Therapeutic clowning in paediatric practice

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Abstract
Over the past 30 years, there has been much research into the health benefits of humour and laughter. Although often viewed very positively, rigorous evaluation of the therapeutic effect of clowning is complex. Clowning is a multi-modal intervention, which may have an impact on medical conditions, procedures, family functioning and health care teams. Clowns help children to adapt to their hospital surroundings and can distract from, and demystify, painful or frightening procedures through ‘doses of fun’ to complement traditional clinical interventions. This paper provides a review of the paediatric literature and reveals studies looking at the effect of clown interventions on various practical procedures and individual medical conditions, and the effects of clowning within clinical teams.

Keywords
Clowns, paediatrics, anaesthesia, communication, invasive procedures

Background
The clown, fool or court jester has existed in nearly all cultures since prehistoric times. The first recorded court jester or fool was a pygmy at the court of Pharoah Dadkeri-Assi in ancient Egypt’s fifth dynasty (Towson, 1976). Since then there have been many descriptions of clowns entertaining people throughout the world. Hunter Doherty ‘Patch’ Adams is often considered to be the founder of clown doctors. He put on a red nose while working in hospitals, believing that humour and laughter create an atmosphere of trust and love between staff members as well as between staff and patients (Adams, 1994, Adams et al., 1998). Clown doctors now work in many parts of the world. The Big Apple Circus Clown Care Unit, which started in New York in 1986, now operates in many children’s hospitals across the USA. The Theodora Foundation sponsors clowns in Europe, Africa and Asia. The Humour Foundation Clown Doctor programme operates in Australia and Le Rire Medecin (Laughing Doctors) operates in France.
When a clown was introduced into our outpatient waiting area, parents and children began commenting on the presence of this person. We were curious about the role of the clown and wanted to learn more. A literature search was conducted to identify studies involving the use of therapeutic clowns in paediatric practice. Using PubMed (1951–Oct 2011) we initially searched using ‘clowns AND children’ revealing 26 papers, ‘clowns AND hospital’ revealing 26 papers, and ‘clowns and paediatrics’ revealing a further three papers. We broadened the search looking at ‘clowns’ and found 50 papers (which included those previously found). We excluded 30 papers due to: only adult patients (3), not relevant (20), not written in English (7). The 20 studies we excluded as ‘not relevant’ were either review style articles, articles describing forms of humour or articles which did not involve therapeutic clowns. This left us with 20 studies, which were included. Handsearching revealed a further six studies.

Some clowns simply entertain whereas others are ‘therapeutic clowns’ and are integrated into professional teams. Therapeutic clowns are professional performers selected not just for their clowning skills, but also their personal qualities. Their communication skills, compassion and empathy are used to complement clinicians, enabling them to play an integral role in the paediatric care team, working in conjunction with hospital staff. Using techniques such as magic, music and story telling to engage children often empowers those children to deal with the range of emotions (such as fear, anxiety, loneliness and boredom) that they may experience while in hospital. During ‘clown rounds’ children can forget their illness by temporarily entering a fantasy world. Watching clowns performing red-nose transplants, kitty-cat scans, chocolate milk transfusions and funny-bone checks can help to lighten the serious side of hospital life (The Humour Foundation).

Studies found in the literature generally fell into three categories: the effect of clown interventions on various practical procedures; the effect of clown interventions on individual medical conditions; and the effects of clowning within clinical teams. We will consider these in turn.

**Practical procedures**

**Anaesthesia**

The induction of anaesthesia is a potentially stressful time for a child undergoing surgery. It is estimated that between 50% and 75% of children who undergo surgery experience high levels of stress (Kain et al., 2001) which may be characterised by subjective feelings of tension, apprehension, nervousness and worry.

Preoperative preparation of children is important and parental presence during induction of anaesthesia has been a controversial topic for many years (Astuto et al., 2006). Several studies have looked at the effect that clowns have in the anaesthetic room.

