Barriers impacting organizational immunization policy implementation in U.S. and Canadian summer camps

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ABSTRACT

While immunization practice guidelines for children have been applied within primary schools, little research exists about how immunization practice guidelines are applied within summer camp settings and barriers to policy implementation within those settings. To identify perceived barriers to effective immunization policy implementation in summer camps, data were collected from a purposeful sample of 925 unique summer camp representatives using the CampDoc.com online electronic health record system. Fifty-nine percent (n = 541) of the sample completed an open-ended question about immunization policy barriers, including directors (38%, n = 205), nurses (26%, n = 140), other (20%, n = 106), office staff (13%, n = 73), and physicians (3%, n = 17). Inductive analyses and coder triangulation were used to develop themes. Constructed themes included a lack of parental support for vaccination, difficulties collecting and verifying immunization documentation, variable immunization policy guidelines, immunization exemptions, and organizational focus on financial outcomes. In addition, one-fifth of responding camps perceive no barriers. Camp administrators should work with pediatricians to implement clear and consistent immunization policies emphasizing parent education and informed by local and state guidelines.

Introduction

Among 20th-century public health initiatives, vaccination has been among the most impactful. Over a twenty-year period, immunizations prevented more than 21 million hospitalizations and 732,000 child deaths, with ($1.38 trillion in net savings from the direct and societal costs associated with prevented illnesses (Whitney, Zhou, Singleton, & Schuchat, 2014). Immunization practice guidelines for children have been developed and applied within formal institutions serving children such as primary schools (Kroger, Duchin, & Vázquez, 2017). However, little research exists on how immunization practice guidelines are being applied within non-formal pediatric settings such as
summer camps and the barriers to policy implementation within those settings (Schaffzin et al., 2007). Furthermore, while all states require students to receive specific vaccinations, child immunization exemptions due to child medical conditions and family religious beliefs may influence the effectiveness of organizational immunization practices (Bridger, 2018), particularly when vaccination gaps exist within the population of youth being served (National Conference of State Legislatures, 2020). Such gaps are exacerbated by public and parental resistance to vaccinations (i.e., see Dubé et al. [2016]; McNeil et al. [2019] discussion of vaccine hesitancy), and public health crises such as the COVID-19 pandemic, which has resulted in decreased rates of childhood immunizations (Santoli et al., 2020).

A recent national consensus study highlighted factors influencing child health outcomes during summertime (National Academies of Sciences, Engineering, and Medicine, 2019), and the degree to which summer camp providers implement immunization practices and policies has implications for child health outcomes during summertime. As part of a broader study examining immunization practices in U.S. summer camps in collaboration with the Association of Camp Nursing, the purpose of this study was to identify barriers associated with the implementation of immunization policies impacting youth within the context of U.S. and Canadian summer camps. The primary research question explored barriers to organizational immunization policy development within summer camps.

**Materials and methods**

**Participants and data collection**

Participants were recruited using purposeful sampling from a population of U.S. and Canadian camps using the CampDoc.com online camp electronic health record system, a proven strategy for engaging camp representatives in research examining health care policies and practices (Schellpfeffer et al., 2020). Out of 925 camp representatives who received the online questionnaire, 541 completed the open-ended question analyzed for this study (RR = 58.48%). The open-ended question was, “What are the biggest challenges/barriers your organization faces to developing vaccination policies or enforcing existing vaccination policies?” No individual identifying information was asked for or provided, and data were collected by CampDoc.com and sent to the authors in a de-identified format. The university institutional review boards reviewed and deemed our study exempt.

**Data analysis**

Demographic questions were analyzed using descriptive statistics. Responses to the open-ended question were evaluated using conventional content
analysis (Hsieh & Shannon, 2005) to identify salient codes (i.e., discrete portions of text representing one concept or idea) and relationships across codes to construct themes associated with the research questions (Maxwell, 2013). Similar open-ended text data analysis approaches have been used in studies of professional practices (Durant, Verhoef, Conway, & Sauve, 2001) and perceptions of vaccinations (McNeil et al., 2019).

