

Holding children for procedures; an international questionnaire of health professionals

ABSTRACT

Children undergoing clinical procedures can experience pain and/or anxiety. This may result in them being unwilling to co-operate and being held still by parents or health professionals. This study aimed to capture an international perspective of health professionals' reported practices of holding children still for clinical procedures. An online questionnaire was distributed through network sampling to health professionals working with children aged under 16 years of age. 872 responses were obtained from Australia (n=477), NZ (n=237) and the UK (n=158). Responses were from nurses (n=651), doctors (n=159) and other professionals (n=53). Health professionals reported children as held still for clinical procedures quite often (48%) or very often (33%). Levels of holding varied significantly according to country of practice, profession, student status, length of time working within a clinical setting, training received and the availability of resources in the workplace. Health professionals who gained permissions (assent from children and/or consent from parents) before procedures were less likely to hold children still for a clinical procedure than those who did not. Holding children still for procedures is an international practice which is influenced by training, access to guidance, country of practice and profession. **Children's permission and parental consent is often not sought before a child is held for a procedure to be completed.**

Introduction

Children receiving care in acute hospital environments are often subject to clinical interventions and procedures for which they are unwilling to comply. **This can be due to a variety of reasons including the child's anticipation of pain (Racine et al 2016, Uman et al 2013), fear of the clinical environment (Darby & Caldwell 2011), lack of preparation and information (Claar et al 2002, Uman et al 2008, Duff et al 2012), previous negative experiences (Blount et al 2006) and differences in a child's understanding for the need and importance of a procedure.** Despite the availability of positive strategies such as pain relief, distraction and guided imagery, some clinical procedures rely on parents or health professionals physically holding a child in order to complete the procedure. Holding children still against their wishes for clinical procedures can cause

upset, anxiety and stress for the children, parents and health professionals involved (Brenner 2007, 2014, Coyne & Scott 2014, Bray et al 2016). There are a variety of terms used in the literature to describe the phenomenon of physically holding a child still for a clinical procedure. These terms include restraint (Folkes 2005, Brenner 2007a, Brenner 2007b, Hull & Clarke 2010, Homer & bass 2010), supportive holding (Jeffrey 2010), clinical holding (Lambrenos & McArthur 2003), therapeutic holding (RCN 2010, Jeffrey 2002, Stacey et al 2000), restrictive physical intervention (RCN 2010), restricting movement (Brenner 2007a, Brenner 2007b), physical holding (Page and McDonnell 2013) and immobilization (Darby & Cardwell 2011, Hardy & Armitage 2002, Graham & Hardy 2004). The literature suggests a continuum based on levels of described force and child agreement; with one end of the continuum linked to the use of limited force with the child's permission (RCN 2010) and the other end indicated by the use of restraint and force is applied to either restrict movement or mobility or to disengage a person from harmful behaviour. **The range of terms are poorly defined and used interchangeably within the guidance and literature. This lack of clarity can create conceptual confusion and an absence of shared understanding between professionals and within professions involved in holding children for procedures.** For the purpose of this study, we used the term 'holding children still', which referred to the restriction of a child's (aged under 16) movement in order for a clinical procedure such as cannulation, dressing change or investigations to be completed.

This study aimed to provide an international perspective of health professionals' reported practices of holding children still for clinical procedures. This study aims to add to previous work which has explored health professionals' perceptions within the United Kingdom (UK) of restricting a child for a procedure (Brenner et al 2014). An international perspective across countries and professions has not been previously investigated. The research questions underpinning the investigation were; to examine the factors that health professionals report influence their holding of children still for clinical procedures and to investigate the reported practices used when children are held still for clinical procedures.

Methods

Data were collected using a short structured anonymous electronic questionnaire developed for this study, which was piloted with 18 health professionals across three countries (UK, Australia and New Zealand). **The piloting of the questionnaire resulted in the rephrasing of two questions and the layout of the questionnaire**

being simplified in some sections. The questionnaire consisted of 16 closed questions (some based on Graham and Hardy, 2004) and three scenarios based on common clinical encounters which may require a child to be held still. This paper reports on the quantitative findings from the closed questions. The findings from the qualitative data based upon responses to the scenarios will be reported elsewhere.