Vagnoli et al. (2005) used the Modified Yale Preoperative Anxiety Scale (MYPAS) instrument, an observational behavioural checklist, to estimate anxiety levels in 40 children aged 5–12 years undergoing minor day surgery in Italy. This scale has ‘good-to-excellent’ reliability for measuring children’s anxiety in the preoperative room and during induction of anaesthesia. The group of children assigned randomly to the intervention group (where the child was accompanied by one parent and clowns in the preoperative room), were significantly less anxious during the induction of anaesthesia than the control group (where the child was accompanied by one parent alone). Although health professionals thought clowns beneficial to the child, the majority of staff were opposed to continuing the program because of perceived ‘interference’
and delay within the preoperative room. However, authors did not actually measure the difference between the length of time for induction with and without clowns, so it is not known whether the perceived delay is in fact a significant factor in terms of preoperative room function.

In a further study Vagnoli et al. (2010) divided a sample of 75 children, aged 5–12 years, undergoing minor day surgery, into three groups. Children were randomly assigned to: the clowns group (accompanied to the preoperative room by the clowns and one parent); pre medication group (given oral midazolam and accompanied by one parent); or the control group (accompanied by one parent). Anxiety in the preoperative period was measured using the MYPAS instrument and parental anxiety was measured by using the State-Trait Anxiety Inventory. Children in the clown group were significantly less anxious during the induction of anaesthesia when compared with both the premedication group and control group. Furthermore, there were no significant differences between the control group and premedication group. There was an increased level of anxiety in the induction room in comparison with the waiting room for all groups. This difference, however, was statistically significant for the control and premedication group, whereas it was not statistically significant for the clown group. This study concluded that clown intervention plus parental presence is more effective in reducing anxiety in children during the preoperative period than a parent with or without midazolam premedication.

Golan et al. (2008), in a randomised, controlled and blinded study in Tel Aviv, also compared the presence of clowns and the use of oral midazolam in children undergoing general anaesthesia for elective surgery. The children aged 3–8 years were assigned to one of three groups: Group 1 (no midazolam or clown); Group 2 (oral midazolam 30 min before surgery); and Group 3 (two specially trained clowns present in the preoperative area and during mask application for inhalation induction of anaesthesia). This study also used MYPAS scores and the children were videotaped for anxiety analysis. Group 3 (the clown group) had statistically significantly lower MYPAS scores in the preoperative area compared to Group 1 (control) and Group 2 (midazolam). The clowns’ effect on anxiety reduction continued when the children entered the operating room but was equal at this point to the midazolam group. The study concluded that specially trained clowns can significantly alleviate preoperative anxiety in children undergoing surgery, but do not have any effect once the anaesthesia mask is introduced.

In a study from Portugal, Fernandes et al. (2010) also studied the effect of clown intervention on preoperative worries in children, in parallel with the effect of clown intervention on parental anxiety. Seventy children were assigned to one of two groups: children accompanied by their parents and a pair of clowns; or those accompanied by their parents without the clowns. The results showed reduction of preoperative worries and emotional responses not only in children but also in their parents.

In a Spanish study Canto et al. (2008) recruited 60 children aged 6–10 years scheduled to undergo elective surgery. Thirty children were allocated to the intervention group (with two performing clowns before surgery) and 30 children to the control group. Anxiety was then measured with several anxiety rating scales up to seven days post-operatively. The results show that in both groups there was a rise in anxiety scores. However, children in the intervention group showed a lower rise in anxiety and this was maintained seven days after surgery.

In another Spanish study, Meisel et al. (2009) looked at the effect of the presence of clowns on children’s distress and maladaptive behaviours while in hospital for minor surgery. Sixty-one children aged 3–12 years were assigned to two groups, the experimental and control groups. The child’s distress was assessed using a Facial Affective Scale (FAS), an instrument comprising a scale of nine faces in order to measure a child’s emotional reaction to an
experience involving pain. The FAS has shown good correlation with the visual analogue scale during different medical procedures. Postoperative maladaptive behaviours were evaluated one week after surgery, using the Post-Hospital Behaviour Questionnaire, in which parents assess their child’s maladaptive behaviours. In contrast to other studies they found the presence of clowns did not reduce the child’s level of distress. Although the children’s postoperative maladaptive behaviours in the clown group were reduced, this was not statistically significant. A limitation of this study was that assessors administering the FAS were not blind to the conditions of the study, and the authors conclude that larger randomised controlled studies are required to identify a profile of children (age, sex, initial level of distress) who would benefit from clown intervention.

