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Effects of the COVID-19 Pandemic on Animal-Assisted Activities in Pediatric Hospitals

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Introduction: The goal of this study was to document current hospital-based animal-assisted activities (AAA) practices.

Method: We contacted 20 hospitals and asked about their AAA programs, including COVID-19 precautions.

Results: Eighteen of 20 hospitals responded. Before 2020, all offered either in-person only ($n = 17$) or both in-person and virtual AAA visits ($n = 1$). In early 2022, 13 provided in-person visits; the five hospitals that had not resumed in-person visits planned to restart. Most hospitals stopped group visits. Most required that patients and handlers be free of COVID-19 symptoms and that handlers be vaccinated and wear masks and eye protection. Most did not require COVID-19 vaccination for patients. None required handlers to test negative for COVID-19.

Discussion: The COVID-19 pandemic impacted hospital-based pediatric AAA. Future studies should assess the effectiveness of virtual AAA and of precautions to prevent COVID-19 transmission between patients and AAA volunteers. *J Pediatr Health Care.* (2022) XX, 1–6

KEY WORDS

Animal-assisted activities, COVID-19, pediatrics

INTRODUCTION

Animal-assisted activities (AAA) programs are common in pediatric hospital settings (Chubak & Hawkes, 2016). In our 2014 survey of 20 top pediatric oncology hospitals in the United States, 18 of 19 responding hospitals reported offering AAA to pediatric patients. AAA programs typically consist of visits to patients from volunteers and their pets. During a visit, the patient meets the animal (often a dog) and may engage in activities like petting the animal, sitting with the animal, and playing with the animal (Chubak & Hawkes, 2016). In pediatric populations, AAA has been associated with reduced pain (Braun et al., 2009; Correale et

al., 2022; Feng et al., 2021; Sobo et al., 2006), increased comfort (Bardill & Hutchinson, 1997; Caprilli & Messeri, 2006; Wu et al., 2002), and positive emotional effects (Correale et al., 2022; Kaminski et al., 2002; McCullough et al., 2018; Silva & Osório, 2018). In addition to being common, AAA programs in pediatric oncology settings appear to be well-liked. In a review of surveys of participants and other stakeholders (e.g., hospital staff), there was broad satisfaction with individual AAA programs as implemented, and they were perceived to be effective (Holder et al., 2020).

Little is known about how the COVID-19 pandemic has affected AAA hospital-based programs, although some programs in other settings (e.g., nursing facilities) have reported transitioning from in-person to virtual AAA visits (Dell et al., 2021; Jung et al., 2021). Given the prevalence of hospital-based programs—and their significance to patients and families—it is important to understand how they have changed and what further changes are planned. We re-contacted 20 top-ranked U.S. pediatric oncology hospitals in early 2022 to document current AAA practices, including changes related to COVID-19.

METHODS

Procedures

In 2014, 19 of 20 top-ranking U.S. pediatric oncology hospitals (as defined by U.S. News and World Report) participated in our survey of AAA programs for cancer patients (Chubak & Hawkes, 2016). In January 2022, we re-contacted the 20 hospitals by email to invite them to participate in a follow-up survey about current AAA practices and changes due to COVID-19. The email included a link to a survey in REDCap, an electronic data capture tool hosted at Kaiser Permanente Washington Health Research Institute (Harris et al., 2009; Harris et al., 2019). For hospitals that did not respond within about 2 weeks, we sent email reminders and offered to administer the instrument by phone. We reminded potential respondents approximately every 2 weeks, making no more than five recruitment attempts. In real-time, responses to phone-administered surveys were directly entered into the REDCap database by Kaiser Permanente Washington Health Research Institute study staff. The Kaiser Permanente Washington Institutional Review Board Office determined this project to be research not involving human subjects.

Measures

Initial questions on the survey (Appendix 1) were used to determine what types of AAA visits (in-person and/or virtual) were available (1) before 2020 (i.e., before the COVID-19 pandemic) and (2) at the time of the survey (from January to March 2022). Subsequent questions presented to respondents depended on their answers to the initial questions. Hospitals that discontinued in-person visits were asked about the reasons for this change and whether they planned to restart visits. Hospitals that suspended in-person visits were asked about the duration of the suspension. Hospitals that never offered in-person visits were asked about their intentions to start such visits. Almost all remaining questions were asked only of those hospitals that currently offered in-person AAA visits. These questions focused on which animals were allowed to visit patients, COVID-19-related precautions required for visits, program changes because of COVID-19, patient eligibility for visits, and activities permitted for pediatric oncology patients. Questions unrelated to COVID-19 were adapted from Chubak and Hawkes (2016). COVID-19-related questions were newly developed for this survey.

