

A qualitative interview study of stakeholder use of Vaxcards in schools

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ABSTRACT

Background

There are few age-appropriate tools to address vaccine hesitancy among young people. Therefore, we conducted a pragmatic, randomised controlled trial of Vaxcards, a collectable card game, to incentivise the return of consent forms for vaccination and educate young people about vaccination. This paper describes stakeholder experiences and reflections using Vaxcards within the trial as part of a routine school vaccination program for year seven students in 2019.

Methods

Descriptive, qualitative interviews were undertaken with stakeholders from six schools participating in the intervention arm of the trial. Interviews were audio-recorded, transcribed verbatim and analysed for emerging themes.

Results

Stakeholders described positive experiences using Vaxcards as a tool to support vaccine consent procedures and deliver vaccine education, although some perceived it as being more useful for younger adolescents and those attending mainstream schools. Stakeholders reported that Vaxcards generated conversations around vaccine importance and safety and could be further incorporated into the health curriculum. The intervention was not perceived as burdensome although, some schools faced challenges adhering to the study protocol and competing demands challenged completion of all study elements.

Discussion

A pragmatic understanding of how Vaxcards were used and perceived within schools during the trial provides critical insights to support future studies and scale-up of the intervention. Stakeholders supported the use of Vaxcards in schools, believed it to be a viable tool to support education about vaccines in conjunction with the vaccination program. In addition, alignment with government vaccine materials and incorporation into school curriculum could further enhance Vaxcards to support the vaccination of adolescents in school settings.

BACKGROUND

Adolescents, who receive vaccinations in Australian secondary schools, are considerably vaccine-hesitant (Epstein et al., 2021). Earlier work from our group found that 67% of students considered vaccines adequate, 70% considered vaccines safe, while just 79% considered them important (Epstein et al., 2021).

Vaccine confidence is a barrier to vaccination in Australia (Salmon et al., 2006; Telebriefing, 2013) but the challenge of seeking and gaining consent from caregivers is another primary concern in school-based vaccination programs. For example, vaccination of eligible children within schools in Australia requires the distribution and return of a consent form from caregivers in order for children to participate in vaccination programmes at

their schools. Therefore, the return of consent cards is a limiting factor in the timely delivery of vaccines in this age group (Rockliffe et al., 2018).

Games as a tool

Games – activities that one engages in for amusement or fun – have an inherent ability to elicit our interest, engagement and motivation more so than static educational material without implicit rules, objectives and pursuits (Deater-Deckard et al., 2013). Games can leverage the underlying psychology of rewards, social norms, mastery, autonomy, and the pursuit of meaning to achieve desired choices and behaviours (Boyle et al., 2011; Gobet et al., 2004). Gamification describes the purposeful design and application of game-like elements into non-game environments. Although a broad term, the core principle is taking design elements from games or play to influence choices and behaviour (King et al., 2013). For a game to capture one's attention and change behaviour, it must be carefully designed with a clear goal and consider numerous approaches through multiple lenses (Schell, 2008). Without a thoughtful design process, gamifying something can render it ineffective or annoying, potentially deterring the desired behaviour or promoting undesired outcomes such as cheating or stealing, and in extreme cases being dangerous or unethical (Takahashi, 2004; Zagal et al., 2013). Collectables and gamification are essential educational tools to help children engage with learning, generate discussion, and provide an incentive to engage with the content being delivered (Kiryakova et al., 2014). This medium of education increases motivation and engagement (Kiryakova et al., 2014). Theoretically, when applied to the delivery of vaccine education, one might expect this to impact confidence towards vaccination.

Tabletop, card and physical games.

In modern times, physical, card and tabletop games may be considered unsophisticated or outdated and are often overlooked when gamification interventions are considered in favour of contemporary alternatives such as digital or video-based products. However, since tabletop games are cheaper to produce and arguably easier to design whilst promoting an inclusive and social aspect to the gaming experience, they remain a viable

alternative for gamification for health behaviour change interventions (Xu et al., 2011).

To address these two issues, we conducted a trial to test the use of Vaxcards as an ethical, non-monetary incentive to support school vaccination programmes for secondary school students.



Image 1: Example of Vaxcards game cards

The trial's objective was to determine if the return of consent form for vaccination improved when the card game was offered as an incentive. Seven schools within a single local government area in Victoria were randomised to receive the gaming cards to distribute to students upon returning their vaccine consent form.

The staff member responsible for the vaccination program coordination at each school coordinated the intervention within the school. This role varied by school and included staff whose primary roles included school nurse, year level coordinator, Vice Principal, Principal, student wellbeing officer or health subject teacher. It is well known that local champions within organisations provide momentum for interventions in schools. (Bartlett et al., 2017; Epstein et al., 2021b). Therefore, these staff members were considered critical stakeholders for using the tool and justify their selection for an interview as a stakeholder.

