acquire more comprehensive statements. Additionally, as has

been demonstrated in our findings, interviewing styles that favour the use of recognition questions may produce equivocal amounts of information to open ended questions. However, in forensic settings recognition cues are discouraged as they can have negative impacts on the accuracy of children's statements. The implications of visual aids when used in combination with retrieval or recognition cues and their effects on the accuracy of children's statements, will be discussed in the subsequent section.

**Accuracy of touch-related information**

It was found that the accuracy of touch related details elicited in each phase of the interview did not significantly differ between interviewing conditions. This was contrary to expectations. However, overall children were significantly more accurate during the substantive phase than both the touch follow up and specific touch questions phases of the interview. These findings are now discussed

For the touch phase there was no significant difference between interviewing conditions in the accuracy of children's recollections. However, it was hypothesized that children interviewed with visual aids would be more accurate during this phase as the question style adopted prioritised the use of retrieval cues. Research examining the accuracy of using visual aids to clarify and elicit more information about previously reported touch at the end of an exhaustive interview is lacking. Currently, only Salmon et al.'s (2012) study has been able to examine accuracy as a measure when visual aids are used to clarify touches as they are reported during the interview. Similar to the present study they found no substantial differences in the accuracy of children's reports relative to whether children were interviewed using visual aids. Therefore in combination, these studies suggest that when clarifying reported touch, visual aids may not substantially affect the accuracy of children's statements.

A cautionary note however as the present study found that overall, children were least accurate when they were asked to clarify and elaborate on previously reported touches. Although, due to small amounts of information being reported across all conditions during this second phase of the interview, it is difficult to make firm conclusions about the accuracy of reports. Findings from eyewitness research have shown that when children's responses to open invitations become sparse, cued-invitations (prompting the child using their own terminologies and explanations) act as a positive alternative. Cued invitations encourage children to relay more complete reports, without necessarily decreasing the accuracy of their statements (Horowitz, 2009). Given that the present study prioritised the use of open ended prompts to encourage more disclosures of previously reported touch, future research might benefit from pairing cued-invitations with visual aids to clarify previous reports.

For the touch specific questions phase there was no significant difference between interviewing conditions in the accuracy of children's recollections. However, it was hypothesized that children interviewed with visual aids would be less accurate during this phase as the question style adopted prioritised the used of recognition cues. Despite the hypothesis not being supported, overall children did report less accurate information during the touch-specific questions phase compared with the substantive interviewing phase. Additionally, children reported more incorrect touches during the specific questions compared with all other interviewing phases regardless of interviewing condition. Together these findings suggest that in spite of visual aid use, as interviewer input increases in the form of highly specific yes/no questions, children are increasingly likely to produce less accurate statements and report more false incidents of touch.

The present studies results are not in line with previous findings, which have frequently found visual aids to be associated with a decline in the accuracy of children's statements. However, by excluding a verbal only-control condition, prior research has often neglected to discount whether interviewer-questioning style used to elicit new information has affected the accuracy of children's statements. Therefore, it may be that recognition cues to prompt touch inquiry may be related to a decline in children's testimonial accuracy, as opposed to visual aid use. This is a notion not only supported by the present study's findings, but one that has been consistently demonstrated in previous eyewitness research. Therefore using a series of recognition cues for the purpose of eliciting new information may encourage children to generate more information, but those new details may very likely be inaccurate.

Furthermore, young children may be predisposed to providing inaccurate responses to recognition cues. Younger children struggle to differentiate between an event they actually experienced and one that has been suggested them. This is because young children find it difficult to monitor the source of their memories, which means they are likely to comply with demand characteristics and make affirmations toward details that may have only been mentioned or described by an interviewer. In the present study, children were just over 50% accurate when they were prompted about true and false incidents of touch. This suggests that children providing correct responses to recognition cues was no better than chance. This clearly demonstrates the difficulties with prompting children to elaborate beyond what they can easily retrieve. As interviewer input increases children are more likely to incorporate incorrect details. In a forensic setting an incorrect disclosure made by a child may put them at further risk of abuse or wrongfully declare an innocent party guilty, it might also affect how valid their testimony is judged to be later by authorities. Therefore, our study further

support interviewing protocols like the NICHD Investigative Interviewing Protocol, which advocate the use of open ended cues and caution against recognition cues that introduce information not previously mentioned by the child.

In the present study, visual aids provided no additional benefits in increasing the accuracy of children's statements, however nor did they substantially reduce the reliability of children's reports. Nevertheless visual aids are often used in a highly specific manner (i.e., for touch inquiry), which in itself is associated with diminished accuracy. An effect further supported by the finding, which showed both touch follow up and touch-specific questions phase to be significantly less accurate than the substantive interviewing phase. Therefore given the risks of reducing testimonial accuracy, the present study advises against the use of visual aids when used for the purpose of eliciting highly specific details about touch.

**Practical implications**

Overall, children made more correct assertions of touch in the present study than has been demonstrated in previous research. Preliminary evidence shows that a photo of a subject may assist children in reporting discrete episodes of touch. In a forensic setting this might provide some benefits, as the use of a photograph of the subject's own body could help investigative interviewers establish the range in frequency of abusive incidents. This suggests that although a photograph may not be useful in eliciting elaborative accounts, they may be beneficial for the purpose of collating the frequency of abusive touches experienced. However, the present study was limited by the sample size, which is reflected by the observed power, which typically fell between .05 and .54; this was significantly lower than the suggested .8 (Field, 2013). Future studies would benefit from having a sample size larger than 65 participants. Additionally, in order to provide more firm conclusions regarding the

utility of visual aids, there is a significant need for future research to replicate this study across a range of factors (e.g., age, delay and single vs. repeated experiences).

Similar to the amount of information, children interviewed with visuals aids were no less accurate in their reports of touch. In spite of this as the interview progressed from the substantive interview phase to touch follow up and specific questions, prompts became more focused in eliciting information about touch. Subsequently the accuracy of all children's reports, regardless of interviewing condition, decreased. Given that children reported the most accurate information in the substantive interviewing phase and only preliminary evidence indicates a photograph as a useful visual aid, the present study recommends that research focuses on developing and maintaining verbal interview techniques that advocate reduced interviewer input to sustain quality, but also support children in providing complete statements. Upon developing more refined verbal interviewing protocols, prompting children to disclose touch-related information via non-verbal interviewing techniques, like visual aids, may be unwarranted.

**References**

Ackerman, B. P. (1982). Retrieval Variability: The inefficient use of retrieval cues by young children. *Journal of Experimental Child Psychology, 33*, 413-428. doi: 10.1016/0022-0965(82)90056-X

Aldridge, J., Lamb, M. E., Sternberg, K. J., Orbach, Y., Esplin, P. W., & Bowler, L. (2004). Using a human figure drawing to elicit information from alleged victims of child sexual abuse. *Journal of Consulting and Clinical Psychology, 72*, 304-316. doi: 10.1037/0022-006X.72.2.304

Anderson, J., Martin, J., Mullen, P. E., Romans, S., & Herbison, P. (1993). Prevalence of childhood sexual abuse experiences in a community sample of women. *Journal of the Americal Academy of Child and Adolescent Psychiatry, 32*, 911-919. doi: 10.1097%2F00004583-199309000-00004

Baker-Ward, L., Gordon, B. N., Ornstein, P. A., Larus, D. M., & Clubb, P. A. (1993). Young children's long-term retention of a pediatric examination. *Child Development, 64*, 1519-1533. doi: 10.1111/j.1467-8624.1993.tb02968.x

Banyard, V. L., Williams, L. M., & Siegel, J. A. (2001). The long-term mental health consequences of child sexual abuse: An exploratory study of the impact of multiple traumas in a sample of women. *Journal of Traumatic Stress, 14*, 697-715. doi: 10.1023/A:1013085904337

Bays, J., & Chadwick, D. (1993). Medical diagnosis of the sexually abused child. *Child Abuse & Neglect, 17*(1), 91-110. doi: 10.1016/0145-2134(93)90011-S

Bennett, P. (2012). *The white paper for vulnerable children volume I.* Wellington: New Zealand Government. Retrieved from http://www.msd.govt.nz/documents/about-msd-and-our-work/work-

programmes/policy-development/white-paper-vulnerable-children/white-paper-for-vulnerable-children-volume-1.pdf.