The beginning of the questionnaire defined to participants that we were interested in including the views of health professionals who over the last 12 months had work(ed) in a setting where children and young people are held still to undertake clinical procedures but for the purposes of this study we were excluding episodes of holding in response to challenging behaviour arising from a child's mental health or learning disability.

The questionnaire collected the: characteristics of respondents (country of residence, profession, length of time working in clinical setting, age of patients with whom they work); frequency of holding in a clinical setting (1= not often, 2 = quite often, 3 = very often); who undertakes the holding of a child for a procedure (1 = parent/ carer, 2 = nurse, 3 = doctor, 4 = other staff member, 5 = parent/carer and staff member, 6 = other); factors influencing health professionals' decision to hold a child for a procedure (age of child, safety of child, time restrictions, urgency of procedure, child's level of distress, parents' preference for child to be held, child's level of understanding); training relating to holding a child still during a procedure (yes, no); resources available related to holding (yes, no); processes of obtaining consent/assent for holding during a procedure (1= no consent required, 2= written and/or verbal consent obtained, 3 = don't know). The questionnaire was administered and collated using Survey Monkey™ software.

Sampling and recruitment

A network or snowball sampling approach (Dragan & Isaic-Maniu 2013) was used to reach a wide range of participants (health professionals and students practicing in child health settings). Participants were recruited through emails outlining the study which were distributed via professional networks (for example, Children's Healthcare Australasia, Australian College of Children and Young People, Paediatric Society of New Zealand, Royal College of Nursing, Association of British Paediatric Nurses), emails to known colleagues and through social media (e.g. closed professional Facebook groups, professional Twitter accounts of the researchers) over the period February – March 2016.

Analysis

Questionnaire responses were exported from Survey Monkey™ and analysed using SPSS (IBM Corp). Descriptive statistics are reported and comparisons made between groups using t tests and anovas. A $p < 0.05$ was considered statistically significant.

Ethical approval

Ethical approval was provided by the authors' respective relevant **university** ethics bodies within each country; **UK (FREC SC 22)**, **New Zealand (AUTEC 15/414)** and **Australia (H0015373)**. Informed consent was assumed through return of completed questionnaires.

Results

Characteristics of Respondents

Questionnaires were completed by 919 respondents. Approximately half resided in Australia (52%, n=477) with the remaining respondents from New Zealand (26%, n=237) and the United Kingdom (17%. n=158). **As the remaining 5% of respondents lived in 12 different countries (Sweden, Norway, United States of America, Greece) their responses were excluded from the analysis for this paper in order to present clear findings from three Western countries with adequate sample sizes to conduct statistical analyses.** The data set therefore comprised of 872 questionnaires.

The majority of respondents were nurses (75%, n=651), and approximately one fifth were doctors (18%, n=159), a minority were students (10%, n=89), all of whom were nurses. The remaining 6% of respondents (n=53) were categorised as 'other' and included play and child life specialists, allied health professionals (**radiologists, radiographers, physiotherapists, EEG (electroencephalogram) technician**), academics, and psychologists.

Most respondents (69%, n=601/865) had worked within their clinical setting for over five years, 25% between 1-5 years (n=214/ 865) and 6% for 12 months or less (n=50/865). Most (78%, n=673/864) worked only with children aged under 16 years, 22% (n=191) worked with children and adults.

Frequency of holding children in a clinical setting (Table 1)

Respondents reported holding children still for procedures in their work setting quite often (48%, n=411/860), very often 33% (286/860) or not often (19%, n=163/860).

The frequency of reported holding differed significantly between countries ($F(3) = 5.840, p=0.003$), with Australia having the highest frequency and the UK having the lowest (see Table 1). The rate of holding also differed according to profession, with doctors reporting the highest rate and professionals categorised as 'other' reporting the lowest rate ($F(2) = 4.100, p = .017$). Students had statistically lower rates of holding than non-students ($t(858) = 3.77, p > .000$). The length of time respondents had worked in their clinical setting was related to the frequency of holding: $F(2) = 4.258, p = .014$. Respondents who had worked in their clinical setting for less than a year reported the least amount of holding and those who had worked for over 5 years reported the most.

Approximately a third of respondents reported that holding a child still was typically done by parents (33%, n=279/836), a combination of parents and staff (33%, n=277/836) or nurses (29%, n= 241/836). The remaining responses were another member of staff (3%, n=24) or 'it depends' (2%, n=15).