After the trial was completed, we invited school representatives to participate in a brief qualitative interview to describe their experience using

Vaxcards in their school and viability for use in future immunisation activities. In addition, we wanted to understand the overall sentiment towards Vaxcards and ways the cards could be utilised in future studies to support vaccination in school settings.

METHODS

Stakeholders in schools participating in the experimental arm of the trial were recruited to participate in a short, descriptive qualitative interview study. We took a pragmatic approach (Teddlie & Tashakkori, 2009) to the study's design and conduct, which aimed to collect reflections from stakeholders on the intervention, barriers and opportunities on the use of Vaxcards in school settings for future trials. The rationale for selecting a qualitative descriptive design is the importance of gaining insights into a poorly understood or exploratory phenomenon (Kim et al., 2017). Short, qualitative interviews were held with participants and ranged in length from 3-6 minutes. The interviews were conducted by MS, a research assistant, under the supervision of lead author DE and experienced qualitative researcher CB. This author was not involved in the initial trial but had experience conducting qualitative interviews with key stakeholders in health promotion and policy settings.

Recruitment and Data Collection

All schools that participated in the experimental arm of the trial received an invitation to participate in interviews. Eight responses were received, and six participants were available for interview during the data collection period.

A semi-structured interview schedule was used to guide the interviews. Interviews were conducted by phone in February 2020, before the introduction of COVID-19 health measures. The interview sought insights into stakeholders' overall expectations, understandings of the practicalities, feasibility and barriers of implementing Vaxcards during the trial, any challenges encountered, and how the cards might be used in future vaccination programs. In addition, during the trial, the lead author kept a reflective research journal that included detailed field notes and

reflections on interactions with stakeholders and issues that arose during the pragmatic trial, including deviations from the study protocol. This was documented in the field notes of DE. For example, when collecting the trial survey responses, one school had used the Vaxcards, not as a reward for returning the consent cards but handed out all of them at the start.

All interviews were digitally recorded and transcribed verbatim shortly after completion of the interview by the interviewer and reviewed by the authors. Participants were provided with the opportunity to make corrections or expand upon discussion within the transcripts, but the study team received no corrections or further information.

The audio was listened to, and transcripts were read and re-read by all study authors. The lead author used QSR NVivo for data management and to support the coding of the transcripts. First, inductive, descriptive analysis of the transcripts was undertaken following the approach described by Minichello (2008). First, transcripts were read and re-read, developing a list of codes, and then condensed into themes. Next, coding was developed by the lead author and discussed critically between the study team until a final coding structure, and a description of themes was finalised.

The trial was registered with the Australian Clinical Trials Register (ACTRN12618001753246) and granted ethics approval from Monash University Human Research Ethics Committee and Victoria's Department of Education.

RESULTS

All stakeholders interviewed were designated as their school vaccine program coordinator or directly involved in distributing and collecting vaccination consent forms and organising school vaccination logistics. Regarding the characteristics of the participants interviewed, most were women (60%). All worked in schools in the regional Local Government Area of Casey on the outskirts of metropolitan Melbourne, in a fast-growing local government area with a high level of sociocultural heterogeneity and a large migrant community. Details of the schools involved and outcomes

of the pragmatic trial have been published previously (Epstein et al., 2021; Epstein et al., 2021b).

Name	Description
Positive sentiment as a tool	
Collection mechanic at work	Use of Vaxcards as an incentive at work for vaccine consent form collection
Positive sentiment as a learning tool	Vaxcards are used effectively in the classroom to discuss the topic of vaccination
Student active engagement	Classroom or playground engagement in-game
Timing and familiarity recommendations	
Local processes issues	Requests to receive cards alongside other council forms
Timing difference	Request to receive cards earlier
Unfamiliarity	Request to receive more information with cards
Viable and non-burdensome	
The low burden on school	Mostly seen as a low burden for stakeholders
Curriculum fit	Seen as a positive addition to health and science learning
Future viability positive sentiment	Stakeholders overwhelmingly felt Vaxcards a viable tool

Table 1: Description of nodes and emerging themes

Overall, Vaxcards in this setting was seen as a positive tool that could encourage student participation in vaccination discussions with teachers and each other. In addition, the introduction of the cards could provide a trigger for teachers to talk about vaccination and the importance of returning the consent form for future vaccinations.