Bonnar-Kidd, K. K. (2010). Sexual offender laws and prevention of sexual violence or recidivism. *American Journal of Public Health, 100*(3), 412-419. doi: 10.2105/AJPH.2008.153254

Brown, D. (2010). The use of supplementary techniques in forensic interviews with children. In M. E. Lamb, D. J. La Rooy, C. Katz & L. C. Malloy (Eds.), *Children's Testimony: A Handbook of Psychological Research and Forensic Practice (2nd Ed)*. West Sussex, United Kingdom: John Wiley & Sons, Ltd., Publication.

Brown, D., & Lamb, M. E. (2009). Forensic interviews with children: A two-way street: Supporting interviewers in adhering to best practice recommendations and enhancing children's capabilities in forensic interviews. In K. Kuehnle & M. Connell (Eds.), *The evaluation of child sexual abuse allegations: A comprehensive guide to assessment and testimony* (pp. 299-326). New Jersey, USA: John Wiley & Sons, Inc.

Brown, D., Lamb, M. E., Lewis, C., Pipe, M. E., Orbach, Y., & Wolfman, M. (2013). The NICHD Investigative Interview Protocol: An analogue study. *Journal of experimental psychology: Applied 19*(4), 367. doi: 10.1037/a0035143

Brown, D., Lamb, M. E., Pipe, M. E., & Orbach, Y. (2008). Pursuing 'the truth, the whole truth, and nothing but the truth': forensic interviews with child victims or witnesses of abuse. In M. J. A. Howe, G. S. Goodman & D. Cicchetti (Eds.), *Stress, trauma, and children's memory development: Neurobiological, cognitive, clinical, and legal perspectives*. New York: Oxford University Press.

Brown, D., Pipe, M. E., Lewis, C., & Lamb, M. E. (2007). Supportive or suggestive: Do human figure drawings help 5- to 7-year-old children to report touch? *Journal of Consulting and Clinical Psychology, 75*, 33-42. doi: 10.1037/0022-006X.75.1.33

Brown, D., Pipe, M. E., Lewis, C., Lamb, M. E., & Orbach, Y. (2012). How do body diagrams affect the accuracy and consistency of children's reports of bodily touch across repeated interviews? *Applied Cognitive Psychology, 26*, 174-181. doi: 10.1002/acp.1828

Bruck, M. (2009). Human figure drawings and children's recall of touching. *Journal of Experimental Psychology: Applied, 15*, 361-374. doi: 10.1037/a0017120

Ceci, S. J., & Bruck, M. (1995). *Jeopardy in the courtroom: A scientific analysis of children's testimony*. Washington, DC USA: American Psychological Association.

Ceci, S. J., & Howe, M. J. A. (1978). Age-related differences in free recall as a function of retrieval flexibility. *Journal of Experimental Child Psychology, 26*, 432-442. doi: 10.1016/0022-0965(78)90123-6

Chae, Y. (2010). Application of laboratory research on eyewitness testimony. *Journal of Forensic Psychology Practice, 10*, 252-261. doi: 10.1080/15228930903550608

Chen, Y., McAnally, H. M., & Reese, E. (2013). Development in the organization of episodic memories in middle childhood and adolescence. *Frontiers in behavioral neuroscience, 7*, 84-93. doi: 10.3389/fnbeh.2013.00084

Clark, T., Fleming, T., Bullen, P., Crengle, S., Denny, S., Dyson, B., . . . Utter, J. (2013). Health and well-being of secondary school students in New Zealand:

Trends between 2001, 2007 and 2012. *Journal of Paediatrics and Child Health, 49*(11), 925-934. doi: 10.1111/jpc.12427

DeLoache, J. S. (1991). Symbolic functioning in very young children: Understanding of pictures and models. *Child Development, 62*, 736-752. doi: 10.1111/j.1467-8624.1991.tb01566.x

Dickinson, J. J., Poole, D. A., & Bruck, M. (2005). Back to the future: A comment on the use of anatomical dolls in forensic interviews. *Journal of Forensic Psychology Practice, 5*, 63-74. doi: 10.1300/J158v05n01_04

Fanslow, J. L., Robinson, E. M., Crengle, S., & Perese, L. (2007). Prevalence of child sexual abuse reported by a cross-sectional sample of New Zealand women. *Child Abuse & Neglect, 31*, 935-945. doi: 10.1016/j.chiabu.2007.02.009

Fegusson, D. M., Horwood, L. J., & Woodward, L. J. (2000). The stability of child abuse reports: A longitudinal study of the reporting behaviour of young adults. *Psychological Medicine, 30*, 529-544. doi: 10.1017/S0033291799002111

Field, A. (2013). *Discovering statistics using IBM SPSS statistics (4th ed.): And Sex and Drugs and Rock 'n' Roll*. Los Angeles, USA: SAGE Publication Ltd.

Gathercole, S. E. (1998). The development of Memory. *Journal of Child Psychology and Psychiatry, 39*, 3-27. doi: 10.1111/1469-7610.00301

Goodman, G. S., & Melinder, A. (2007). Child witness research and forensic interviews of young children: A review. *Legal and Criminology Psychology, 12*, 1-19. doi: 10.1348/135532506X156620

Goodman, G. S., & Reed, R. S. (1986). Age differences in eyewitness testimony. *Law and Human Behavior, 10*, 317-332. doi: 10.1007/BF01047344

Hanna, K., Davies, E., Henderson, E., Crothers, C., & Rotherham, C. (2010). *Child witnesses in the New Zealand criminal courts: A review of practice and*

*implications for policy*. Institute of Public Policy. Retrieved from http://www.ipp.aut.ac.nz/__data/assets/pdf_file/0020/119702/Child-Witnesses-in-the-NZ-Criminal-Courts-full-report.pdf.

Hardy, C. L., & Van Leeuwn, S. A. (2004). Interviewing young children: Effects of probe structures and focus of rapport-building talk on the qualities of young children's eyewitness statements. *Canadian Journal of Behavioural Science, 36*, 155-165. doi: 10.1037/h0087226

Herman, S. (2009). Forensic child sexual abuse evaluations: Accuracy, ethics, and admissibility. In K. Kuehnle & M. Connell (Eds.), *The evaluation of child sexual abuse allegations: A comprehensive guide to assessment and testimony* (pp. 247-266). New Jersey, USA: John Wiley & Sons, Inc.

Hershkowitz, I., Fisher, S., Lamb, M. E., & Horowirz, D. (2007). Improving credability assessment in child sexual abuse allegations: The role of the NICHD investigative interview protocol. *Child Abuse & Neglect, 31*, 99-110. doi: 10.1016/j.chiabu.2006.09.005

Horowitz, S. W. (2009). Direct mixed and open questions in child interviewing: An analog study. *Legal and Criminological Psychology,* 14, 135-147. doi: 10.1348/135532508X298441

Hoyano, L., & Keenan, C. (2010). *Child abuse: law and policy across boundaries*. Oxford: Oxford University Press.

Jones, D. P. H. (2003). *Communicating with vulnerable children: a guide for practitioners*. London: Gaskell.

Julich, S. L. (2004). *Exploring the costs of child sexual abuse: Aotearoa, New Zealand*. Paper presented at the The 3rd Biennial Conference of Australian and New Zealand Association for the Treatment of Sexual Abusers, Auckland.

Klemfuss, J., & Ceci, S. J. (2009). Normative memory development and the child witness. In K. Kuehnle & M. Connell (Eds.), *The evaluation of child sexual abuse allegations: A comprehensive guide to assessment and testimony* (pp. 153-180). New Jersey, USA: John Wiley & Sons, Inc.

Krahenbuhl, S., & Blades, M. (2005). The effect of interviewing techniques on young children's responses to questions. *Child: Care, Health & Development, 32*, 321-331. doi: 10.1111%2Fj.1365-2214.2006.00608.x

La Rooy, D. J., Malloy, L. C., & Lamb, M. E. (2011). The development of memory in childhood. In M. E. Lamb, D. J. La Rooy, L. C. Malloy & C. Katz (Eds.), *Children's testimony: A handbook of psychological research and forensic practice (2nd ed.)* (pp. 49-63). New Jersey, USA: John Wiley & Sons, Ltd.