Multiple coders first independently analyzed 20% of the open-ended text responses and then compared their initial set of codes to develop a final codebook, which was then applied to an analysis of all free text responses (Hruschka et al., 2004). Codes assigned to each free text response were then compared across coders to reach consensus. Finally, the coders developed themes based on relationships across the codes. Multiple coders allowed for investigator triangulation to reduce the possible influence of bias and to enhance the trustworthiness of the coders’ interpretations of the data (Creswell & Miller, 2000). The coders also paid attention to alternative perspectives in the data (Maxwell, 2013). One code, identified by less than 1% of the sample, was dropped from the analysis.

Results

Participants were directors (38%, n = 205), nurses (26%, n = 140), other (20%, n = 106), office staff (13%, n = 73), and physicians (3%, n = 17). Participants identified as “other” included administrators, admissions staff, owners, and medical directors. Camps represented in the sample were most likely to be independent not-for-profit (42%, n = 226), agency-affiliated (14%, n = 78), religiously affiliated (15%, n = 83), or independent for-profit (10%, n = 57). Camps were most likely to be located in the US, with a small number of Canadian camps from Ontario (1%, n = 5).

Seven themes were constructed from the data about barriers associated with the implementation of camp immunization policies. Table 1 presents the themes, frequencies/percentages reflecting the salience of the themes within the data, and representative exemplars that provide thematic evidence. Percentages are based on 634 unique responses received from 541 participants (some participants described more than one barrier). Each theme is described below.

Theme #1 described how incomplete documentation of child vaccinations reduces camp immunization policy effectiveness

This barrier, identified by 183 participants (29%), includes incomplete documentation, incorrect forms, and unavailable documentation; challenges associated with verifying the accuracy and completeness of submitted documentation (particularly for international campers and staff); and variability in state and local immunization requirements. The variability in these
Table 1. Emergent themes associated with barriers to child immunization policy adherence in U.S. and Canadian summer camps.

| Theme                                                                 | Frequency/ Percentage* | Representative Exemplars                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Theme #1: Incomplete and inaccurate documentation of child vaccinations reduces camp immunization policy effectiveness. | 183 (29%)              | “Vaccine data collection, identifying missing required vaccines and communicating with parents has been by far the most time consuming and frustrating health-related issue we’ve dealt with over the past several years. We require certain vaccines in order for students to attend and enforcing that is a huge effort.” “Enforcing is difficult. We work with a rural population and getting information is difficult.” |
| Theme #2: Parental opposition to camp immunization policies weakens camp immunization policy compliance.            | 131 (21%)              | “Angry parents who don’t support or agree with the policy” “Changes to policies from previous year are not easily accepted by parents. Also, not allowing religious exemptions, particularly in terms of measles.” |
| Theme #3: No concerns associated with implementing camp immunization policies.                                       | 124 (19%)              | “We require all participants to be fully immunized.” “We have no barriers. It’s state law in CT that all children must be vaccinated to attend camp.” “We have immunocompromised patients who can’t always receive vaccines. We require vaccines for all immunocompetent patients.” “The majority of our participants have a disability or health concern and some cannot be immunized.” |
| Theme #4: Medical-related exemptions and child health conditions create gaps in camp immunization policy effectiveness. | 71 (11%)               | “Our program’s largest barrier regards international students and their lack of access to required vaccines.” “Proof for out of state or international campers” |
| Theme #5: Global diversity of summer camp youth and staff makes the collection and verification of international immunization records challenging to comply with camp policy. | 49 (8%)                | “We do not currently have an existing vaccination policy. We would run into pushback from camps/departments who don’t wish to add yet another policy with which to comply.” “I’m not aware of the camp policies for immunizations.” |
| Theme #6: Camp organizations lack, or are not aware of, immunization policies.                                      | 49 (8%)                | “Balancing protecting campers vs losing campers because parents won’t comply.” “Enrollment takes priority over almost anything else so if people disenroll because of vaccine policies, then I have bigger issues …” |
| Theme #7: Administrators’ focus on protecting organizational financial and mission goals reduces camp immunization policy adherence. | 27 (4%)                | “” |

* Percentages based on 634 unique responses received from 541 participants (some participants described more than one barrier).

requirements and the resulting documentation poses significant challenges to camps that may lack the resources to monitor compliance with immunization policies, despite policy enforcement intentions.

