EXPERIENCE REPORT

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Implementation and use of adapted superhero toys with therapeutic devices in pediatric oncology: an experience report

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ABSTRACT

Objective: to report the process of implementation and use of adapted superhero toys with invasive therapeutic devices for the health education of children undergoing cancer treatment. **Methods:** this is an experience report. The process of implementation and use of therapeutic toys at a referral oncology hospital in the state of São Paulo, Brazil, occurred in five stages. It involved the project conception and creation of prototype superhero toys together with the installation of devices (peripheral venous access, catheters, shunts, central lines, among others); compliance assessment by the Hospital Infection Control Committee; initial provision of toys for use in consultations; feasibility for use in inpatient units; and greater production of new toys according to new demands. **Results:** educating children about cancer treatment is a complex and challenging communicative process. It is necessary to encourage and invest in professionals' creative potential to sustain technological innovation in healthcare, while considering the sustained use of this strategy, funded by public-private partnerships. **Conclusion:** adapted superhero toys are considered care technologies applicable to the pediatric oncology setting.

Descriptors: Play Therapy; Oncology Nursing; Pediatrics; Equipment and Supplies.

INTRODUCTION

The diagnosis of childhood cancer entails numerous changes for the child and their family[1]. From the moment the disease is suspected to the end of treatment, the patient undergoes a journey of numerous appointments, hospitalizations, chemotherapy cycles, and other types of treatment. Despite advances in drug formulation to increase patient tolerance, these treatments still cause several side effects, including psychological and physical impacts, common during this process, such as fear and withdrawal from usual activities, weight loss, and hair loss[2].

In an effort to minimize adverse effects or provide safer means for treatment, patients are subjected to the use of invasive devices such as catheters, probes, drains, and others. This set of stressors encountered in the quest for health restoration can directly affect the child's self-image and self-esteem[2].

In pediatric oncology care, the healthcare team must strive not only for a cure but also to minimize late treatment effects and preserve the child's future quality of life. To this end, it is crucial to establish clear and accessible communication, adapted to the family's circumstances, building a supportive bond essential for facing the challenges of the disease[2], supported by tools and methods that promote greater clarification on topics such as the illness, prognosis, or treatment plan[3].

These tools help professionals present information clearly, avoiding potential misinterpretations that could negatively impact the child's treatment.

In pediatrics, one way the multidisciplinary team can provide health education is through play. Playing as a resource promotes communication between professionals and children, expands the language and imagination skills of both, and helps children

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understand and accept the situation they are experiencing [4].

Therefore, the therapeutic toy (TT) is one of the tools that help manage feelings, as it can illustrate the threatening situations the child will face and help healthcare professionals identify fears and situations that cause anxiety. Although the TT is most closely related to childhood, it can be adapted for all ages, depending on how it is presented[4].

The TT can be classified into three categories: dramatic, physiological function-enabling, and instructional. The dramatic TT encourages patients to express their feelings, desires, and experiences. The therapeutic toy for physiological functions helps train the use of physiological capacities in accordance with the patient's condition. The instructional TT provides guidance and training for patients and caregivers on procedures and therapies[4]. In a healthcare setting, using all three categories is feasible, depending on the context and the child's clinical condition.

The use of superheroes as a therapeutic distraction has shown satisfactory results in general and pediatric oncology settings. In India, the use of superhero pictures has been shown to reduce the need for anesthesia during radiotherapy[5].

Reporting experiences in healthcare settings is necessary to strengthen clinical practice, especially in pediatric oncology. Therefore, the objective of this study is to report the implementation of superhero therapeutic toys adapted with invasive therapeutic devices for the health education of children undergoing cancer treatment.

METHODS

Experience report from the pediatric ward of the Hospital de Amor Infantojuvenil in Barretos, state of São Paulo.

The process of implementation and use of TTs occurred in five stages: 1. project design and toy production; 2. approval for use by the Hospital Infection Control Committee; 3. use by the medical team in pre-surgical consultations or prior to the implementation of new devices; 4. making the toys available for use in the wards and chemotherapy area; 5. production of more toys for use in other areas of the pediatric unit (Intensive Care Unit, Surgical Center, Multidisciplinary Outpatient Clinic, Bone Marrow Transplant Unit).