Lamb, M. E., & Brown, D. (2006). Conversational apprentices: Helping children become competent informants about their own experiences. *The British Journal of Developmental Psychology, 24*, 215-234. doi: 10.1348/026151005X57657

Lamb, M. E., Hershkowitz, I., Orbach, Y., & Esplin, P. W. (2008). *Tell me what happened: Structured investigative interviews of child victims and witnesses*. West Sussex, England: John Wiley & Sons Ltd.

Lamb, M. E., Malloy, L. C., & La Rooy, D. J. (2011). Setting realistic expectations: Developmental characteristics, capacities and limitations. In M. E. Lamb, D. J. La Rooy, L. C. Malloy & C. Katz (Eds.), *Children's testimony: A handbook of psychological research and forensic practice (2nd ed.)* (pp. 15-48). New Jersey, USA: John Wiley & Sons, Ltd.

Lamb, M. E., Orbach, Y., Hershkowitz, I., Esplin, P. W., & Horowirz, D. (2007). A structured forensic interview protocol improves the quality and

informativeness of investigative interviews with children: A review of research using the NICHD investigative interview protocol. *Child Abuse & Neglect, 31*, 1201-1231. doi: 10.1016/j.chiabu.2007.03.021

Lamb, M. E., Sternberg, K. J., Orbach, Y., Esplin, P. W., Stewart, H., & Mitchell, S. (2003). Age differences in young children's responses to open ended invitations in the course of forensic interviews. *Journal of Consulting and Clinical Psychology, 71*, 926-934. doi: 10.1037/0022-006X.71.5.926

London, K., Bruck, M., Ceci, S. J., & Shuman, D. W. (2007). Disclosures of child sexual abuse: A review of the contemporary empirical literature. In M. E. Pipe, M. E. Lamb, Y. Orbach & A. C. Cederborg (Eds.), *Child Sexual abuse: Disclsoure, delay, and denial* (pp. 11-40). New Jersey, USA: Lawrence Erlbaum Associates, Inc., Publishers.

Lyon, T. D. (2007). False denials: Overcoming methodological biases in abuse disclosure research. In M. E. Pipe, M. E. Lamb, Y. Orbach & A. C. Cederborg (Eds.), *Child sexual abuse: Disclosure, delay, and denial* (pp. 41-62). New Jersey, USA: Lawrence Erlbaum Associates, Inc., Publishers.

Lyon, T. D. (2012). Twenty-five years of interviewing research and practice: Dolls, diagrams, and the dynamics of abuse disclosure. *American Professionaly Society on the Abuse of Children (APSAC) Advisor, 24*, 14-19. Retrieved from http://works.bepress.com/thomaslyon/82/

Mullen, P. E. (1991). The consequences of child sexual abuse: Psychological disorders are common in adults abused as children. *British Medical Journal, 303*, 144-145. Retrieved from http://bjp.rcpsych.org/content/184/5/416.full

Orbach, Y., Hershkowitz, I., Lamb, M. E., Sternberg, K. J., Esplin, P. W., & Horowirz, D. (2000). Assessing the value of structured protocols for forensic

interviews of alleged child abuse victims. *Child Abuse & Neglect, 24*, 733-752. doi: 10.1016/S0145-2134(00)00137-X

Orbach, Y., & Lamb, M. E. (2000). Enhancing children's narratives in investigative interviews. *Child Abuse & Neglect, 24*, 1631-1648. doi: 10.1016/S0145-2134(00)00207-6

Ornstein, P. A., Gordon, B. N., & Larus, D. M. (1992). Children's memory for a personally experienced event: Implications for testimony. *Applied Cognitive Psychology, 6*, 49-60. doi: 10.1002/acp.2350060103

Otgaar, H., Horselenberg, R., Kampen, R. V., & Lalleman, K. (2012). Clothed and unclothed human figure drawings lead to more correct an incorrect reports of touch in children. *Psychology, Crime & Law, 18*, 641-653. doi: 10.1080/1068316X.2010.532129

Pipe, M. E., Lamb, M. E., Orbach, Y., & Esplin, P. W. (2004). Recent research on children's testimony about experienced and witnessed events. *Developmental Review, 24*, 440-468. doi: 10.1016/j.dr.2004.08.006

Pipe, M. E., & Salmon, K. (2009). Dolls, drawings, body diagrams, and other props: Role of props in investigative interviews. In K. Kuehnle & M. Connell (Eds.), *The evaluation of child sexual abuse allegations: A comprehensive guide to assessment and testimony* (pp. 365-396). New Jersey, USA: John Wiley & Sons, Inc.

Pipe, M. E., Sutherland, R., Webster, N., Jones, C., & Rooy, D. L. (2004). Do early interviews affect children's long-term event recall? *Applied Cognitive Psychology, 18*, 823-839. doi: 10.1002/acp.1053

Poole, D. A., Bruck, M., & Pipe, M. E. (2011). Forensic interviewing aids: Do props help children answer questions about touching? *Current Directions in Psychological Science, 20*, 11-14. doi: 10.1177/0963721410388804

Poole, D. A., & Dickinson, J. J. (2011). Evidence supporting restrictions of uses of body diagrams in forensic interviews. *Child Abuse & Neglect, 35*, 659-669. doi: 10.1016/j.chiabu.2011.05.004

Poole, D. A., & Lamb, M. E. (1998). *Investigative interviews of children: A guide for helping professionals*. Washington, DC USA: American Psychological Association.

Quas, J. A., Goodman, G. S., Ghetti, S., & Redlich, A. D. (2000). Quetioning the child witness: What can we conclude from the research thus far? *Trauma, Violence, & Abuse, 1*, 223. doi: 10.1177/1524838000001003002

Rocha, E. M., Marche, T. A., & Briere, J. L. (2013). The effect of forced-choice questions on children's suggestability: A comparison of multiple-choice and yes/no questions. *Canadian Journal of Behavioural Science, 45*, 1-11. doi: 10.1037/a0028507

Salmon, K., Pipe, M. E., Malloy, A., & Mackay, K. (2012). Do non-verbal aids increase the effectiveness of 'best practice' verbal interview techniques? An experimental study. *Applied Cognitive Psychology, 26*, 370-380. doi: 10.1002/acp.1835

Saywitz, K. J., Goodman, G. S., Nicholas, E., & Moan, S. F. (1991). Children's memories of a physical examination involving genital touch: Implications for reports of child sexual abuse. *Journal of Consulting and Clinical Psychology, 59*, 682-691. doi: 10.1037/0022-006X.59.5.682

Schollum, M. (2005). *Investigative interviewing: The literature*. Wellington: Office of the Commissioner of Police. Retrieved from http://www.police.govt.nz/resources/2005/investigative-interviewing/investigative-interviewing.pdf.

Statistics New Zealand. (2013). *Prosecuted charges by ANZSOC*. New Zealand.

Sternberg, K. J., Lamb, M. E., Orbach, Y., Esplin, P. W., & Mitchell, S. (2001). Use of a structured investigative protocol enhances young children's responses to free-recall prompts in the course of forensic interviews. *Journal of Applied Psychology, 5*, 997-1005. doi: 10.1037//0021-9010.86.5.997

Steward, M. S., Bussey, K., Goodman, G. S., & Saywitz, K. J. (1993). Implications of developmental research for interviewing children. *Child Abuse & Neglect, 17*, 25-37. doi: 10.1016/0145-2134(93)90005-P

Steward, M. S., & Steward, D. S. (1996). Interviewing young children about body touch and handling. *Monographs of the Society for Research in Child Development, 61*, 1-191. doi: 10.2307%2F1166205

Teoh, Y. S., Yang, P. J., Lamb, M. E., & Larsson, A. S. (2010). Do human figure diagrams help alleged victims of sexual abuse provide elaborate and clear accounts of physical contact with alleged perpetrators. *Applied Cognitive Psychology, 24*, 287-300. doi: 10.1002/acp.1564

Thierry, K. L., Lamb, M. E., Orbach, Y., & Pipe, M. E. (2005). Developmental differences in the function and use of anatomical dolls during interviews with alleged sexual abuse victims. *Journal of Consulting and Clinical Psychology, 73*(6), 1125-1134. doi: 10.1037/0022-006X.73.6.1125

Tulving, E., & Thompson, D. M. (1973). Encoding specificity and retrieval processes in episodic memory. *Psychological Review, 80*, 352-373. doi: 10.1037/h0020071

Willcock, E., Morgan, K., & Hayne, H. (2006). Body maps do not facilitate children's reports of touch. *Applied Cognitive Psychology, 20*, 607-615. doi: 10.1002/acp.1212

## Appendix A

## School information letter

TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI

VICTORIA
UNIVERSITY OF WELLINGTON

**Using images to help children talk about their experiences**

Dear ……,

Thank you very much for considering our request to involve some of your students in our research. I would like to outline the practical aspects of running the study, and what we would need from the school should you be able to help us to recruit participants.