**Theme #2 reflected how parental opposition to camp immunization policies weakens camp immunization policy compliance**

This barrier, identified by 131 participants (21%) includes parents unsupportive of camp immunization policies because they lack vaccination information, disagree with vaccination science, or perceive vaccinations as contrary to their
religious or philosophical beliefs. There is concern that parents and other members of the public may have an adverse reaction to mandatory vaccine policies or may feel that vaccine requirements infringe on parental autonomy.

**Theme #3 represented camps that had no concerns associated with implementing camp immunization policies**

Close to one-fifth (19%, 124) of the sample perceived no barriers to implementing their immunization policies, which most often meant that the respondent’s camp was following (or deferring to) their state or local school district policies or their camp was in a state without exemptions (e.g., California). For a smaller portion of camps, the reason they experienced no barriers was less clear, as they did not elaborate beyond stating that their organization had not faced issues with developing or enforcing their vaccination policy.

**Theme #4 described medical-related exemptions that create gaps in camp immunization policy effectiveness**

Child health conditions and diagnoses were represented in this barrier, identified by 71 participants (11%). This barrier reflected gaps created when medical exemptions were necessary to accommodate the needs of immunocompromised children, but those same exemptions also reduce the effectiveness/comprehensiveness of camp immunization policies. This barrier was most prevalent in states with medical exemption policies and at camps specifically serving immunocompromised campers.

**Theme #5 represented how the global diversity of youth and impedes the collection of immunization documentation to comply with camp policy**

This barrier was identified by 49 participants (8%), reflecting the camp community’s globalization as camps increasingly use international strategies to recruit new staff and attract camper families. Because of the international status of many of their campers and staff, participants described how it was often difficult to collect documentation of immunization and how it was challenging to translate the immunization documentation, which created another gap in policy compliance. Staff-related challenges also extended to local staff of diverse backgrounds or older staff and volunteers who may not have access to their vaccine history.
Theme #6 represented organizations that lack, or are not aware of, immunization policies

This barrier, identified by 49 respondents (8%), suggested that some organizations had not established immunization policies or that the representatives completing the survey were not aware of their organization’s policies.

Theme #7 indicated that the administrator focus on protecting organizational financial and mission goals reduces camp immunization policy adherence

This theme, evident in 27 responses (4%), reflected how some administrators preferred to have a child participating in camp, either for revenue or to benefit the child’s development, even if they did not have vaccination documentation or in some other way were not following the camp’s immunization policy. This represents the delicate balance associated with vaccine policies, and how administrators may not be motivated to initiate change that could prove difficult to enforce.

Discussion

This study examined barriers associated with the implementation of immunization policies impacting youth within the context of summer camp. Summer camps are an important setting for examining barriers to immunization policy adherence, as summer camps can serve as vectors for infectious disease outbreaks, and organizational practices for mitigating outbreaks have implications for other youth and community settings when summertime ends (Blaisdell, Cohn, Pavell, Rubin, & Vergales, 2020; Copeland et al., 2010). Our study findings indicate that factors impacting immunization policy compliance in camps include stakeholder and administrator opposition, inability to obtain accurate and complete documentation, medical exemptions, increasing globalization within the camp community, financial and mission outcome protection, lack of policies and policy awareness. These themes are consistent with findings from prior studies, for example, the salience of parental opposition to vaccination (Dubé et al., 2016; McNeil et al., 2019), concerns associated with exclusion policies and their impact on the camp population (Bridger, 2018), and lack of immunization policies among camp providers. Further, these findings suggest the need for multi-dimensional decision-making frameworks to inform vaccine policy implementation (see Perman et al. [2017]; Skea, Entwistle, Watt, & Russell [2008]).

However, this was the first study to identify that immunization compliance in camps is influenced by administrators’ desire to achieve financial or youth development goals. While these administrator views may be better for the
organization’s financial stability and support camps’ mission to contribute to the positive development of youth, a failure to ensure that all members of the camp community are properly vaccinated may sacrifice public health. This finding highlights calls for camps to regularly review their immunization policies (Bridger, 2018) and educate employees about the policies (Yoder, 2015).