1. Project design and prodution of toy adapted for therapeutic purposes

The pediatric oncology department has always been committed to educating parents (accompanying caregivers) and the child undergoing treatment about the hospitalization and the different procedures and devices that may be used. In this context, professionals have used various techniques, such as drawing the device on a sheet of paper or taking the child undergoing treatment in the outpatient clinic to the chemotherapy department to see the device installed on another patient. However, the device in question was not always in use, and transportation to the inpatient unit was impractical due to the high patient volume in the outpatient clinic.

Therefore, in early 2016, the idea of using instructional TTs during consultations with physicians, nurses, and other professionals working in the pediatric oncology outpatient clinic was developed. This insight stemmed specifically from a nurse and a physician who identified a lack of physical instruments to assist in explaining potential procedures to patients and the therapeutic devices that could be installed during the treatment of pediatric oncology patients.

To make the use of TT more engaging, superhero characters were used with children undergoing cancer treatment. Although they represent strength and power, superheroes also experience fear, but they manage to overcome the situation with resilience. Furthermore, they foster virtues such as courage and strength, helping children and their families develop positive thoughts and concepts to face the challenges and fears associated with treatment[6].

The therapeutic devices and procedures selected to be represented in the TTs were: external ventricular drain (standard in patients with central nervous system tumors), tracheostomy, PICC (Peripherally Inserted Central Catheter), nasogastric tube (very common in patients with nutritional deficiencies due to various causes), limb amputation and use of orthopedic prostheses (a standard procedure in patients with osteosarcoma), as well as gastrostomy and port-a-cath (a totally implanted central catheter).

The first toy adapted was chosen for its visible peripheral venous network on its body, facilitating the adaptation of venous access (Figure 1). A peripheral venous catheter and a totally implanted catheter were adapted to the toy's body.

Figure 1 - Superheroe toy adaptated toy adapted with a port-a-cath central venous catheter and a peripheral venous catheter

Note: This image has an exclusively instrumental and accessory purpose to illustrate the description of the experience. Its commercialization or modification is not permitted. The authors and editors have no affiliation with the Marvel Comics company.

2. Approval by the Hospital Infection Control Committee

The Hospital Infection Control Committee inspected the toy's manufacturing material and determined that it could be disinfected. Because the institution has a toy library, toy disinfection practices are already established, with protocols, standards, and routines in

place. Therefore, a protocol was established for the use and disinfection of the toy after each use. Each TT (Figure 2) could be sent for more accurate disinfection, depending on its use (patients in isolation for multidrug-resistant bacteria, toy contamination with secretions, among others).

Figure 2 - Superheroe toys adaptated with peripherally inserted central venous catheters, nasogastric tubes, gastrostomy tubes, and ventriculoperitoneal shunt, respectively

Note: This image has an exclusively instrumental and accessory purpose to illustrate the description of the experience. Its commercialization or modification is not permitted. The authors and editors have no affiliation with the Marvel Comics or DC Comics companies.

3. Use by staff during pre-surgical consultations or prior to the implementation of new devices

After a positive evaluation of this new strategy, based on reports from parents and caregivers and comments from the multidisciplinary team involved in the project, the need to adapt a larger number of toys was identified. Other devices that exemplified different situations patients may experience during treatment were also included for use in other areas of the pediatric unit.

At the end of a consultation in which a TT device was used, the child's caregiver expressed interest in the project and provided financial resources to purchase new superhero toys, which were customized by the team of professionals responsible for the project.

4. Making the toys available for use in the wards and chemotherapy area

The TT began to be used daily in health education activities for both children and their guardians and/or caregivers, as part of the playful approach. The toy was used to introduce therapeutic devices, how to install and use them, and their purposes. It also helped clarify questions about the device itself and/or the patient's treatment or recovery.

The multidisciplinary team began presenting requests for toy adaptations from various areas of care, including nutrition, speech therapy, orthopedics, and others.

5. Production of more toys for use in other areas of the pediatric unit (Intensive Care Unit, Surgical Center, Multidisciplinary Outpatient Clinic, Bone Marrow Transplant Unit)

Professionals and patients' families donated more toys to the hospital, and healthcare professionals (nurses and physicians) responsible for the pediatric unit's outpatient clinic continued to make adaptations. The TTs (Figure 2) were made available for use in the various hospital units. There has been a greater demand during outpatient consultations, in the inpatient ward, and in the Intensive Care Unit.