**Invasive medical procedures**

Two studies, performed by the same researchers, examined the effect of clowns as a ‘distractive’ presence on children undergoing medical procedures (Gorfinkle et al., 1998). In the first study, 32 children in a cancer day hospital were evaluated on two consecutive visits during venupuncture, infusaport access, intra-muscular injection or lumbar puncture. In a cross-over design study children were randomly assigned to exposure to clown treatment at either visit 1 or visit 2. Children and their caregivers completed self-report measures of distress and anxiety, while trained observers, caregivers, nurse and physician rated child distress. It was found that there was no significant difference in observed child distress with clowns present, although doctors and nurses found procedures easier to perform in the presence of clowns \(p=0.02\).

In the second study, 28 heart transplant recipients were observed during two consecutive biopsies in a cardiac catheterization laboratory. Subjects were randomly assigned to a clown versus no-clown intervention during their second visit. Baseline data for all patients were collected without the clowns present and children’s distress was rated as in the first study. There was a marginally significant decrease in observed child distress \(p=0.054\), and significant decreases in child self-reported distress \(p=0.011\) and parent-rated child distress \(p=0.049\) with the clowns present. However, when baseline differences were co-varied, these results failed to reach significance. Unlike the first study, doctors found the procedure more difficult to perform with the clowns present.

**Sexual abuse examination**

In Israel, Tener et al. (2010) examined the role of clowns during medical examinations of children who had been sexually abused. Three case studies are described, illustrating diverse interactions among the child, the clown, and the medical forensic examiner. Although the study group was small and there was no comparison group of children undergoing anogenital examination without the presence of a clown, the authors concluded that clowns play a unique role both in lowering anxiety and fear among children before and during examination, and assisted in creating a pleasant and calm atmosphere, thus improving the child’s cooperation during the examination and gathering of forensic evidence.

In a further quasi-experimental study, Tener and colleagues increased their sample size looking at the effects of clowns on the psychological distress of 30 allegedly abused children aged 1–17 years during examination (Tener et al, 2012). Results showed that children who were accompanied by a clown expressed less fear, reported lower pain levels and had reduced levels of invasive thoughts.
Rehabilitation

Kingsnorth and colleagues (2011) examined the effects of therapeutic clowning on inpatients in a paediatric rehabilitation hospital in Toronto, Canada. Ten disabled children with varied physical and verbal expressive abilities participated in the study. Data were collected over four days of alternating interventions (control day/intervention day/control day/intervention day). On a control day children watched a television show of their choice and on an intervention day they received clowning interventions. Physiological arousal, emotion and behaviour were measured during television exposure and therapeutic clown interventions. The study took place in each child’s room at a consistent time to control for circadian rhythms in autonomic nervous system (ANS) responses. Four peripheral ANS signals were recorded as measures of physiological arousal: these signals were analyzed with respect to measures of emotion (verbal self reports of mood) and behaviour (facial expressions and vocalizations). Semi-structured interviews were completed with verbally expressive children \((n=7)\) and nurses of participating children \((n=13)\). Significant differences among children were found in response to the clown intervention relative to television exposure. Physiologically, changes in ANS signals occurred either more frequently or in different patterns. Emotionally, children’s (self) and nurses’ (observed) reports of mood were elevated positively. Behaviourally, children exhibited more positive and fewer negative facial expressions and vocalizations of emotion during the clown intervention. The authors point out that despite attempts to keep the presence of the observers neutral and unobtrusive, many of the children had difficulty ignoring them and engaged them in conversation. However, they conclude that therapeutic clowning has a direct and positive impact on children in hospital and they stress the importance of alternative approaches in promoting well-being within healthcare settings.