Camp industry standards require camps to collect immunization information (i.e., signed health history) for youth participants (American Camp Association, 2019). These standards, for example, direct camp administrators to obtain “a statement from the custodial parent/guardian attesting that all immunizations required for school are up to date and including the actual date (month/year) of last tetanus shot” (American Camp Association, 2019, p. 20). However, this study highlights the difficulty camps face in acquiring complete and accurate immunization information, a challenge intensified by stakeholder resistance to vaccinations, medical and philosophical exemptions, and globalization within the camp community. While nearly one-fifth of the sample did not note barriers associated with vaccine policy implementation in camp, this was not solely due to vaccine compliance. Many camps followed state or local school policies, and therefore did not experience issues with immunization policy implementation, as almost all campers were appropriately vaccinated per school or state requirements. However, some camps were less clear on the parameters of their vaccine policies, and therefore it is unclear how comprehensive those policies truly are. This suggests that stronger immunization policies across the camp industry may play a critical role in improving vaccination compliance. Recognizing that negative information parents access (often online through social media) and their lack of knowledge about vaccines are the major contributing factors impacting parental resistance to vaccinations (Dubé et al., 2016), camp administrators need to be prepared to respond to parent refusal to comply with immunization policies. Furthermore, with 15 U.S. states allowing for philosophical exemptions for parents who object to immunizations due to personal, moral, or religious beliefs (National Conference of State Legislatures, 2020), the need for camps to be prepared to respond to exemption requests is also critical. Recent policy guidelines stress that “nonmedical exemptions to required immunizations are inappropriate, and camps should eliminate these exemptions. Participation by campers and staff who are incompletely immunized or unimmunized because of nonmedical exemptions is inappropriate for individual, public health, and ethical reasons” (Ambrose & Walton, 2019, p. 3).

Most importantly, camp leadership needs to work closely with pediatricians to educate parents about vaccinations and the importance of adherence to organizational immunization policies, as parental trust in vaccinations is associated with their trust in their health-care professionals (Leask et al., 2012). Researchers have called for greater year-round communication across
camp administrators and health-care providers, parents, and community stakeholders (i.e., community health-care providers, teachers, and mental health professionals) using a transition of care communication model to facilitate positive youth outcomes across the calendar year (Garst, Erceg, Weinberg, & Faricy, in press). Communicating with parents about the importance of following child vaccination schedules and complying with camp immunization policies could be integrated into this transition of care communication process. Such an approach would be centered on persuasion through education, which Weithorn and Reiss (2018) identify as the least coercive, relying instead on “information, logic, and reason to empower an individual to make wise choices” (p. 1615). Improved transition of care communication, particularly when coupled with the use of electronic health records, may improve the accuracy and completeness of immunization documentation.

This study was one of the first known studies to examine barriers to immunization policy implementation across a large sample of summer camps. This investigation is particularly timely given the onset of COVID-19, and the potential reliance on a vaccine to mitigate disease spread. Once a vaccine is developed, mass-produced, and distributed into communities, youth-serving organizations including summer camps will need to update their immunization policies accordingly, including communicating immunization expectations to the families they serve. This study suggests several challenges encountered in that process to inform organizational and community strategic planning. Implementation science frameworks (see Emmons & Colditz, 2017; Krishnan, Madsen, Porterfield, & Varghese, 2013) may be useful for identifying barriers to immunization policy implementation within these contexts. As noted by Krishnan et al. (2013), “implementation research focuses on understanding the processes and factors that are associated with the successful integration of evidence-based practices in a particular setting … and on evaluating the effects of any adaptations of the practices that are needed in that setting” (p. 2).