We want to study what kinds of information children remember and describe details about things they have experienced. We know that children's descriptions of their experiences tend to be made up of the actions that occurred ("what happened"). Children are much less likely to include the specific details about events. One category of information that we are interested in is how well children remember and talk about bodily contact that has occurred during an interaction.

Research of this kind can provide important information about how children learn, remember, and talk about things that they know, and ways that people working with children in a variety of contexts can help them talk about things that have happened to them. For example, it can contribute towards developing guidelines for interviewers who have to talk to children about crimes they have witnessed or experienced (e.g., accidents, assaults, maltreatment), or for helping doctors talk to children about their symptoms when unwell.

We would like to include children between 5 and 6 years of age.

We would begin the study by staging a class-based presentation about different activities about health and safety. This sets up what we call an event, which the children can be questioned about in subsequent days. The event we propose to use is a modification of one that has been used in previous studies with children in New Zealand, and proved popular with teachers and students alike. The event will include some instances of body contact between the children and their partner. For example, children will have their ears touched by their partner who will measure their temperature with a digital thermometer. In another activity children will listen to each other's heartbeats using a stethoscope (and thereby touching their partner's back and chest), and practice finding a pulse on their partner (touching their neck and wrist).
We will provide research assistants to stage the event, which typically lasts about 45 minutes. We would like to set up a video camera to record the event, so that we can compare what children tell us with what our record of what occurred during the

presentation. In previous studies we have included all children in the event (whether or not they are going to be interviewed), unless parents specifically requested they not attend it.

Before we begin the study, we will send out letters to all parents of children in the classes selected for inclusion. Children with consent to participate will be interviewed, individually, 3 – 5 days after the event, to assess their memory for the health and safety presentation, and the instances of body contact that occurred during the activities. Children will be interviewed using one of three techniques to see if they can correctly remember where on their bodies the different contacts occurred. Some children will simply be asked questions, some will also be given a drawing to show where the body contact contained in the activities occurred, and some will be asked to show on a photograph of themselves. This is expected to last a maximum of 30 minutes. The sessions will be conducted by a trained research assistant. The research assistant will liaise with the class teachers each day to schedule the times for each session, to ensure that disruption of the class and the children's learning schedules is kept to a minimum.

In practical terms, to stage the study we would require the following:

- We would like the children to return consent forms to their teachers, and we will collect them prior to beginning the study.
- For the event, we would like to use a large room (e.g., a hall or library).
- For the interviews we would need a small, quiet room, with a power source and lighting, which would be free of interruptions for the period that the researchers were there. We will work in with the school's schedule and need for space (e.g., we are happy to move from room to room, or schedule half-days as needed).
- The time needed at the school to complete the interviews will obviously depend on the number of children with parental consent.

At the conclusion of the study we will send all parents of participating children, and the teachers at the school, a summary of the study and its findings.

If you are interested in your class participating, please let me know via email. I will then contact you to confirm dates. I look forward to hearing from you.

Yours sincerely,

Dr Deirdre Brown, PhD, PgDipClPs, MNZCCP
Lecturer in Clinical and Forensic Psychology
School of Psychology
Victoria University of Wellington

Ph: (04) 4635233 ext 8059
Email: Deirdre.Brown@vuw.ac.nz

## Appendix B

## Parental consent form

TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI

VICTORIA
UNIVERSITY OF WELLINGTON

**Using images to help children talk about their experiences**

Date

Dear Parents/Caregivers,
We would like to invite your child to participate in a study about children's memory. We have the support of your child's school, and the study has been approved by the School of Psychology Human Ethics Committee under delegated authority to the Victoria University Human Ethics Committee.

**What is the purpose of this research?**
We want to study what kinds of information young children remember and describe about things they have experienced. We know that children have difficulty describing the specific details of events. One category of information that we are interested in is how well children remember information about their bodies that has occurred during an interaction. Research of this kind can help develop guidelines for people talking with children in different contexts about their experiences (e.g., interviews about crimes they have witnessed or experienced, helping doctors talk to children about their symptoms).

**Who is conducting the research?**

- This study is being conducted by Dr Deirdre Brown and Missy Wolfman (PhD student) from the School of Psychology at Victoria University, Wellington.

**What is involved if your child participates in this study?**

- Your child's class will take part in an interactive lesson about health and safety. Children will work in small groups, with an adult group leader. Children will learn about their bodies – e.g., the heart and temperature. For example, children will take each other's temperature measured with a digital thermometer on various parts of the body (ear, under arm, behind the knee). In another activity children will listen to each other's heartbeats using a stethoscope (on their partner's back, stomach and chest), and practice finding a pulse on their partner (on the neck, ankle and wrist).
- Between 3 – 5 days after the event your child will be interviewed, individually, at school, to see what they can describe about the event. During the interview we will ask your child different types of questions;
    - We will ask them to tell us everything they can about what happened and then use broad (e.g., tell me more) and specific questions to help them tell any more details they remember

  - We will ask some questions about things that did not happen during the event e.g. "did your leader put the thermometer under your foot?"
  - Some of the children will be asked to show on either a drawing of a child or a photo that was taken at the beginning of the interview where any body contact occurred during the activities e.g., where their partner listened to their heart
- Your child can indicate that he or she does not wish to proceed at any stage of the study and will be excused.
- Children who are interviewed will receive a small gift (e.g., stickers) to thank them. Equipment vouchers will also be donated to the school.

**Privacy and Confidentiality**

- Consent forms, photographs, line drawings and video recordings will be kept for five years after publication and then destroyed.
- The data will be coded by numbers and therefore your child will never be identified individually. The dataset (the numbers) will be kept indefinitely and will be securely stored in the laboratory of Dr. Deirdre Brown.
- Coded data (that is, without your child's name) may be shared with other competent professionals upon request, and may also be used in other studies.

**What happens to the information that you and your child provide?**

- We may publish the results of the study in a scientific journal or present them in a conference. No child will be identified in the results.
- You may wish to give your permission for parts of your child's interview to be included in conference presentations. If you do not wish to give consent for this you may still consent to your child participating in the study.
- Only researchers associated with the project will have access to the information reported by your child, although, in the unlikely event that your child reports witnessing or being a victim of a crime, we would also inform the authorities.

The results of the study will be available in approximately December 2013. A summary of our major findings will be sent out to you at the end of the study.

If you have any further questions regarding this study, you are most welcome to contact Dr. Deirdre Brown, ph 4635233 ext 8059 or Deirdre.Brown@vuw.ac.nz

If you agree for your child to participate in this study, please return this consent form to your child's teacher by **Monday 19th November**. Please also return the form if you *do not* wish your child to be interviewed about the class event.

If you allow your child to participate in the study please do not talk about the class event, or the interview with your child until after the study is finished.
Thank you for your time in considering participating in this study.

Yours sincerely,

Deirdre Brown, PhD, PgDipClPs, MNZCCP
Lecturer in Clinical and Forensic Psychology
School of Psychology
Victoria University of Wellington

TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI
VICTORIA
UNIVERSITY OF WELLINGTON

**Using images to help children talk about their experiences**

**Statement of Consent**

I have read all the information above and have asked any questions relating to this study, which have been answered satisfactorily.

**Please tick the statement that applies:**

☐ I consent to my child participating in this research. My child can indicate they do not wish to proceed at any stage of the study, and they will be excused.

☐ I do not wish my child to be interviewed about the class event.

☐ I do not wish my child to take part in the class event.

Child's Name: ……. Date of Birth: ……

Parent's Name: ……..

Email Address (optional): .....

Signature: …… Date: ……

## Appendix C

## Interview script

Record the following information on the tape before you begin

My name is _____. The date is _____. I am interviewing (code number), at (time).