Ninety six percent 96% (n=835) rated the following factors as being likely to influence a child being held still for a procedure in their setting; safety of the child (31%, n=260), child's age (31% n=259), urgency of the procedure (20%, n=163), child's level of distress (9%, n=73), child's level of understanding (6%, n=50), parents' preference (2%, n=20) and time restrictions (1%, n= 10).

Training relating to holding a child still during a procedure (Table 1)

Most respondents had not received training on holding children still for procedures (60%, n=522) (Table 2).

Those who had received training (40%, n=345) had received this through mandatory training, undergraduate or postgraduate education, one-off sessions in the clinical setting and 'on the job' training from colleagues.

There was a significant difference in training according to the country ($\chi^2 = 14.869(2), p > .001$), with those in New Zealand having the most training (50%, 117/223) and the UK the least (34%, 53/157). There was no difference in the likelihood of having received training according to profession, student status or the length of time within a particular setting.

There was a statistically significant difference in the reported frequency of holding between professionals who had received training and those who had not ($t= 3.243 (693)$, $p > .001$). Those who had received training reported holding children less frequently ($M = 2.24$, $SD = .73$) than those who had not received training ($M = 2.08$, $SD = .69$).

Resources available related to holding (Table 1)

Respondents were asked whether resources (policies, tools, guidelines) informed the holding of children for procedures within their clinical setting. Approximately a third were unsure (37%, $n=308$), a third had access to resources (32%, $n=282$) and a third could not identify such resources within their clinical setting (30%, $n=249$).

The presence of resources differed according to the country in which the respondent lived ($\chi^2 = 52.617 (4)$, $p > .001$), with those in New Zealand having the greatest reported level of access to resources (112, 49%). The reported access to resources also differed according to the length of time respondents had worked in their clinical setting ($\chi^2 = 35.792 (4)$, $p > .001$), with those having worked in their current setting for 5 years or more being the most likely to report having access to resources.

There was a statistically significant difference in the frequency of holding between professionals who had resources in their work setting and those who did not ($t (529) = 2.509$, $p = .012$). Those who reported having resources available held more often ($M = 2.27$, $SD = .688$) than those who were unsure of available resources ($M = 2.04$, $SD = .71$).

Obtaining consent from parents (Table 2)

Most respondents reported gaining verbal and/or written consent (76%, $n=616/805$) from a parent before a child is held still for a procedure. The remaining responses indicated that parental consent was not required (15%, $n=118/805$) or that they did not know what level of consent was sought (9%, $n=71/805$).

There was a significant difference in obtaining consent from parents according to the country of practice ($\chi^2 = 30.316 (4)$, $p > .001$), profession ($\chi^2 = 54.239 (4)$, $p > .001$), student status ($\chi^2 = 27.966 (2)$, $p > .001$) and the

length of time respondents had been working in their clinical setting ($e^2 = 28.764$ (4), $p > .001$). Respondents who were most likely to report gaining verbal and/or written consent from parents were those professionals working in New Zealand, and those who were nurses. Students and those working in their place of employment for less than 5 years were the most likely to respond 'don't know' to this question.

The frequency of holding differed in relation to the level of consent obtained from parents ($t = 4.090$ (731), $p > .001$). Those who reported that consent was not required from parents held more frequently ($M = 2.41$, $SD = .64$) than respondents who obtained written and/or verbal consent ($M = 2.12$, $SD = .72$).

Obtaining assent from children (Table 2)

Approximately one third of respondents obtained verbal and/or written assent from a child (38%, $n = 299/797$), before they were held for a procedure. The remaining respondents reported that children's assent was not required (33%, $n = 266/797$) or did not know (29%, $n = 232/797$).

There was a significant difference in obtaining assent from children according to the country in which the respondent lived ($\chi^2 = 59.619$ (4), $p > .001$), profession ($\chi^2(4) = 63.067$, $p = .000$), student status ($\chi^2 = 35.475$ (2), $p > .001$) and length of time working in their clinical setting (31.206 (4), $p > .001$). Once again, those respondents who were most likely to report gaining assent from children were professionals working in New Zealand, and nurses from any of the three countries. Students and those working in their current setting for less than 5 years were the most likely to respond 'don't know'.