Implications for Practice

The following practical implications are suggested by the study findings. First, child health advocates must ensure that the adoption of immunization policies in summer camps remains a national public health priority. With pediatric immunization rates decreasing nationally during the COVID-19 pandemic, there is an urgent need to mitigate future vaccine-preventable infectious outbreaks, including among international campers and staff. Further, national organizations need to work together to address the substantial lack of vaccine policies/awareness in the camp community. Past collaborations support the feasibility of such a coordinated effort to improve health outcomes for camp
participants. For example, from 2005 to 2010, national associations representing the camp industry (e.g., American Camp Association, Association of Camp Nursing) collaborated on a five-year study to benchmark youth and staff injury and illness rates within camp settings and disseminate health-promotion strategies in camps (Garst, Erceg, & Walton, 2013). Such collaboration sheds light on communication and coordination processes national organizations could use to address vaccine policy awareness in camps.

Second, given the recent COVID-19 pandemic (which forced many camps to close or scale back operations), camp ownership may have a substantial financial incentive to adopt robust vaccine policies. Camps will also need to consider how to incorporate the soon to be available COVID-19 vaccine into their current vaccine policies. This may represent an opportunity for public health and policy experts to work with summer camps to uniformly align their summer camp policies with the national immunization recommendations (e.g., American Academy of Pediatrics Policy Statement – Improving Health and Safety at Camp [Ambrose & Walton, 2019]) that calls for immunizations for all staff and campers to be in compliance with childhood immunizations and clearly states that non-medical exemptions are inappropriate. Indeed, recent research suggests many camps do not have communicable disease response plans, so the need for camps to align their policies with national health guidelines is critical (Authors, 2020).

Third, stakeholders must advocate for adoption of strong statewide immunization policies requiring documentation of camper’s immunizations – which would lead to standardization of immunization forms for camps. State requirements or state incentives could be used to further incentivize summer camps to invest in electronic health records systems that can expedite/facilitate/standardize immunization documentation. The previously mentioned call for a transition of care communication process to support child health outcomes across home, community, and camp settings could include the use of electronic health record systems (Garst et al., in press).

Fourth, early and frequent immunization education is essential for campers and staff functioning in a community-based setting such as camp, where the risk for transmitting illness is greater than in other youth settings. This education strategy is a communicable disease prevention opportunity to encourage individuals to arrive at camp in a healthy state and provide appropriate herd immunity and protection for others. Further, such educational opportunities need to be extended to parents and other caregivers as a continued effort to address parental resistance to vaccination. The current camp environment, greatly shaped by the onset of the COVID-19 pandemic, may be particularly conducive to positively shaping parental perceptions of the importance of having their child vaccinated as well as following camp immunization policies.
Fifth, camp providers have a unique responsibility to demonstrate concern for the broader community while managing the individual health needs of camp participants. Camps can reinforce the importance of individuals caring for one another within their community by being fully immunized and promoting a healthy camp experience. With community members that include immunocompromised youth and adults, such consideration is particularly important to protect vulnerable, medically fragile populations. This concern for the broader community must extend to international campers and staff as well. There are unique challenges associated with variations in immunization requirements and documentation in different countries which will require creative solutions and additional planning. For international staff in particular, vaccine documentation should be considered an essential employment document, in the same manner a visa is considered essential.

A few study limitations are acknowledged. One, self-reported responses like those analyzed for this study are susceptible to bias. Two, as noted by McNeil et al. (2019), the use of open-ended text responses did not allow the research team to probe participant responses to better understand their perspectives of immunization policy implementation barriers. Future studies that allow for such probes may provide additional information about this topic. Three, while this study involved a large sample of camp health-care professionals representing diverse camps, the purposeful sampling approach limits the generalizability of the study findings. Future comparisons of the barriers identified in this study with barriers experienced by camps in a wider geographic region or within the context of other summertime programs may be useful. Future studies may also examine the impact of the COVID-19 pandemic on the likelihood of camp organizations developing more stringent immunization policies and parental compliance with immunization policies.

Camp leadership faces numerous obstacles when implementing camp immunization policies, primarily lack of parental support for vaccination, difficulties associated with collecting and verifying documentation of immunization, variability associated with policy guidelines, and immunization exemptions. Camp organizations should work with pediatricians to develop and implement clear and consistent camp immunization policies, guided by local and state policies according to American Academy of Pediatrics and Canadian Pediatric Society recommendations. Parent education will play a key role in garnering support for immunization policies that allow for consistent implementation across various youth-serving contexts.

**Disclosure statement**

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