Analysis

We cross-classified pre-2020 hospital AAA program type (none, in-person only, virtual only, or both in-person and virtual) by status in early 2022. Subsequent analyses that focused on precautions and program characteristics were limited to hospitals providing either in-person only or both in-person and virtual visits at the time of the survey. Free-text responses were mapped by the lead investigator (J.C) to categorical response options.

We report counts and percentages. Inferential statistics were not computed, as the goal of the analysis was not to extrapolate beyond the study sample. All analyses were conducted in Stata 15.1 (StataCorp LLC, College Station, TX).

RESULTS

Representatives from 90 % of hospitals contacted (18 out of 20) responded to the survey by the web ($n = 15$) or phone ($n = 3$) between January and March 2022. Respondents were primarily from child life and volunteer services. All hospitals offered either in-person only ($n = 17$) or both in-person and virtual AAA visits ($n = 1$) before 2020 (Table 1). By early 2022, the number of hospitals offering in-person visits

TABLE 1. Changes in the delivery of animal-assisted activities (AAA) programs at hospitals pre-COVID-19 pandemic (pre-2020) vs. 2 years into the COVID-19 pandemic (January to March, 2022) ($n = 18$ hospitals)

	January 2022 to March 2022									
	In-person only		Virtual only		In-person and virtual		No AAA program		Total	
Pre-2020	<i>n</i>	Row %	<i>n</i>	Row %	<i>n</i>	Row %	<i>n</i>	Row %	<i>n</i>	Column %
In-person only	5	29	1	6	7	41	4	24	17	94
In-person and virtual	0	0	0	0	1	100	0	0	1	6
Total	5	28	1	6	8	44	4	22	18	100

TABLE 2. Suspension of in-person animal-assisted activities (AAA) program delivery in response to the COVID-19 pandemic and plans for restarting in-person AAA visits as of January to March 2022 (n = 18 hospitals)

Variables	No. of hospitals (%)
Provided in-person visits from January to March 2022	n = 13
No suspension of in-person visits	1 (6)
In-person visits were suspended for < 1 month	0 (0)
In-person visits were suspended for > 1 month but < 6 months	3 (17)
In-person visits were suspended for > 6 months but < 1 year	3 (17)
In-person visits were suspended for > 1 year	6 (33)
Did not provide in-person visits from January to March 2022	n = 5
Plans to restart in-person visits	5 (28)
Does not plan to restart in-person visits	0 (0)

dropped from 18 to 13. Among the 13 hospitals, 8 offered virtual as well as in-person visits, compared with only one that offered both visit types before the pandemic. All but one of the 13 hospitals offering in-person AAA visits in early 2022 reported having suspended AAA visits for some time because of COVID-19 (Table 2). Among the five out of 18 hospitals not offering in-person visits in early 2022, four had not resumed any AAA visits by the time of the survey because of COVID-19, and one offered virtual visits only; however, all

five reported planning to restart in-person visits. Of the 13 hospitals that provided in-person AAA visits at the time of the survey, all had written AAA policies that were developed, at least partially, with the hospitals' infection prevention/control programs (Table 3). All 13 programs incorporated dogs, and two also used miniature horses. Programs varied in how teams identified which patients to visit on a particular day.

Of the 13 hospitals providing in-person AAA in early 2022, only one reported lasting changes in their programs

TABLE 3. Characteristics of in-person animal-assisted activities (AAA) programs from January to March 2022 (n = 13 hospitals)

Characteristic	No. of hospitals (%)
Hospital has written AAA policy	
No	0 (0)
Yes	13 (100)
Groups that provide input when the policy is reviewed or modified ^{b,c}	
Infection prevention/control	13 (100)
Child life	9 (69)
Volunteer services	7 (54)
External organizations	1 (8)
Other ^d	6 (46)
Animal species that may visit with patients in person ^c	
Dogs	13 (100)
Miniature horses	2 (15)
Cats	0 (100)
Other ^e	0 (100)
Types of affiliated animals that may visit with the patient in person ^c	
Animals that are part of registered handler/animal teams	12 (92)
Staff members' animals	1 (8)
Facility animals	7 (54)
Other ^f	2 (15)
Process for notifying AAA teams which patients may receive an in-person AAA visit on a particular day ^c	
A list of patients who may receive a visit is provided	10 (78)
A list of patients who may not receive a visit is provided	2 (15)
No information about individual patients is provided	1 (8)
Other ^g	2 (15)

^aIncludes n = 8 hospitals with both in-person and virtual programs.