**Section I.** TRUTH/LIES CEREMONY AND RULES OF INTERVIEW

**Well, _____, my name is _____. My job is to talk to children about things that have happened to them. So, before we begin, I want to make sure that you know the difference between things that are true and not true. If I said that you took your shoes off when you came into this room, would that be true or not true?**

[Wait for an answer. If the answer was incorrect say:]

Let's look at your feet. Have you got your shoes on? [Wait for an answer ("Yes")]

So, that would not be true, because you didn't take your shoes off.

[If the answer was correct say:] Great, I see that you know what telling the truth means.

When we talk today you should only tell me about things that are really true, that really happened to you.

If you don't understand something, you can just say "I don't understand".

[Pause]

And if you don't know the answer to something, just say, "I don't know". Let's practice that. If I ask you what's in my pocket what would you say?

[Wait for an answer, then say:]

Right, you don't know, do you?

[If child offers a guess, say:]

No, you don't know what's in my pocket because you haven't seen in there.

When you don't know, you don't have to guess, it's okay to say "I don't know".

[Pause]

And if I say things that are wrong, you should correct me. Okay?

[Pause]

So, if I said that you were a girl/boy (whatever they aren't) what would you say?

[Wait for an answer. If the answer was incorrect or no response say:]

And are you a boy/girl? [Wait for an answer]

That's right. Now you know you should correct me if I make a mistake or say something wrong.

So let's practice that one more time. If I said that you were standing up, what would you say?

[Wait for an answer] That's great. So while we are talking today it's okay for you to tell me if I make a mistake or say something that is not true, and remember you don't have to guess, it's okay to say when you don't know something.

**Section II.** RAPPORT (PRACTICE IN EPISODIC MEMORY)

Now, I want to get to know you better.

Tell me about all the things that you've done today, from the time you woke up/lunch time until the time you came here and met me.

[Wait for child's answer]

Tell me more about [what you did this morning]

[Wait for child's answer] [Note: use this prompt as often as needed throughout this section]

Then what happened?

[Wait for child's answer] [Note: use this prompt as often as needed throughout this section]

Tell me everything that happened after [some activity or portion of the event mentioned by the child] until you came here.

[Wait for child's answer]

What was the very next thing that happened after [some activity or portion of the event mentioned by the child]?

[Wait for child's answer]

You told me you [activity mentioned by child]. Tell me everything about [activity mentioned by child].

[Wait for child's answer] [Note: use this prompt as often as needed throughout this section]

**Section III.** FREE RECALL ABOUT THE STAGED EVENT

Now that I know you a little better, let me tell you why I've come to talk to you today.

1. I heard that a couple of weeks ago some people came to talk to your class about health and safety. I wasn't there but I'd like to know all about what happened. Tell me everything that happened from the beginning to the end.

[Wait for the child to answer. If child gives a brief description, *proceed to second and third invitations*. If the child does not provide any information about the event, wait then say:]

2. I heard that you and your class went into the performance room and learned about health and safety. Tell me all about what happened.

[Wait. If child begins to talk about event, *proceed to second and third invitations*. If child does not discuss the event, proceed to Question 3]

3. I heard that after they talked about safety they gave you some stickers. Tell me all about what happened.

[Wait for a response. If child does not provide any information proceed to Question 4. If child begins to talk about event, *proceed to second and third invitations]*

4. I heard you learned about hearts, and listened to them. Tell me all about what happened.

REINFORCEMENT – Gosh, you are thinking really hard for me.

Have a big think about that time and try to remember as much as you can.

2nd Invitation – Tell me any other things you can remember about that time

REINFORCEMENT – " I can see you are thinking really hard for me"

One more really big think about that time and try to remember as much as you can

3rd invitation – Tell me anything else at that even the little things

END OF FREE RECALL (PROCEED TO FOLLOW UP QUESTIONS)

**Section IV:** FOLLOW UP QUESTIONS

Follow up each piece of information reported by child (e.g., activities, people, location, items present) and encourage elaborative reporting. Try to be systematic with this, focusing on one event and details associated with it until child indicates s/he can recall no more, before moving to next activity/piece of information.

PRIORITIZE:

- Actions (what happened) at the same
- Child's recall sequence (e.g. ask follow up questions to the first activity they mentioned, then the second activity etc)

Use the following prompts:

- REPEAT WHAT CHILD HAS SAID, USING HIS/HER WORDS [remember not to provide details, (including names) that the child hasn't mentioned] (e.g., OK, so you had to listen to someone's breathing) then say: Tell me everything you remember about that.)
- And then what happened? [You can use this prompt several times until you have an overview of the incident]
- Think back to that time and tell me everything that happened from [some preceding event mentioned by the child] until [event as described by child]
- Tell me more about [something or event mentioned by child] [You can use this prompt many times]
- Tell me some more things about [something or event mentioned by child] [You can use this prompt many times]

BREAK: Check with the monitor once you have exhausted your line of questioning, or feel that the child needs a break. Take as many as you need to ensure you are asking best questions possible and maintaining child's motivation/interest. While you take a break, ask the child to think really hard about everything that happened that day, and that you will ask if they remember anything else when you return.

- Review notes and check if there is anything left out by the child

- Clarify any words e.g. " listening thing" – the child can show you on the video

NOTE: AFTER TAKING A BREAK TO REVIEW THE CHILD'S COMMENTS, YOU MAY WANT TO ASK ADDITIONAL PAIRED CUE (SECTION IV) AND PAIRED LEADING (SECTION V) QUESTIONS.

**Section V:** PROBES ABOUT SPECIFIC INFORMATION FOCUSING ON DETAILS

1a. You said something about [something the child said, e.g., getting a sticking plaster on] Tell me everything about that.

[Wait for a response]

1b. You said something about [something the child said, e.g., listening to the heart] Tell me everything about that.

[Wait for a response]

1c. You said something about [something the child said, e.g., getting how tall you are done] Tell me everything about that.

[Wait for a response]

Use as many of these as you need.

2. If the central information remains sparse (e.g., we did some stuff about being safe) ask I don't understand what the safe things were that you did. Tell me everything about that so that I can understand.

[Use as many such prompts as you need. Follow up with cue questions like 1a, 1b, and 1c in this section to probe further]

**Section VI:** PROBES ABOUT INFORMATION NOT MENTIONED BY THE CHILD

Things we want to have heard about by the end:

- Activity
- Hearts
- Temperatures
- Hazards
- Cuts
- Groups
- Leader of each activity
- Partner for temperature
- Partner for hearts
- Location
- First activity

[Leading non-suggestive questions should only be asked after you have tried non-leading approaches and feel you are missing forensically crucial information. If such information is missing (e.g., what happened during particular activities, who they had as partners for events) ask leading questions such as:]

1. Who was your partner?

[Wait for a response.] Tell me all about that.

2. Who's heart did you listen to?

[Wait for a response and follow affirmative responses with:] Tell me what happened.

3.If child has not identified their group leader, ask Tell me who your group leader was.

[Wait for a response. If child provides information, follow up with:] Tell me more things about her.

[Follow up with further directed questions as necessary, e.g., Tell me about what she looked liked].

4. If child has not identified place of event, ask Where did you go to learn about safety?

**Touch questions**

[SIGN POST HERE THAT YOU ARE STARTING SOMETHING NEW]. I want to be really sure I understand everything you told me, so I need to ask you some more questions. I might ask you again about things you've already talked about, but that's ok, just tell me again. Remember I only want you to tell me things that you know really happened, you don't have to guess, and it's ok to say "I don't know" if you're not sure about something.

**THEN EITHER:**

Remember when you first came in I took your picture? Well here is the picture of you. I want to make sure I remember everything you told me today. Show me on the picture exactly where [repeat any statements about touch during verbal interview, e.g., Jane put the listening on you, Jane put the stethoscope on your back]. Give the child a dot sticker each time they talk about a new body place and get them to put it on the picture where they were touched. [make sure they use the front and the back of the picture, point out front and back if necessary]. So you told me about that before, but is there anything else you can tell me about that?

See this picture? This picture is a child just like you. I want to make sure I remember everything you told me today. Show me on the picture exactly where [repeat any statements about touch during verbal interview, e.g., Jane put the listening on you, Jane put the stethoscope on your back]. Give the child a dot sticker each time they talk about a new body place and get them to put it on the picture where they were touched. [make sure they use the front and the back of the picture, point out front and back if necessary]. So you told me about that before, but is there anything else you can tell me about that?

