

The Use of Therapy Dogs in the Pediatric COVID-19 Vaccination at the University of Puerto Rico Medical Sciences Campus

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Pet ownership and therapy dogs as companion animals and emotional support have potential health benefits. We report the experiences at a COVID-19 vaccination center after authorizing children's vaccines. When the Pfizer-BioNTech vaccine for children aged 5 to 11 years was authorized for emergency use, we adapted the center's space to receive children, adding cartoon posters and balloons and using children's adhesive bandages, among others. Located at a Campus with six health professional schools, medical students dressed as storybook or movie characters. Children were asked to make drawings during the post-vaccination observation period. We incorporated therapy dogs as part of our strategy for a child-friendly center during vaccination activities. Parents expressed that the COVID-19 immunization seemed to be better accepted by children as the dogs in the center entertained them. Many children were in close contact with the dogs while receiving the shots, caressing them, or having the small dogs on their laps. Children's drawings reflected colors, flowers, families, images of happiness, dogs with their names, their own pets, and superhero characters. There were no negative images of syringes, injections, or germs. To our knowledge, this was the only vaccine center in Puerto Rico that implemented therapy dogs as a strategy to create a friendly environment for COVID-19 immunization efforts targeted for children. Based on this experience, we encourage the use of therapy dogs in other immunization activities and will further gather prospective data in the future.

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The COVID-19 pandemic and lockdowns affected the life and routines of most people, including children. In-person activities were substituted with virtual equivalents in school and many work-related scenarios. The pandemic impacted the economy, businesses, travel, shopping, education, healthcare services, and mental health worldwide. In Puerto Rico, a strict lockdown with curfew was implemented on March 15, 2020, and it lasted longer than in many other jurisdictions and countries (1). Once vaccines were available, there was a surge of interest in accessing COVID-19 vaccines, which were initially scaled up according to risks and conditions, prioritizing healthcare workers, older individuals, and the community in general. Diverse strategies were conceptualized and implemented to expand rapid vaccine access and community mobilization. Our group defined a strategy for a fair distribution of vaccines at our Campus (2).

It took almost one year after the authorization of COVID-19 vaccines for adults for those to be authorized for children aged 5 years and older. Children's immunization programs usually have specific friendly environments with posters, child decorations, and staff wearing costumes for mass vaccination campaigns. Several previous publications have described Puerto Rico's COVID-19 vaccine experience (3, 4). In general, COVID-19 vaccination rates were high, and vaccination programs were very effective at immunizing adults once vaccines were authorized and available. As of July 15, 2021, about 58% of the population in Puerto Rico was fully vaccinated. Due to a COVID-19 surge, the government of Puerto Rico imposed a series of vaccine mandates to enforce

vaccination, leading to an increment in vaccine uptake: two months after the mandates were enacted, the rate of population fully vaccinated increased to 70% (5). In this environment of support for adult and children's vaccinations, the vaccination center was encouraged to look for additional strategies to facilitate the immunization process, particularly in children.

Preliminary studies and results

There is an interest in using pets or animal-assisted therapies for diverse conditions in inpatient and ambulatory care. According to the American Animal Hospital Association (AAHA), "a therapy dog promotes improvement in human physical, social, emotional, or cognitive function, and functions in either group or individual settings (6)." The American Veterinary Medical Association (AVMA) further clarifies that therapy dogs participate in certain

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animal-assisted intervention (AAI) with the purpose of helping people, but are not recognized by federal law (7). Specifically, the AAHA states that “[a] therapy dog used in human AAI is not recognized by the [American Disability Act] as a service animal. AAI is classified as either animal-assisted therapy (AAT) or animal-assisted activity (AAA). An AAT is either delivered or directed by health or human service providers working within the scope of their profession and is documented and evaluated, whereas an AAA is not (6).”

A literature review has shown an interest in the potential health benefits of either pet ownership or therapy pets (mostly dogs) as companion animals and emotional support (8). Qualitative studies among people with mental health issues have reported on the positive aspects of connectivity of people with companion animals and negative aspects such as ownership responsibilities (9). Another study on pediatric hospital experiences of children described positive experiences of AAT. Of the 47 children, 7 had cancer and 27 had major surgery. Children described the dogs as nice, the experience as good and as a positive surprise. In questionnaires, the children’s experiences improved from moderately good to very good and assessed their hospital stay as being better (10).