Medical conditions

An Italian study by Bertini et al. (2011) investigated the possible positive effects of the presence of a clown in children with respiratory pathologies, looking at the clinical evolution of the on-going disease, with some physiological and pain parameters. Forty-three children with respiratory pathologies including tracheitis, bronchitis and pneumonia participated in the study. Twenty-one children were allocated to the intervention group and 22 children to the control group. During their hospitalization, the children in the intervention group interacted with two clowns who were experienced in the field of paediatric interventions. All participants were evaluated with respect to clinical progress (duration of stay in hospital, duration of fever and time taken to achieve clinical recovery) and to a series of physiological and pain measures both before and after the clown interaction. When compared with the control group, children in the intervention group showed an earlier disappearance of pathological symptoms, and a statistically significant lowering of diastolic blood pressure and respiratory rate. Systolic blood pressure and heart rate yielded results in the same direction but without reaching statistical significance. Children in the intervention group also had a decrease in temperature during their interaction with the clowns, a phenomenon which is hard to explain, meriting further study. A health-enhancing effect of clown presence was also observed on pain parameters, both by self-evaluation and assessment by nurses. The authors conclude that the presence of clowns on the ward has a possible health-enhancing effect, and that humour is an easy-to-use, inexpensive and natural therapeutic modality which can be used within different therapeutic settings. However, they also point out limitations of the study including small sample size, difficulty standardizing clown interventions, and the fact that nursing staff were aware of whether children were in the experimental or the control group.
Effect of clowns within teams

Several papers in the literature define the role of clowns within teams. Oppenheim and colleagues writing in The Lancet (1997) explain how clowns help children to cope with their illness and teach children not to be ashamed of their emotions, preventing them feeling that hospitals are a place belonging only to doctors and nurses.

A study by Glasper et al. (2007a) looked at the impact of clown doctors in one English children’s hospital. The evaluation was conducted in three distinct parts. The first study used the highly structured nominal group technique to assess the views of seven junior and seven senior Theodora clown doctors. This technique involved five steps: silent generation of ideas in writing; round robin recording of ideas; serial discussion for clarification; preliminary vote of item-importance; and final voting. Results showed that clown doctors view their role very seriously and see themselves as valued members of the professional team. They also believe they have an important role in enhancing the care of sick children, and they feel that they should be given sufficient information by an experienced health professional to avoid giving an inappropriate performance to a sick child. They feel that all members of staff should be encouraged to engage in dialogue with clown doctors to appreciate their role in the healthcare team (Glasper et al., 2007b). The second part of the evaluation looked at the perception of doctors, nurses, parents and patients on whether clowning benefited children in hospital. The study was questionnaire based and used a mixture of closed and attitudinal ‘Likert’ scale based responses. They found that 14/16 (88%) paediatricians, 40/43 (93%) parents and 41/49 (84%) children strongly agreed or agreed that the presence of clown doctors had a positive effect on children and their families during a hospital stay. The third component of the study used the ‘draw and write/draw and tell’ technique to acquire the detailed views/opinions of 20 children. Before the clown visit there were 28 negative written comments (scared/worried/nervous) compared to seven positive written comments. After the clown intervention there was a significant increase in positive written comments and there were no negative comments at all. With regard to spoken comments, there were 34 negative comments from children before the clown visit and only 14 positive comments. After the clown doctor visit there were 57 positive comments and only three negative comments. After the ‘clown encounter’ 19/24 suggestions made by the children were for more frequent clown visits.