The frequency of holding differed in relation to the level of assent obtained from children ($t = 4.508$ (562), $p > .001$). Those who reported that assent was not required from children held more frequently ($M = 2.34$, $SD = .64$) than respondents who obtained both written and verbal assent ($M = 2.07$, $SD = .74$).

Discussion

The results provide an international overview of health professionals' reported practice of holding children still for clinical procedures. The authors recognise that participants were situated within developed countries and therefore findings are most applicable to such health care systems. Findings indicate there are significant

variances in practices of different health professions and between different countries. The results support evidence that holding children still for clinical procedures is a common occurrence in children's health care (Brenner 2007a, Brenner 2007b, Coyne & Scott 2014, Bray et al 2015, Kirwan and Coyne 2017), and highlights that this occurs internationally. Holding children still for procedures remains an area of uncertainty for professionals despite professional guidance recommending that 'positioning of the child should only be for their comfort and not for restraint' (Royal Australasian College of Physicians 2005) and that any holding should be the 'last resort' (RCN 2010, BMA 2016). This uncertainty persists despite professional debate for the last 20 years in regard to best practice (Bradlyn et al 1993, Robinson & Collier 1997).

Most of the respondents (61%, n=522/867) had not undertaken any formal training relating to a child being held still for clinical procedures. The findings from this study corroborates evidence that the preparation of health professionals for undertaking clinical holding is limited (Graham & Hardy 2004, Pearch 2005, Valler-Jones & Shinnick 2005, Lewis et al 2007, Kirwan and Coyne 2017), this is despite professional guidance within the UK clearly stating that 'all staff must not be asked to be involved in restraining a child without proper training' (BMA 2016). In contrast to previous evidence (Brenner et al 2014), findings from this study indicate that those who had undertaken training (whether formal or informal) held children less frequently than those who had not received training. It remains uncertain what influence training has on the holding practices of professionals, whether this may be through an improved awareness of alternatives to holding such as preparation and distraction or an increased knowledge of legal implications and professional responsibilities. These hypothesis are outside the remit of this study and any further investigation would need to examine the content of the training delivered.

Our findings suggest that the presence of resources (guidelines, tools and policies) within a setting is, in itself, insufficient to influence health professionals' practice. Many of the health professionals reported (67%, n=557/839) that they were unaware of resources in their workplace or resources were absent, indicating a need for the development and promotion of clinically useful and clear evidence based guidance. It is known from previous research conducted in different fields that professionals often are not aware of clinical guidelines or prefer to stick to their established and ingrained practices (Munteanu & Jordan 2017) despite guidelines being directly linked to the integration of evidence into practice (Forberg et al 2014) and improved

outcomes for patients (Rutten et al 2016). There is a need to further investigate health care professionals' reasoning behind their adherence to and use of clinical practice guidelines in relation to children undergoing clinical procedures.

Of concern, many health professionals, particularly doctors, reported not asking children for their assent to be held (33%, n=266/797) or parents to provide consent (15%, n=118/805). Health professionals who reported not obtaining consent or assent were significantly more likely to report holding a child for a procedure. **Other work has also highlighted that professionals are more likely to gain consent from parents than they are to gain children's permission for holding (Kirwan and Coyne 2017) and there is further work to be undertaken to explore the reasons for different professionals' approaches to gaining assent and consent.**

Obtaining and recording permission for holding a child is highlighted as important in professional guidance (e.g. BMA, RCN, RACP) and without obtaining these permissions professionals may risk poor advocacy on the child's behalf and even potential litigation if things do not go well. Not engaging children in making choices and asking for their permission to be held can marginalize them during procedures and reinforce that the parents and health professionals' interests are prioritized (Bray et al 2014). Health professionals' need to ensure their practice is congruent with professional guidance and there is need for professionals to be trained and reflective regarding how children are approached for assent and held still for procedures. Engaging children in providing assent for procedures and ensuring they know, relevant to their developmental level, what will happen acknowledges their developing agency and provides them with an opportunity to develop skills in making choices and decisions within a healthcare context. There is a need to ascertain children's perspectives on how they are approached for assent before clinical procedures.