Another study with dogs reported a reduction in pain levels among children who were exposed to a 15- to 20-minute session with a dog compared with controls (11). A meta-analysis reported lower pain, lower systolic blood pressure, and no difference in depression, anxiety, or stress among 348 children and adolescents exposed to AAT (12). Similarly, studies of children with a pet dog in the household report a decreased probability of childhood anxiety compared to children without dogs (13). Other studies add to the benefit of the use of therapy dogs (14-16). There is a need to document further and continue to confirm the benefits of therapy dogs as adjuvant therapy for pain control and to improve in the context of hospitalization experiences and ambulatory medical services, particularly for children. COVID-19 vaccination efforts present an excellent opportunity to explore the use of therapy dogs to reduce anxiety and to create a child-friendly environment that would lead to increased acceptability among parents and children.

Aims

The initial aim of the strategy of having therapy dogs in a vaccination center was to simultaneously learn from the experience that has been of benefit in other medical or social scenarios while providing a potential soothing strategy to decrease the anxiety and stress of children who were taken for COVID-19 vaccination. The pediatric COVID-19 vaccine series required a second dose, and we expected to provide an experience that would facilitate the second visit to the center by relating it to a positive interaction with friendly dogs that could be caressed.

One of the main reasons for using the therapy dogs was to avoid or diminish children’s apprehension of an immunization process that needed at least two doses (with a second dose in 3 weeks). Therapy dogs are trained to provide affection and to people, often in settings such as hospitals, nursing homes, schools, and ambulatory care facilities. Although they are pets to their owners, therapy dogs are trained to interact with all kinds of people. Their

owners usually volunteer to go to places with their dogs to allow them to be caressed by children or adults to decrease anxiety or provide.

We contacted the association of owners of therapy dogs Dedicated Animals to the Service of Humans Always (DASHA) (<https://www.facebook.com/dashadogspr>) and established a schedule for dogs and owners to visit the vaccine center. The dog owner came with them to the clinic as part of volunteer activities and to monitor the process. Because we did not know how many children or adults feared dogs, had allergies to them or presented any other reason not to be near dogs, a separate room provided services to children or adults who did not want to be vaccinated in the presence of therapy dogs.

The second aim was to qualitatively document the children’s experiences by evaluating their drawings, the parents’ comments, and the overall flow of vaccination of children.

Scientific Accomplishments

At the University of Puerto Rico Medical Sciences Campus, a COVID-19 vaccination center was initially established to provide immunization to almost 5,000 healthcare professionals, students, and staff. On December 11, 2020, the United States Food and Drug Administration (FDA) granted an emergency use authorization (EUA) to the Pfizer-BioNTech mRNA vaccine (17). Similarly, on December 18, 2020, the FDA granted an emergency use authorization to the Moderna mRNA vaccine (18). The Centers for Disease Control and Prevention (CDC) committee on immunization practices also recommended the vaccines for individuals older than 16 years (Pfizer) and 18 years (Moderna) on November 23, 2020 (19). Early in the pandemic, the Puerto Rico Department of Health (PR DoH) designed a vaccination strategy that included the University of Puerto Rico Medical Sciences Campus as a vaccination provider and published its plan in March 2020 (20). In anticipation of the availability of vaccines, the center developed an institutional plan on the Campus to assign priorities in vaccine administration to different groups according to potential occupational exposure and including all professional schools. (18-manuscript in progress). The center developed an interdisciplinary and interprofessional model for participation and for the administration of vaccines, having faculty and students from Medicine, Pharmacy, Dental Medicine, Nursing, and Health Professions as volunteers. Vaccine doses were prepared at the School of Pharmacy facilities, while the research laboratory kept the inventory of vaccines in the ultra-low freezers (-80 and -20 refrigerators). The School of Nursing provided space for immunizations, observation, and data entry. Volunteers from five participating schools collaborated in the different phases according to their professional training under faculty supervision.

There are six health professional schools (Medicine, Pharmacy, Dental Medicine, Nursing, Health Professions, and Public Health) on campus. The academic community consists of approximately 2,649 students, 990 faculty, and 1,250 non-faculty staff, who needed to access COVID-19 vaccines with priority. Once the initial target community (MSC) was immunized, the vaccination center broadened its scope, providing vaccinations to the community in general. To date, more than 15,802 doses of vaccines have been administered at the center. When the Pfizer-BioNTech vaccine for

Figure 1. Photos of the vaccine center, some of the volunteers on the first day, children and their parents. All children's photos are authorized by their parents.