Koller and Gryski (2008) performed an evaluation of the therapeutic clown program at the Hospital for Sick Children in Toronto. Surveys were administered to staff and parents on five inpatient units. Surveys addressed a range of aspects: participants’ understanding of the clown’s role; concerns regarding the clown programme; extent to which they viewed clowns as part of the health care team; and extent to which they valued the clown programme. Altogether 143 staff and 51 parents completed surveys. Of the staff, 88% believed that the role of the clown was to engage children in play and almost half of the staff (47%) viewed the clowns as supportive of their work, with 76% of the staff considering them as part of the health care team. Altogether 93% of staff believed that the clown program was beneficial to the hospital. Parental responses showed that 88% of parents viewed the clown’s role as to make children happy, 94% acknowledging that their child was happier following a clown visit. Only 22% of parents believed that the role of the clown was to help other professionals with the children. Overall the survey showed strong support for the role of the therapeutic clown. In this study only frequency data were complied and the authors acknowledge that further qualitative interviews and focus groups could provide the basis upon which to create standardised measures reflecting key aspects of therapeutic clowning, such as the impact on paediatric anxiety.
Linge (2011) has also studied hospital clowns’ work from a caregiver perspective. Twenty healthcare staff were interviewed and the results show how the clowns help to emphasize a psychological quality of care in conjunction with physical care. The interpretation of the results in a theoretical frame emphasised the presence of the affects as surprise/startle, interest/excitement and enjoyment/joy as well as specifically how ‘joy without demands’ often had a lingering effect in the form of vitality. However, the authors were careful to point out that the working methods of clowns may vary across hospitals, as may their professional training, and this may influence their effect on ailing children.

Discussion

Over the past 30 years, there has been much research into the health benefits of humour and laughter. Astedt-Kurki and Liukkonen (1994) found that humour is important for both a patient’s well-being and coping skills and for facilitating the interaction between nursing staff and patients. When used sensitively, humour can build the connection between the professional, the patient and their family, creating a sense of cohesiveness and narrowing interpersonal and cultural gaps, and can create lasting effects beyond the immediate moment (Beck, 1997; Penson et al., 2005; Wender, 1996). Amongst staff, humour can cultivate teamwork, improve morale and motivation, increase productivity, relax people and situations, enhance problem solving and create a positive work culture with greater job satisfaction (D’Anna, 1993; Kutz, 1999). Patients may use humour to express frustration and anger, cope with anxiety, and ease pain. The ‘humour stimulus’ results in mirth (which elicits a primarily emotional response with psychological effects), and laughter (which elicits a physical response with physiological effects) (McMahan, 2008). Scientists have looked at the effects of humour at a cellular level, studying, for example, immune system functioning, endorphin levels, T-cell and serum cortisol levels and the effects of humour on blood pressure, but these are considerations beyond the scope of this paper (Clayton, 1997).

The use of humour in paediatric practice is gaining respectability (Glasper, 2007) and in the last decade there has been a rapid growth in the number of clowns in paediatric settings in many different countries particularly in the USA and in Europe (Bornstein, 2008). Children are less enculturated into the orthodox medical belief system that values pharmaceutical and surgical intervention over 'magic' (Van Blerkom, 1995). Clown doctors can entertain, amuse, distract and motivate children, and they can 'bring hugs and happiness' (Dayton, 1997). A child can get excited about reaching for a bubble blown by a clown, even if it involves the same movement that they were resisting in a physiotherapy session only moments earlier. Clowns can put the child in control as, unlike medical staff, clowns will only enter a child’s room if invited, giving the child a sense of power and control in an environment where they may feel they have very little (The Humour Foundation). Families often have a difficult time when their child is in hospital and clowns can involve the whole family, allowing them to share some fun and laughter. Clowns, who often say whatever is on their minds, give everyone permission to find the silly within the serious, or the funny inside the frightening, introducing a sense of levity into hospital wards (Duffin, 2009).

Although often viewed very positively, rigorous evaluation of the therapeutic effect of clowning is complex. Clowning is a multi-modal intervention which may have an impact on medical conditions, procedures, family functioning and health care teams. The effect of clown interventions will depend on the individual child and their family, the age of the child, the environment and the type of clowning interventions used. Most of the studies involving clowning intervention pre-operatively have shown a reduction in anxiety levels in children and in some studies also a reduction in parental anxiety, but there have been mixed responses from the surgical teams involved. Although studies have shown that clowns may increase communication and alliance between team members,
some of the studies mention the prejudice and negative personal beliefs of health professionals about clowns. This clearly has an impact on how supportive health professionals are about the use of therapeutic clowns in their work place. In the study by Glasper (2007a), while 13/17 doctors believed that the clown encounter was helpful to the sick child, six doctors revealed that they did not personally like clowns. Coulrophobia or ballatrophobia, the fear of clowns, may be due to a previous traumatic encounter or because clowns often have loud clothing and make up and it is for this reason that therapeutic clowns often wear minimal make-up accompanied by a red nose (Austin and McCann, 1996).