The questionnaire did not enable us to judge the nature and level of force involved in the reported holding of children. We acknowledge that safe and supportive holding is often part of working with children when they need procedures. **We recognise that the non-probability sampling technique means that as participants self-selected to participate there is a potential for bias.**

Conclusion

Holding children still for procedures remains common practice, and this is consistent across the three countries involved in this study. There remain inconsistencies relating to how and why children are held for clinical procedures and practice is often not underpinned by training or professional guidance. This study has found that the reported holding still of children for procedures is influenced by training, access to guidance, country of practice and profession. There is a need for more evidence on how clinical practice guidelines inform professional practice and children's views of how their opinions and choices should be sought and attended to in the process of a procedure being completed.

References

- Blount, R.L., Piira, T., Cohen, L.L. and Cheng, P.S., 2006. Pediatric procedural pain. *Behavior Modification*, 30(1), 24-49.
- Bray, L., Snodin, J., & Carter, B. (2015). Holding and restraining children for clinical procedures within an acute care setting: an ethical consideration of the evidence. *Nursing inquiry*, 22(2), 157-167.
- Bray, L., Carter, B. and Snodin, J., 2016. Holding Children for Clinical Procedures: Perseverance in Spite of or Persevering to be Child-Centered. *Research in Nursing & Health*, 39(1), 30-41.
- British Medical Association (2016) Children and young people ethics toolkit, use of restraint to provide treatment (card 7). <https://www.bma.org.uk/advice/employment/ethics/children-and-young-people/children-and-young-peoples-ethics-tool-kit/7-use-of-restraint-to-provide-treatment>
- Bradlyn, A. S., Harris, C. V., Ritchey, A. K., Olsen, B. R., Heffer, R. W., Lewallen, J., & Zaboy, K. A. (1993). Children's reactions to invasive medical procedures: The potential importance of procedure, age, and physical restraint. *Journal of Psychosocial Oncology*, 11(2), 1-18
- Brenner, M. (2007a). Child restraint in the acute setting of pediatric nursing: An extraordinarily stressful event. *Issues in Comprehensive Pediatric Nursing*, 30(1-2), 29-37.
- Brenner, M. (2007b). Restraint in children's nursing: Addressing the distress. *Journal of Children's and Young People's Nursing*, 1(4), 159-162
- Brenner, M., Treacy, M.P., Drennan, J & Fealy, G.M (2014) Nurses' Perceptions of the Practice of Restricting a Child for a Clinical Procedure. *Qualitative Health Research* 24, 8,
- Brenner, M., Drennan, J., Treacy, M. P., & Fealy, G. M. (2014). An exploration of the practice of restricting a child's movement in hospital: A factorial survey. *Journal of Clinical Nursing* 24 (9-10), 1189–1198.
- Claar, R.A., Walker, L.S & Barnard J.A (2002) Children's knowledge, anticipatory anxiety, procedural distress and recall of esophagogastroduodenoscopy. *Journal of Pediatric Gastroenterology and Nutrition* 34, 68-72
- Coyne I & Scott, P (2014) Alternatives to restraining children for clinical procedures. *Nursing Children and Young People* 26, 2, 22-27
- Darby, C., & Cardwell, P. (2011). Restraint in the care of children. *Emergency Nurse*, 19(7), 14-17.
- Dragan, I.M. and Isaic-Maniu, A., (2013) Snowball sampling completion. *Journal of Studies in Social Sciences*, 5(2)
- Duff, A.J.A., Gaskell, S.A., Jacobs, C & Houghton, J.M (2012) Management of distressing procedures in children and young people: time to adhere to the guidelines. *Archives of Diseases in Childhood* 97 (1) 1-4
- Folkes, K. (2005). Is restraint abuse? *Paediatric nursing*, 17(6), 41-44.
- Forberg, U., Wallin, L Johansson, E., Ygge, B.M., Backheden, M. and Ehrenberg (2014) A Relationship Between Work Context and Adherence to a Clinical Practice Guideline for Peripheral Venous Catheters Among Registered Nurses in Pediatric Care. *Worldviews on Evidence-Based Nursing* 11 (4), 227–239
- Graham, P., & Hardy, M. (2004). The immobilisation and restraint of paediatric patients during plain film radiographic examinations. *Radiography*, 10(1), 23-31.