I want to make sure I remember everything you told me today. You told me that Jane put the listening on you, Jane put the stethoscope on your back – can you tell me again exactly where on your body that was? So you told me about that before, but is there anything else you can tell me about that?

Great. You've shown/told me lots of different places on your body that things happened while you were learning about health and safety.

If the child has provided any information about touching, follow up with: Did anything happen on any other part of your body? [If child responds affirmatively say: Tell me everything about that. Follow up with other open-ended prompts [such as Tell me more about that or And then what happened?] until the child provides no new information. Be sure that the elicited information is not ambiguous, use focused questions to clarify if necessary. Get child to show and mark on the photo where the touch occurred.

Once the child has marked on the photo/body map all of the touch that was reported in the verbal interview, proceed to the specific questions. Only ask questions if they have not already been reported by child in their free recall reports.

**Specific touch questions:**

If the child denies touching to the first question, ask the second question which provides a label for the action associated with the touching. If they describe an incident of touch in response to the first question, move to the next body area. All underlined questions should be asked.

1. Did [child's partner] touch you on your chest?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture (give the child a different coloured dots to the one used earlier). Tell me everything about that.

- Did [child's partner] put the stethoscope on your chest?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

2. Did [child's partner] touch you on your wrist?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

- Did [child's partner] put their fingers on your wrist?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

3. Did [child's partner] touch you on your forehead?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

- Did [child's partner] put their hand on your forehead?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

4. Did [never been child's partner but someone in their group] touch you on your ear?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

- Did [never been child's partner but someone in their group] put a thermometer in your ear?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

5. Did [child's partner] touch you on your arm?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

- Did [child's partner] put the stethoscope on your arm?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

6. Did[child's partner] touch you on the elbow?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

- Did [child's partner] put their fingers on your elbow?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

7. Did [child's partner] touch you on your tummy?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

- Did [child's partner] put the stethoscope on your tummy?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

8. Did [child's partner] touch you on the mouth?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

- Did [child's partner] put the thermometer in your mouth?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

9. Did [child's partner] touch you on the knee?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

- Did [child's partner] put the thermometer under your knee?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

10. Did [child's partner] touch you on your ankle?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

- Did [child's partner] put their fingers on your ankle?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

11. Did [child's partner] touch you under your arm?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

- Did [child's partner] put a thermometer under your arm?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

12. Did [never been child's partner but someone in their group] touch you on your wrist?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

- Did [never been child's partner but someone in their group] put her/his fingers on your wrist?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

13. Did [child's partner] touch you on your ear?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

- Did [child's partner] put a thermometer in your ear?

[Wait for a response]

[If child responds affirmatively, say:] Show me on the picture. Tell me everything about that.

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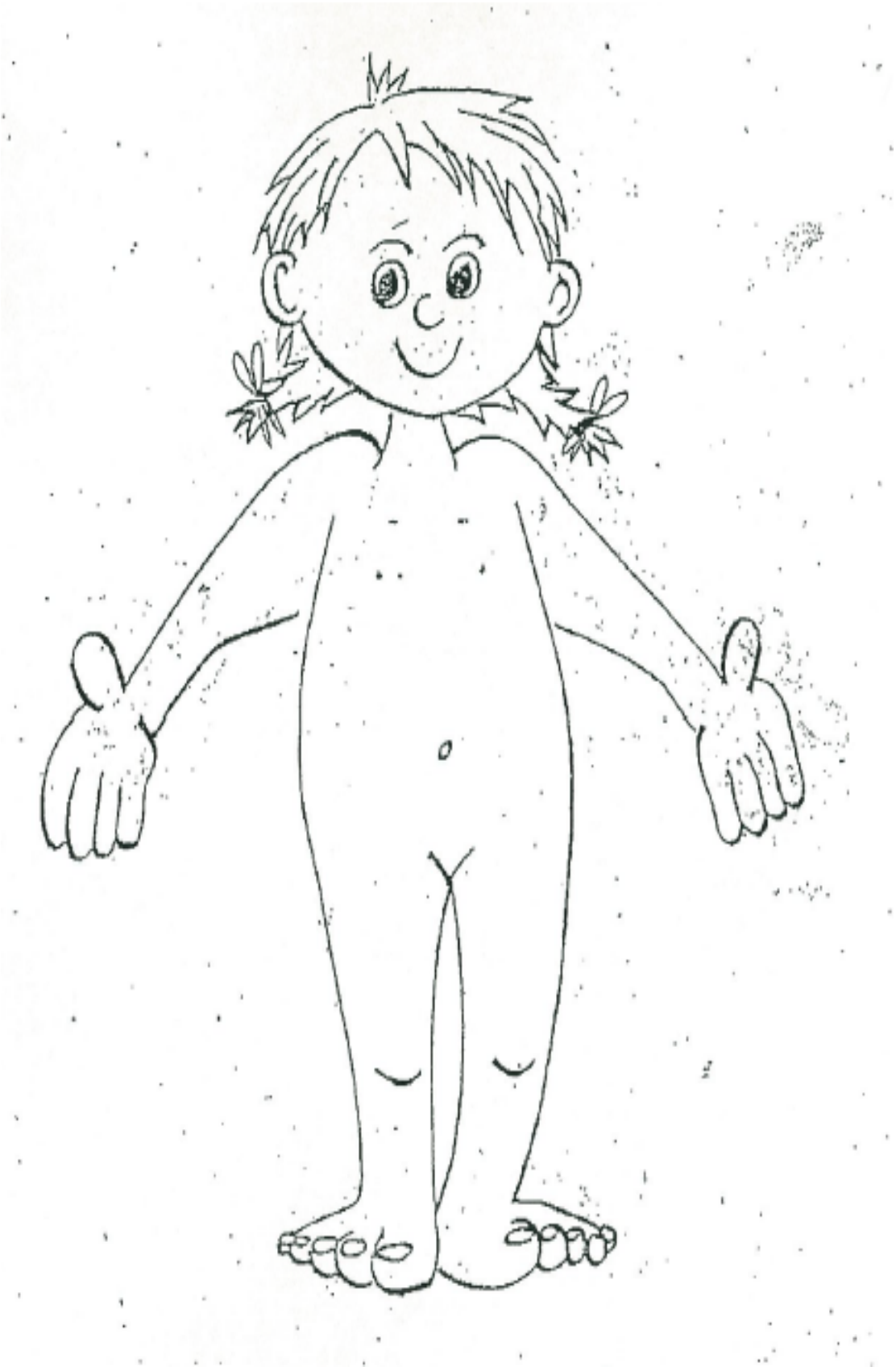
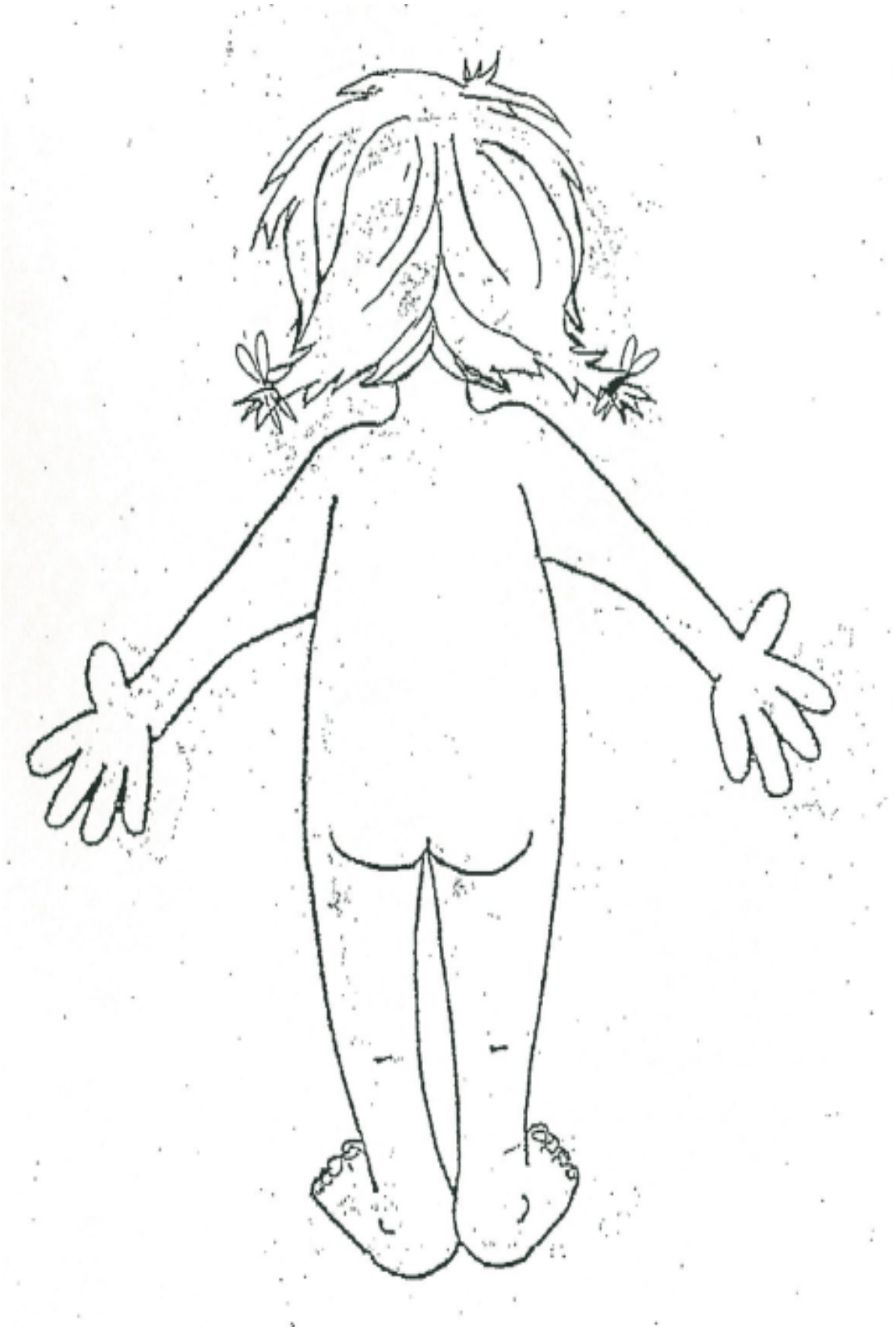
**THANK YOU!**
**PRIZE**