The photo with a large group was obtained from the Facebook page of the primary author <https://www.facebook.com/search/posts/?q=vacunas%20en%20rcm>. The photo was taken by Manuel Gonzalez, DMD.

children aged 5 to 11 years was authorized by the FDA on October 29, 2021 (15), and on November 2, 2021, by the CDC (16), the staff decided to make modifications to the vaccine center space, adding cartoon posters and balloons, using children's adhesive bandages, among other children friendly measures. Faculty and students from five schools consistently collaborated with the initiative by either administering doses (Pharmacy, Nursing, Medicine), entering data in the vaccine registry system, helping participants to complete vaccine formularies, facilitating the flow of patients, distributing materials, helping with the observation of vaccinees, and other related tasks (Health Professions, Dental Medicine, Pharmacy, Nursing, Medicine). Two faculty members from the School of Public Health collaborated with this initiative. Additionally, several medical students dressed as storybook or movie characters, and children were asked to make drawings during the post-vaccination observation period. The University of Puerto Rico School of Dental Medicine had experience with therapy dogs for children with functional diversity on a project some years ago (personal communication with Dr. Vanessa Rodriguez, unpublished data). Based on that prior intervention in our institution using therapy dogs for children, our center entertained the idea of having therapy dogs at the site during the pediatric COVID-19 vaccination.

The first vaccination clinic for children was on November 6, 2021. For this activity, we had student volunteers from the Schools of Medicine, Pharmacy, Dental Medicine, Nursing, and

Health Professions, as well as a Clinical Psychology program and medical residents of Pediatrics, Obstetrics and Gynecology, and Emergency Medicine. The vaccination activities were scheduled mostly on Fridays and Saturdays so that parents would bring the children with less work or school disruptions. Later during the year, faculty and medical residents from Psychiatry and Internal Medicine also volunteered in the evaluation of participants prior to immunization related to potential medical complications or anxiety with the process, in addition to the immunizations and documentation.

During the waiting period, volunteers inquired about concerns with dogs so the patients identified with such concerns could be moved to the non-pet room. Of 200 families on the first day of vaccinations, only one mother said she wanted to avoid the dogs. It was a mother whose child wanted to play with the dogs, but she wanted some privacy and felt that requesting a separate room would get her services easier and quicker.

Crayons and coloring books were available at the post-vaccine observation room and we opted to have plain paper for the children to make drawings and include their experience with the dogs in their drawings. Children were asked to make drawings of their favorite pets or any other drawing they wanted. Many children wanted to give their drawings to the center at the end of the observation period, and most of them were kept. The observation room was designed as a classroom with desks and chairs. Since many children had been on virtual school activities,

they felt this was like real school and did not want to leave after their observation time.

Many spontaneous comments were received from parents and children who complimented the initiative and reported that their children were looking forward to the next dog play appointment.

Significance

This is a report on the experiences at a COVID-19 vaccination center during the implementation of mass vaccinations after emergency use authorization of vaccines for use in children. The strategies used to create a friendly environment for children and their parents are described. Some of the parents’ and children’s comments after the experience and an analysis of the children’s drawings encouraged during the post-vaccination observation period are also described. The limitations of this report include a lack of randomization or universality of comments. The parents provided consent for the photos included in the report. Names of children were removed from the drawings.

By the end of the pediatric immunization schedule with therapy dogs at the COVID-19 vaccination center, there were no reported adverse experiences or issues related to the presence of the therapy dogs at the vaccine center. In fact, there were no immediate adverse events related to the vaccines at all. In addition, parents expressed that the COVID-19 immunization seemed to be better accepted by children as they were distracted by the dogs in the center. Many children were in close contact with the dogs while receiving the shots, caressing them, or having the small dogs on their laps. At moments, a room had 5 or 6 therapy dogs, one per

each vaccination station. Since the dogs were trained, there was no aggressivity among them. Therapy dogs are not just pets; they go through a training process, and they are ideal in settings such as vaccination centers where some children might be apprehensive or simply scared. Some children cried before getting their shots, and the staff tried to provide and halt the entry of other children to diminish apprehension. Many children stopped crying as soon as the vaccine shot was administered, which suggested a pre-vaccine anxiety response rather than actual pain.