^bDenominator of percentages is hospitals with a written AAA policy (n = 13).

^cResponse options were not mutually exclusive.

^dFree-text responses included nursing, compliance, risk management, certified dog behavior specialist, and various administrative and oversight groups.

^eOther response options included cats, rabbits, hamsters, gerbils, mice, rats, nonhuman primates, hedgehogs, prairie dogs, llamas, alpacas, reptiles, and amphibians. Respondents could also select "other" and respond to free text.

^fFree-text responses indicated that hospital staff evaluated/approved handler/animal teams to participate in their AAA program.

^gFree-text responses included signage and collaboration with staff.

TABLE 4. Changes to in-person animal-assisted activities programs in response to the COVID-19 pandemic that had remained in place as of January to March 2022 (*n* = 13 hospitals)

Change	No. of hospitals (%)
More restrictive patient eligibility criteria	3 (23)
Additional training requirements for handler/animal teams	6 (46)
More restrictions on who can visit with the animal (e.g., staff, siblings, parents, people in the hall)	6 (46)
More restrictive animal eligibility criteria	0 (0)
Reduced the number of visits a handler/animal team may make in 1 day	2 (15)
Restricted handler/animal teams to fewer or no visits outside of the hospital program	1 (8)
Additional hand hygiene policies	0 (0)
Additional animal hygiene procedures	1 (8)
Reduced length of visits	1 (8)
Stopped group visits	9 (69)
Required patient and handler/animal team to be separated by a barrier (e.g., window, glass door)	0 (0)
Restricted permissible activities (e.g., no longer allowing the giving of treats, getting on the bed, licking)	4 (31)
Changed location of in-person visits	0 (0)
None of the above	1 (8)
Other	0 (0)

^aIncludes eight hospitals with both in-person and virtual programs.

because of COVID-19 (Table 4). The most common changes (i.e., made by about half to two-thirds of hospitals) were additional training requirements for animal/handler teams, more restrictions on who could visit with the animal, and stopping group visits. Several sites also reported more restrictive patient eligibility requirements, reducing the number of visits a handler/animal team could do in 1 day, restricting handler/animal visits outside the hospital, additional animal hygiene procedures, and/or reduced visit lengths. None of the hospitals reported making changes to animal eligibility criteria, hand hygiene requirements, visit locations, or requirements that a barrier separates patients and handlers.

Precautions against COVID-19 among the 13 hospitals with in-person AAA programs in early 2022 were common

(Table 5), especially requirements that handlers be vaccinated (*n* = 12), free of symptoms (*n* = 12), and wear masks (*n* = 13) and eye protection (*n* = 10) during the visit. Nearly all 13 hospitals required that patients be free of COVID-19 symptoms (*n* = 11). About half to two-thirds of hospitals also reported that patients must test negative before visits and wear masks during visits, that parents/guardians be present during the visit, that the handler is not close to someone with COVID-19, and that the animal is free of COVID-19 symptoms. It was uncommon for hospitals to require that age-eligible patients be fully vaccinated against COVID-19 (*n* = 1) or that patients and handlers remain physically distant during the visits (*n* = 2). None of the hospitals required that handlers test negative for COVID-19 or that the patient, handler, or animal have their temperature

TABLE 5. COVID-19-related precautions required for in-person animal-assisted activities visits from January to March 2022 (*n* = 13 hospitals)

Precaution	No, not required n (row %)	Yes, required n (row %)	Do not know n (%)
Age-eligible patients are fully vaccinated against COVID-19	11 (85)	1 (8)	1 (8)
Handlers are fully vaccinated against COVID-19	1 (8)	12 (92)	0 (0)
Patient tests negative for COVID-19 before the visit	6 (46)	6 (46)	1 (8)
Handler tests negative for COVID-19 before the visit	13 (100)	0 (0)	0 (0)
Patient has temperature checked before the visit	12 (92)	0 (0)	1 (8)
Handler has temperature checked before the visit	13 (100)	0 (0)	0 (0)
Animal has temperature checked before the visit	13 (100)	0 (0)	0 (0)
The patient is free of COVID-19 symptoms	2 (15)	11 (85)	0 (0)
Handler is free of COVID-19 symptoms	1 (8)	12 (92)	0 (0)
The animal is free of COVID-19 symptoms	4 (31)	9 (69)	0 (0)
Handler is not in close contact with someone with COVID-19	5 (38)	8 (62)	0 (0)
The patient wears a mask during the visit	6 (46)	7 (54)	0 (0)
Handler wears a mask during the visit	0 (0)	13 (100)	0 (0)
Handler wears eye protection (e.g., goggles, face shield) during the visit	3 (23)	10 (77)	0 (0)
The patient and handler are physically distant during the visit	11 (85)	2 (15)	0 (0)
Parents/guardians are present during the visit	7 (54)	6 (46)	0 (0)
Other ^a	10 (77)	3 (23)	0 (0)