## Appendix D

## Human Body Diagram (front and back view)





## Appendix E

## Coding Manual

**Recommended coding process:**

1. The transcript will be read through marking where each section of the interview (verbal, touch follow up and specific touch questions) begins, and any touch related information will be highlighted.
2. The touch table will be filled in, marking whether or not each touch was reported and whether it was correct, an incorrect intrusion or an incorrect distortion. If there were any incorrectly reported touches they will be noted underneath the table.
3. The highlighted touch information in the transcript will be read through and pieces of information will be identified and circled.
4. Each piece of information will be considered and coded according to its accuracy as correct, incorrect distortion, incorrect intrusion, repeated, other, prompted correct, prompted incorrect distortion, or prompted incorrect intrusion. The letter representing its accuracy will be written above the piece of information.
5. The coding table tallying pieces information according to their accuracy will be filled out.
6. The touch specific questions table noting whether questions were asked or not, whether 1 part of the question or 2 parts of the question were asked, and whether the response was correct, an incorrect distortion, an incorrect intrusion, not reported, or incorrectly asked by the interviewer will be filled out. Any incorrect responses will be described underneath the table.

**Phase of Interview**:

Data will be coded according to the phase of the interview it was elicited in.

Free recall:

This phase of the interview runs from the end of the free narrative practice until the time that the touch specific follow up begins. The only information to be coded in this section is that related to touch including; where it occurred e.g. "We measured the heartbeat on the chest", who was involved "my partner measured my heartbeat", what was involved "we measured temperatures with a thermometer". The beginning of this phase will be indicated by the interviewer stating:

> "I heard that a couple of weeks ago some people came to talk to your class about health and safety, I wasn't there but I'd like to know everything that happened, so tell me everything that happened from the beginning to the end"

Touch follow up:

This may be indicated in the script by the interviewer stating;

> "We're going to do something a bit different now"

By the interviewer introducing a visual aid:

> "See this picture, this is a child just like you"
>
> "Remember when you first came in and I took your picture? Here's your picture"

By indicating they will be asking further questions

"I want to remember everything you've told me today, so I need to ask you some more questions"

Touch specific questions:

This begins when the interviewer begins asking specific "did your partner" questions.

**Checklist of touches**

Using the provided table (depicted below) each scripted touch will be ticked off in the 'yes' column if it is reported. If it is reported for the first time in the verbal section of the interview the letter V will be written into the 'phase' column. If the touch is reported for the first time in the follow up touch section of the interview the letter F will be written into the 'phase' column. If the touch is reported for the first time in the specific touch questions section of the interview the letter S will be written into the 'phase' column. If the reported touch is correct a tick will be placed in the 'correct' column. If the touch was incorrect and the reported information is a distortion of the correct touch, a tick will be place in the 'incorrect – distortion column'. A distortion describes a *scripted touch* that is reported wrongly – for example the right touch but the wrong person or agent. If a touch is reported which *is not scripted at all* a tick will be placed in the 'incorrect- intrusion column'. If a scripted touch is not reported in any phase of the interview, a tick will be placed in the 'no' column. A description of all incorrect touches reported should be noted underneath Table 1.

Table 1
Subject number:

| | **Scripted** | **Reported** | | | **Incorrect** | |
|---|---|---|---|---|---|---|
| **Phase** | **Touch** | **Yes** | **No** | **Correct** | **Distortion** | **Intrusion** |
| | Chest | | | | | |
| | Stomach | | | | | |
| | Wrist | | | | | |
| | Ankle | | | | | |
| | Forehead | | | | | |
| | Ear | | | | | |
| | Armpit | | | | | |
| | Knee | | | | | |
| | **Fake** | | | | | |
| | Arm | | | | | |
| | Mouth | | | | | |
| | Elbow | | | | | |

*Phase key*: V (verbal), F (touch follow up), S (specific touch questions)
If an incorrect touch was reported please document what the incorrectly reported information was below:

**Touch specific questions checklist**

Using the Table 2 (depicted below) each question asked during the *touch specific section of the interview* will be recorded. If a question was asked a Y for yes will be placed in the Asked Y/N & 1/2 column, if the question was not asked a N for no will be placed in the Y/N & 1/2 column. If the first part of the question was asked a 1 will be placed in the Y/N & 1/2 column. If both parts of the question were asked

1+2 will be placed in the Y/N & 1/2 column. Eg. Part one of a question: "Did (name) touch you on the knee?" Eg. Part two of a question: "Did (name) *put a thermometer under* your knee?"

In the case that an interviewer mistakenly asks a question that should not have been asked, the information the child provides in response will be disregarded and not coded. Questions that should not be asked include; asking about a touch that was scripted but has already been reported in previous parts of the interview, or, asking the second part of a question when the answer to the first part of the question was affirmative, eg. Interviewer: 'Did (name) touch you on the forehead?' Child: 'Yes' Interviewer: 'Did (name put their hand on your forehead?'. 'Incorrectly asked' will also be written in the Asked Y/N & 1/2 column if a question is asked that should not have been.

If a question is asked about a scripted touch and it produces a 'no' response, 'not reported' will be written in the Asked Y/N & 1/2 column.

Table 2
Touch Specific Questions

| **Question** | **Asked Y/N & 1/2** | **Correct** | **Incorrect -D** | **Incorrect - I** |
|---|---|---|---|---|
| Ear | | | | |
| Forehead | | | | |
| Armpit | | | | |
| Knee | | | | |
| Chest | | | | |
| Back | | | | |
| Stomach | | | | |
| Ankle | | | | |
| Wrist | | | | |
| Fake – arm | | | | |
| Fake – mouth | | | | |
| Fake – elbow | | | | |
| Fake person ear | | | | |
| Fake person wrist | | | | |
| **Total** | | | | |

*Key*: Under asked Y for yes, N for no, 1 for first part of question asked, 2 for second part of question asked. D = distortion, I = intrusion. If the question was a scripted touch and the answer was no, write 'not reported' in the Asked Y/N & 1/2 column. If as question was incorrectly asked by the interviewer (see coding notes) write 'incorrectly asked' in the Asked Y/N & 1/2 column.