Children’s drawings reflected colors, flowers, families, images of happiness, dogs with their names, their own pets, and superhero characters. There were no negative images of syringes, injections, death, or germs. A pediatric resident dressed as a famous fictional children’s movie character was a common image in the drawings, eliciting children to write phrases such as: “I love you.” Photos were encouraged and facilitated. Many parents of young children took photos of the children with the dogs and with this fictional movie character. There were no adverse experiences with the vaccines or with the dogs.

The use of therapy dogs during pediatric COVID-19 vaccination at our center seemed to provide a soothing strategy to decrease their anxiety and stress, while allowing the providers to qualitative document the children’s experiences by evaluating their drawing and their parents’ comments. Most importantly, this report represents a successful example of integrating alternative therapeutic approaches like AAT within a public health emergency response. This initiative focused on human-animal interactions with an integrative or holistic approach tailored towards a specific

Figure 2. Children’s drawings depict happy images, movie characters, superheroes, their family, their pets and the therapy dogs.



group of participants during this COVID-19 global health crisis. This potential for applicability in healthcare settings should be further explored and documented. This initiative involved an interprofessional collaboration with faculty, students and staff from different professional schools in our institution.

Conclusions

This special article describes the experience with therapy dogs at a COVID-19 vaccine center. Previously published experiences with therapy dogs in other settings agree with our perceptions and the use of therapy dogs during immunization efforts for children and other special groups. To our knowledge, this was the only vaccine center in Puerto Rico that implemented therapy dogs as a strategy to create a friendly environment for COVID-19 immunizations for children.

In February 2023, the Center held an award ceremony to acknowledge the contributions of the more than 350 volunteers who collaborated with immunization activities for two years. During this activity, three children who received vaccines while therapy dogs accompanied them were present and gave awards to the dogs.

Plans

Based on our experience, we encourage the use of therapy dogs in other immunization activities and will further gather prospective data in the future. We will investigate opportunities to facilitate the use of therapy dogs in vaccinations or other ambulatory patient-related activities. We plan to develop and implement prospective studies to determine children's and parents' satisfaction with therapy dogs in other pediatric vaccination programs and in other scenarios, such as pediatric hospitalizations, pediatric emergency room evaluations, and other activities. It would be of benefit to incorporate standardized stress/anxiety metrics, control groups, and long-term follow-up to comprehensively assess the true impact and efficacy of such innovative approaches within public health campaigns.

Funding will be necessary to carry out such activities after the COVID-19 emergency ends.

Resumen

Hay un beneficio potencial a la salud al tener mascotas o en el uso de perros de terapia como animales de compañía y como apoyo emocional. Cuando se autorizó de emergencia la vacuna Pfizer-BioNTech para niños de edades de 5 a 11 años, modificamos el espacio para la vacunación pediátrica con carteles de personajes de cuentos, globos y otras estrategias. Algunos estudiantes de medicina se disfrazaron de personajes de cuentos. Se le pidió a los niños que dibujaran, proveyéndoles papel y materiales de colorear durante el período de observación post-inmunización. Se incluyeron perros de terapia como estrategia para hacer el centro más atractivo para los niños. Los padres expresaron que la vacunación de COVID-19 les pareció mejor aceptada por los niños mientras tenían los perros cerca. Muchos niños recibieron sus vacunas en contacto cercano con los perros, acariciándolos o teniéndolos en su regazo. Los dibujos de los niños reflejaron colores, flores, familias, imágenes de felicidad, perros con sus nombres, sus propias mascotas y personajes de superhéroes.

Ninguno dibujó imágenes de jeringuillas, agujas, inyecciones o gérmenes, ni dibujos del virus. No hubo ninguna experiencia adversa con la presencia de los perros de terapia ni con la vacunación de niños. A nuestro saber, éste es el único centro de inmunización de COVID-19 en Puerto Rico que implementó el uso de perros de terapia para hacer un ambiente agradable para los niños y sus familias. Con esta experiencia, recomendamos el uso de perros de terapia en actividades de inmunización y estudios prospectivos al respecto.

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The vaccination center received COVID-19 vaccines from the Puerto Rico Department of Health to be administered as part of the COVID-19 response and Vaccination Plan.

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