- Hardy, M., & Armitage, G. (2002). The child's right to consent to x-ray and imaging investigations: issues of restraint and immobilization from a multidisciplinary perspective. *Journal of Child Health Care*, 6(2), 107-119.
- Homer, J. R., & Bass, S. (2010). Physically restraining children for induction of general anesthesia: Survey of consultant pediatric anesthesiologists. *Pediatric Anesthesia*, 20(7), 638-646.
- Hull, K., & Clarke, D. (2010). Restraining children for clinical procedures: A review of the issues that continue to challenge children's nursing. *British Journal of Nursing*, 19(6), 346-350.
- IBM Corp. Released 2015. IBM SPSS Statistics for Windows, Version 23.0. Armonk, NY: IBM Corp.
- Jeffery, K. (2002). Therapeutic restraint of children: it must always be justified. *Paediatric Nursing*, 14(9), 20-22.
- Jeffery, K. (2010). Supportive holding or restraint: terminology and practice. *Paediatric Care*, 22(6), 24-28
- Kirwan, L & Coyne, I (2017) Use of restraint with hospitalized children: A survey of nurses' perceptions of practice. *Journal of Child Health Care* 21 (1) 46-54
- Lambrenos, K., & McArthur, E. (2003). Introducing a clinical holding policy *Paediatric nursing*, 15(4), 30-33
- Lewis, I., Burke, C., Voepel-Lewis, T., & Tait, A. R. (2007). Children who refuse anesthesia or sedation: A survey of anesthesiologists. *Pediatric Anesthesia*, 17(12), 1134-1142.
- Munteanu, M.C. and Jordan, J.C., 2017. A view into clinical practice guidelines: who uses them, who doesn't and possibly, why. *Qualitative Research in Medicine & Healthcare*, 1(2).
- Page, A., & McDonnell, A. (2013). Holding children and young people: defining skills for good practice. *British Journal of Nursing*, 22(20).
- Pearch, J. (2005). Restraining children for clinical procedures. *Paediatric Nursing*, 17(9), 36-38.
- Racine, N.M., Pillai Riddell, R.R., Khan, M., Calic, M., Taddio, A & Tablon, P (2016) Systematic Review: Predisposing, Precipitating, Perpetuating, and Present Factors Predicting Anticipatory Distress to Painful Medical Procedures in Children. *Journal of Pediatric Psychology* 41, 2, 159-81
- Robinson, S., & Collier, J. (1997). Holding children still for procedures. *Paediatric Nursing*, 9(4), 12-14.
- Royal College of Nursing (2010). Restrictive physical intervention and therapeutic holding for children and young people: Guidance for nursing staff;
- Royal Australasian College of Physicians (2007) Guideline Statement: Management of Procedure-related Pain in Children and Adolescents.
- Rutten, G.M., Degen, S., Hendriks, E.J., Braspenning, J.C., Harting, J. and Oostendorp, R.A., (2016) Adherence to clinical practice guidelines for low back pain in physical therapy: do patients benefit?. *Physical therapy*, 90(8), pp.1111-1122.
- Sparks, L. A., Setlik, J., & Luhman, J. (2007). Parental holding and positioning to decrease IV distress in young children: A randomized controlled trial. *Journal of Pediatric Nursing*, 22(6), 440-447.
- Stacey, S. G., Ames, W., & Petros, A. (2000). Sedation and restraint practices in UK paediatric intensive cares: a telephone survey. *Pediatric Anesthesia*, 10(6), 702-702.

Uman, L.S., Chambers, C.T, McGrath, P.J & Kisely, S (2008) A systematic review of randomised controlled trials examining psychological interventions for needle-related procedural pain and distress in children and adolescents: an abbreviated Cochrane review. *Journal of Pediatric Psychology* 33,8, 842-54

Uman, L.S., Birnie, K.A., Noel, M, Parker, J.A., Chambers, C.T., McGrath, P.J., Kisely, S.R. (2013) Psychological interventions for needle-related procedural pain and distress in children and adolescents. *Cochrane Database of Systematic Reviews* 2013, Issue 10. Art. No.: CD005179. DOI: 10.1002/14651858.CD005179.pub3.

Valler-Jones, T., & Shinnick, A. (2005). Holding children for invasive procedures: preparing student nurses. *Paediatric Care*, 17(5), 20-22.