RESULTS

There are 15 therapeutic toys available at the hospital. The selection of therapeutic devices to be installed on the toys was based on their frequency of use and the needs of the medical staff and multidisciplinary team.

The outpatient team's implementation of the adapted superhero toys sparks reflections on various aspects of pediatric oncology care.

The multidisciplinary team faces numerous communication challenges throughout the process, as they must guide patients and families on unfamiliar diagnostic and therapeutic procedures.

Another challenge is the diverse patient profile in highly specialized institutions, such as the Hospital de Amor Infantojuvenil in Barretos, São Paulo, Brazil. Patients from various Brazilian states and other South American countries attend the facility. As the service offers exclusive care through the Unified Health System (SUS) and given the vast diversity of patients' and families' socioeconomic and cultural backgrounds, strategies are needed to facilitate healthcare professionals' information presentation. It is essential to identify universal cultural elements in this context, based on which effective communication can be established, regardless of ethnicity, education level or nationality.

The project's implementation, which used TTs to facilitate communication, was well received by healthcare professionals, caregivers, and patients. It sparked interest in its use across other departments of the pediatric oncology unit. The toys were made available by prior arrangement with the team responsible for the project.

The TTs are available, and their benefits are evident. However, their use remains inconsistent and depends on professionals' personal choices during care. Therefore, introducing new toys and continuously raising staff awareness are necessary to increase adherence to TT use in this setting.

DISCUSSION

Playing is intrinsic to childhood; through it, children communicate, create bonds, and express thoughts and feelings [7]. The use of toys reflects the child's reality and provides healthcare professionals with a way to connect with children undergoing therapy and their families.

The use of play builds a solid foundation for children coping

with the negative consequences of each hospitalization. Using this resource in the healthcare setting helps patients cope with various stressors, such as frustrated parents, medication side effects, or the disease itself [8].

Providing maximum comfort for hospitalized children with cancer is one of the responsibilities of professionals, ensuring that palliative care is provided without distinction to individuals facing a life-threatening clinical condition, as determined by the National Palliative Care Policy[9].

Interdisciplinary care for children and adolescents with cancer is critical and encompasses diverse areas of expertise to develop integrated and comprehensive care[2]. Multidisciplinary team members must provide continuous care that covers all aspects of the individual's life.

Including the family in the patient's care and treatment is also crucial to fostering shared responsibility for the child's treatment with the multidisciplinary team[10]. In the pediatric oncology setting, professionals must use an appropriate language for this audience. The information provided must make sense so that the child and family understand the events[11], fostering their participation and autonomy in treatment and care.

Health education can occur in any care setting where professionals use these opportunities to establish effective communication about the disease process and the therapy involved. This action promotes involvement in treatment, encourages commitment and self-care, and creates a stronger bond between the team and the patient's family[3].

In this educational process, professionals have described TTs as a moderating tool that facilitates the explanation of procedures, such as the implantation of therapeutic devices, through tangible examples. In this sense, the child can visualize the change in their body image caused by the device and express their feelings and concerns [8].

Even after the end of cancer treatment, during outpatient follow-up, the use of TTs offers professionals the opportunity to talk with patients about their struggles, acceptance of their body image, and self-esteem. Thus, the use of this resource contributes to post-cancer quality of life and reduces trauma and stigma, both related to the disease and the healthcare environment[8].

This experience provides an empirical basis for recommending the use of adapted toys with therapeutic devices by other healthcare services. This type of resource should be included in the budget planning of healthcare institutions for children, including new projects to produce this technology with toy manufacturers, as well as donations to public healthcare services for pediatric care of adolescents and young adults.

Although knowledge about the implementation and use of adapted toys for children undergoing cancer treatment has advanced, this report is based on experience at a specific hospital; therefore, it cannot be generalized. Anyway, this type of production is not intended for that purpose.

CONCLUSION

The implementation of superhero toys fitted with invasive therapeutic devices is a health education technology that mediates communication between healthcare professionals, patients, and their families in the context of pediatric oncology care.

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PHTAS: conceptualization; funding acquisition; writing – original draft and writing – review & editing.
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DAGA: project administration; writing – original draft and writing – review & editing.
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EB: project administration; supervision; writing – original draft and writing – review & editing.

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Conflict of Interest

None.