This paper concentrates on the literature involving clowns in paediatric clinical practice. However, we recognise there is also an emerging interest in the role of clowns in adult practice and one study with adult subjects did particularly intrigue us. Friedler et al. (2011), in Israel, studied the effects of a bedside encounter with a medical clown on the pregnancy rate of women undergoing in vitro fertilization embryo transfer (IVF-ET), using a quasi-randomized methodology. A total of 219 women undergoing IVF-ET treatment were tracked in two groups. Half of them were introduced to a medical clown doing a 15 min routine of jokes and magic tricks immediately after their embryos were implanted. The outcome of one treatment cycle per woman was evaluated using ultrasound to determine the presence of a gestational sac. The study showed that 36.4% of women exposed to clowning immediately after embryo transfer became pregnant, while only 20.2% of the control group became pregnant (adjusted odds ratio, 2.67; 95% confidence interval, 1.36–5.24). Friedler acknowledges that the mechanism whereby stress interferes with reproductive process is not fully understood, but suggests that the use of humour and clowning as an adjunct to treatment for infertility deserves further attention.

Most of the published work looks at the presence of clowns in the anaesthetic room and undoubtedly further studies should examine the contribution clowns could make in other settings such as children’s hospices or within the CAMHS (Child and adolescent mental health service) team, and the appropriate timing of clowning interventions. More research should also be undertaken to study the contribution of clowns within clinical teams, exploring attitudes of families and staff, and developing protocols or rules of engagement. Research should inform our practice and help to secure funding for successful evidence-based interventions either from mainstream health fund streams or the voluntary sector.

**Conclusion**

Medical clowning has developed to ease the suffering, pain, and anxiety of children in hospital. Studies suggest that clowns help children to adapt to their hospital surroundings and can distract from, and demystify painful or frightening procedures through ‘doses of fun’ to complement traditional clinical interventions.

Humour may also help improve the health care professional–patient relationship and can act as an ‘ice breaker’ in certain circumstances. However, more research is needed to further substantiate the claims that humour is the universal panacea.

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The authors declare that there are no conflicts of interest.

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**Fiona Finlay** is a consultant pediatrician in community child health working in Bath. Her interests include paediatric palliative care and safeguarding children. She believes that holistic care is very important for children and their families. She likes to see expressions of joy and wonder on children’s faces when they are watching magic or meeting clowns.

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**Simon Lenton** completed his medical training in Aberdeen and worked in both New Zealand and Canada before being appointed as a Consultant Paediatrician with a Special Interest in Community Child Health (CPCCH) in Bath in 1987. In Bath he developed a community-based children’s palliative care service (the Lifetime Service) which demonstrated the prevalence and morbidity associated with life threatening conditions for the first time in the UK.


In 2003 he was elected to Vice President (Health Services) within the Royal College of Paediatrics and Child Health (RCPCH). He led “Modelling the Future” for RCPCH which identified the problems facing childrens health services in the UK and sets out a vision and strategy for the future development of children’s health services.

Between 2009-11 he was the UK representative and was elected to chair the expert working group on “Child Friendly Health Care” (CFHC) on behalf of the Council of Europe. CFHC translated the values contained within the United Nations Convention on the Rights of the Child into a practical framework for service delivery. This piece of work has now been endorsed by 47 health ministers across Europe through a Declaration signed in October 2011.

He now chairs the British Association for Community Child Health and continues to ‘champion’ the rights of children for better services through this group - recent publications including “the meaning of integrated care for children and families” and the “Family Friendly Framework” for the commissioning delivery and regulation of childrens services. He currently is a member of the National Children and Young Peoples Health Outcome Strategy Group and is particularly interested in embedding “improvement” into the culture of the NHS through a process of meaningful measures, feedback, innovation and evaluation of change.