**Detail**

*Pieces of information:* Touch information will be coded according to meaningful chunks, each utterance that *adds a new detail* in the description of a touch will be counted as a 'piece of information' and tallied. *Information will be coded only once*. For example: Phrase "So I was with R that time. And we had to check for a heartbeat on our heart, on our wrist I think, and on the back"

Chunked into "I was with R that time" (who), "we had to check for a heartbeat" (what), "on our heart" (where), "on our wrist" (where), "and on the back" (where). *Only information directly relevant to touch will be coded.* Information reported at the same station but not relevant to touch will not be coded. E.g. "we wrote our knee temperature on the sheet".

*Correct (C):* This is used to code pieces of information that accurately reflect what did happen during the health and safety event.

*Incorrect – Distortion (I-D):* This is used to code pieces of information that did happen but not in the way that the child reports e.g. attributing an action that did occur to the wrong person or agent. E.g. "we put the *stethoscope* on our neck".

*Incorrect –Intrusion (I-I):* This is used to code reported pieces of information that did not occur at all. E.g. "We put the thermometer in our *mouth* to measure the temperature".

*Prompted (P):* This is used to code information that is reported in response to a direct question from the interviewer when the child has not previously provided the information. This applies mostly to the touch-specific question phase of the interview eg. Interviewer asks "Did (name) touch you on the tummy?" Child responds "yes". Prompted information will be coded as *prompted – correct (P-C), prompted – incorrect distortion (P-ID), or prompted incorrect intrusion (P-II)* depending upon accuracy. Any information provided spontaneously after the initial yes is coded as normal and not coded as prompted. E.g. Interviewer: "did (name) touch you on the knee?" Child: "yes", Interviewer: "tell me everything about that", Child: "He put the thermometer under my knee to see how hot it was". In this case, "yes" would be coded as prompted-correct, but "he put the thermometer under" and "to see how hot it was" would be coded as correct, and not prompted.

In the case that an interviewer mistakenly brings in new information during the first 2 sections of the interview, the verbal section or the touch follow up section, the child's response will also be coded as prompted – correct, incorrect distortion or incorrect intrusion. Any information provided spontaneously after the initial response to the prompt will not be coded as prompted.

*Other (O):* This is used to code ambiguous, unverifiable or subjective pieces of *touch information*. Ambiguous pieces of information related to touch include statements that lack sufficient clarity to determine what is referred to and where elaboration does not occur e.g. "I did it to him and he did it to me". Unverifiable pieces of information include statements where is it impossible to determine accuracy, i.e. anything non-script related that was not recorded on video or in note form e.g. "I listened to his heart but I couldn't hear it". Subjective pieces of information include statements that reflect opinion e.g. "the stethoscope was cold". *Ensure to only code touch related information.*

*Don't Know (DK)*: This is used to code 'don't know', 'I don't remember', or any equivalent answers in response to specific touch questions during the last phase of the interviewing,

*Repeated (R):* This is used to code pieces of information that have been identified as touch information in the transcript but are a repeat of previously coded information. Repeated information is used for coding reliability only; it will not be included in analysis and thus is not included in the table tallying pieces of information and accuracy.

Using Table 3 (depicted below) the pieces of information elicited in each phase of the interview will be tallied according to their accuracy.

Table 3

**Child Info**

| **Sub#:** | **Gender:** | **School:** | **Age:** | **Interviewer:** |
|---|---|---|---|---|
| | | | | |

***Verbal Interview***

| **Pieces of Touch Info (number)** | **Correct (C)** | **Incorrect – Distortion (ID)** | **Incorrect – Intrusion (II)** | **Prompted (P)** | | | **Other (O)** |
|---|---|---|---|---|---|---|---|
| | | | | **C** | **I-I** | **ID** | |
| | | | | | | | |
| | | | | | | | |

***Touch specific follow up***

| **Pieces of Touch Info (number)** | **Correct (C)** | **Incorrect – Distortion (ID)** | **Incorrect – Intrusion (II)** | **Prompted (P)** | | | **Other (O)** |
|---|---|---|---|---|---|---|---|
| | | | | **C** | **I-I** | **ID** | |
| | | | | | | | |
| | | | | | | | |

***Touch-specific questions***

| **Pieces of Touch Info (number)** | **Correct (C)** | **Incorrect – Distortion (ID)** | **Incorrect – Intrusion (II)** | **Prompted (P)** | | | **Other (O)** | **Don't Know (DK)** |
|---|---|---|---|---|---|---|---|---|
| | | | | **C** | **I-I** | **ID** | | |
| | | | | | | | | |
| | | | | | | | | |

**<u>Examples of correct statements</u>**

**<u>Touch components</u>**

Relevant touch related information includes:

**Who was involved?**

- That they had a partner
- Who the partner was
- That there was a group leader

*"I went with the person next to me"*

*"I think it was (name of partner)"*
*"We had to have a partner"*
*"We got into pairs"*
*"Someone else did it to us"*

**Where it happened?**

- Don't worry about left or right
- Don't worry about top or bottom of wrist

*"Under their arm"*
*"Under their knee"*
*"In their ear"*
*"We felt it on their front"*

**What happened?**

- Naming the activity gets included as correct once

*"We went to thermometers"*
*"We had to put a thermometer under their arm"*
*"We had to do the temperature"*
*"We had to feel our partner's heartbeat"*
*"We felt each other's heart beat"*

**What they were touched with?**

*"The one with the stethoscope… we put it over by their heart"*
*"We got a stethoscope…we had to feel their heartbeat"*
*"We put the thermometer under our armpit"*
*"He put the back of his hand on my head"*
*"He just got his two fingers and put them on my wrist"*

**Why it happened?**

*"To see if we could hear our heart beat"*
*"To see how hot it was"*
*"To try to feel the pulse"*

**Temperature or thermometer activity components**

- Measured temperature (this implies some kind of bodily contact occurred)
- Measured temperature with a partner
- Partner's had turns
- What they specifically did with their partner
- Measured temperature in the ear

*"When you measured your partner's ear"*
*"We used the thermometer in the ear"*

- Measured temperature under the arm
- Measured temperature under the knee

"Under their leg" this is fine – it doesn't have to be under the knee, pointing is also fine

- Felt the forehead
- Used a thermometer to measure the temperature
- The process of using the thermometer related to physical contact

*"I did (child's name's), put it in, it went beep, took it out"*

- Used two different kinds of thermometers to measure temperature
- Mention of a group leader as part of the activity

**What not to include**

- Any descriptions of thermometers
- Any descriptions of the temperature recording sheet or writing on the recording sheet, or mention of body parts in relation to the temperature-recording sheet.
- Any specific measurements

**Heartbeat or stethoscope activity components**

- Listened for heartbeat (this implies some kind of bodily contact occurred)

*"We had to try and find the persons heartbeat"*
*"We had to feel our partner's heartbeat"*

- Measured heartbeat/pulse with a partner

*"Also we did pulses with our partners"*

- Who their partner was

*"I had (child's name) for that one"*

- Specifically what they did with their partner
- That they took turns
- Listened for the heartbeat on the chest – on the heart is fine don't have to say chest

*"I had the stethoscope, and I put it on R's chest"*
*"[Points to chest]"*
*"We had to feel their heartbeat… we felt it on their front"*

- Listened for the heartbeat on the back

*"We had to put the stethoscope on their back"*

- Listened for the heartbeat on the stomach
- Felt for pulse

*"We had to feel the pulse"*

- Felt for the pulse on the wrist

*"We used our two fingers to… to put them on the wrist"*
*"We had to feel it on our wrist"*

- Felt for the pulse on the neck

*"we had to put our two fingers on our partners ankle"*

- Felt for the pulse on the ankle
- Used a stethoscope to hear/measure/listen to the heartbeat
- Used their fingers to feel for the pulse
- The process of measuring the heartbeat or pulse
- Mention of a group leader as part of the activity

**What not to include**

- Whether or not the child actually was able to hear the heartbeat or feel the pulse
- Any description of what the heart beat/pulse was doing

**Other**

- In the case that a child reports something that is incorrect and then promptly corrects themselves, disregard the incorrect information.
- If I child reports something but then retracts it later in the interview, code each piece of information separately.
- If I child reports doing activities to themselves, consider it an incorrect distortion.
- If I child reports something but says they're not sure, go ahead and code the information.
- If a child reports something correctly and then adds an incorrect detail later, code each piece of information separately.