^aFree-text responses described dog hygiene procedures, masking details, and recording visits in medical records.

TABLE 6. Pediatric patients eligible to receive in-person animal-assisted activities visits from January to March 2022 (n = 13 hospitals)

Pediatric patient population	No n (row %)	Yes n (row %)	Do not know n (%)
Inpatients	0 (0)	13 (100)	0 (0)
Outpatients	4 (31)	9 (69)	0 (0)
Patients in isolation with contact precautions	13 (100)	0 (0)	0 (0)
Patients in isolation with a droplet or other respiratory precautions	13 (100)	0 (0)	0 (0)
Patients not in isolation but with symptoms of acute infection	12 (92)	1 (8)	0 (0)
Oncology patients	2 (15)	11 (85)	0 (0)
Bone marrow transplant patients	7 (54)	6 (46)	0 (0)
Other immunocompromised patients	2 (15)	11 (85)	0 (0)
Critical care patients	2 (15)	11 (85)	0 (0)
Other ^a	6 (46)	6 (46)	1 (8)

^aFree-text responses included information about open wounds, the timing of visits in transplant patients, physician approvals, allergies, fear of dogs, and absolute neutrophil count in oncology patients.

checked before visits. None of the hospitals allowed patients in isolation with contact, droplet, or other respiratory precautions to receive AAA visits (Table 6). About half of hospitals did not permit AAA visits for bone marrow transplant patients. At most hospitals, pediatric oncology, critical care, and immunocompromised patients (other than bone marrow transplant patients) were eligible for AAA visits.

DISCUSSION

In this study, we found that the COVID-19 pandemic greatly impacted the delivery of AAA for pediatric hospital patients. Nearly all hospitals surveyed suspended (or stopped) in-person AAA visits and made lasting changes to their programs, including offering virtual visits and requiring COVID-19 precautions. There was considerable variation in how hospitals adapted their AAA programs to the COVID-19 pandemic.

The COVID-19 pandemic has had far-reaching consequences for hospitalized children. Care delivery has been difficult for providers, partly because of changes to visitation policies (Tedesco et al., 2021; Weaver et al., 2021). Although challenges around visitation from family have received attention (Bartlett et al., 2021; Hugelius et al., 2021; Virani et al., 2020), there has been little research on pandemic-related challenges in delivering ancillary supportive care programs or visits from volunteers. One study on this topic has focused on medical clowning (De Faveri & Roessler, 2021). Nearly all of the 40 European health care clowning organizations that responded to a survey reported postponing or canceling their activities, and half began offering digital activities. Another study examined patient-level associations of pandemic-related changes in music therapy on preoperative anxiety and reported that anxiety was higher in the absence of music therapy (Giordano et al., 2021).

At least one AAA program has reported on its adoption of virtual visits (Kong & Soon, 2022). However, to our knowledge, ours is the first study to survey hospitals on changes to their AAA programs during the pandemic. Our study has several important strengths, including a response percentage of 90% and detailed information about gaps in

services and lasting changes. A limitation of this study is that the survey results may not be generalizable to all pediatric hospital settings; the hospitals included in this survey were selected on the basis of their pediatric oncology program rankings. Nevertheless, the variation seen among this relatively small sample of hospitals likely reflects the broader phenomenon of hospitals' taking different approaches to managing the pandemic. Future research on the patient, family, provider, and animal handler perspectives on changes would complement findings from this study.

Conclusions

Our research suggests several important avenues for future study, including the effectiveness of virtual AAA visits and the effectiveness of precautions to prevent the transmission of COVID-19 between pediatric patients and the hospital volunteer AAA teams. Given the ongoing nature of the pandemic, such research will be important for designing safe and effective AAA programs in the future.

SUPPLEMENTARY MATERIALS

Supplementary material associated with this article can be found in the online version at <https://doi.org/10.1016/j.jpeds.2022.09.011>.

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