“It was cool to see them [students] playing with them or using them [Vaxcards]. After they received their vaccination, they had to sit for 15 minutes, and because we got an extra Vaxcard, I think it was the HPV one we were giving them [Vaxcards] out after they had their vaccination. It was cool to see the kids sitting there, and they would carry the other ones on them and be like discussing them and playing with them [Vaxcards]. Cool stuff.” - P3

“The teachers (and) I had a really positive response ... they [students] thought it was really fantastic, and they [students] were able to start the conversation in their health classes.”-P3

In the context of this trial, the cards were intended to be used as an incentive to encourage children to return the consent form for vaccination. However, there were mixed expectations about this, which was driven by the characteristics of families attending the school. For example, one school that had a high proportion of families with intellectual disabilities did not expect the cards would be as helpful in this context, while others had populations with high vaccine hesitancy for whom teachers felt the students would “get more of an idea of those vaccinations from the cards which would help them”. -P4

“I think it is a good idea, but I think by year 7’s, there will be kids that probably are not immunised, and that is parents’ choices. Not much we can do with that. I think they are a good learning tool [Vaxcards] if they are used correctly.” =P1

“Well, I knew that probably parents would not participate in this study. I was not expecting great replies from it.... they probably would have been [better] for a mainstream school but probably not for ours”=P5

Some schools had a sense that there was a quicker return of consent forms, although the cards were perceived as probably being at the upper end of the age range for this type of intervention. They described that

several students were interested in card swap games. However, others had no interest in this type of game.

“I did not have a lot of expectations, but I suppose I hoped that they would encourage our students to return their immunisation cards.”-P3

“We found that we did get a quicker return rate of the cards [consent forms] because the students knew they were getting something when they returned them [Vaxcards], even if they were not getting their immunisation. Whereas quite often, if they were not getting their immunisation, we would not get the cards [consent forms] back.”-P3

Viability for use in school settings

Stakeholders felt that the provision of Vaxcards did not add undue burden to the processes for vaccination within each school, and overall, this was a viable tool that could continue to be used to support consent card returns and vaccine discussions. However, it was not suited to all school settings.

There were requests to have the cards given to the school earlier in the school year and vaccine materials from the council for distribution to students and use in classroom activities. It was suggested that incorporating Vaxcards into Health, PE, or Science curriculum could add value to these areas.

“We received them [Vaxcards] too late. They should have gone out with our [consent form] cards, but our immunisation [consent form] cards had already gone out. I think if we had the Vaxcards earlier and the information for the parents, it might have been a bit better.”-P6

“...it would be great to be able to have that as part of their curriculum [PE/ Health] that they offer the students. And because they tend to design the curriculum the year beforehand, it is something that needs to be out early. Even I suppose, in the science department as well because it sort of aligns in with that.” -P3

DISCUSSION

Testing a complex intervention in a pragmatic, real-world setting requires investigation and understanding of insights from stakeholders. With inquiry, it can be more fully understood, improved and identify key flexion

points in successful delivery and implementation of the intervention. In this pragmatic trial of Vaxcards, stakeholders showed interest in the tool, ease of use and positive sentiment from the school stakeholders and, more importantly, interactions with the children who received Vaxcards. The utility of this intervention as both an incentive (reward) and educational tool that can be incorporated into vaccination processes within schools with little additional burden provides an initial indicator of the viability of Vaxcards for use in the school setting. However, additional research is needed to maximise the usefulness and effectiveness of this intervention.

Some schools entered the study with low expectations, based on the characteristics of students at the school, such as special needs students and those high perceived vaccine hesitancy amongst families. However, the complexity of gameplay can be adjusted based on literacy and numeracy skills or the age of the participants. In addition, it could be argued from an ethical point of view that students with learning difficulties should be exposed to these concepts as part of their learning about health, and Vaxcards may assist this.

The statistical analysis of trial data did not identify quantitative improvements between the control and experimental groups in return for consent forms (Epstein et al., 2021; Epstein et al., 2021b). However, the qualitative experience from the stakeholders interviewed provides clues as to how the future use of Vaxcards can be modified to increase the efficacy of this intervention.

The intervention study had two components; the collection mechanic to incentivise return of vaccine consent cards and the educational component of the cards and gameplay to stimulate discussion about vaccine-preventable diseases and how immunisation protects against them. The timing and intensity of the intervention had limitations. Further trials of Vaxcards might be multimodal in their approach, integrating with health curriculum and aligning better with the timing of council and school programs. The timing of the intervention was in part constrained by council timelines and differences between schools in processes and timelines. Competing demands within schools was a further challenge to the completion of the study by protocol.

The qualitative interviews provide critical insights into the use of Vaxcards in a school setting within the context of a trial, albeit a pragmatic trial. Interviews and data collected were brief so as not to burden busy stakeholders and risk withdrawal from the trial. The interviews were conducted several months after completion of the trial, and stakeholders had differing degrees of involvement in vaccination programs within the school and, indeed, in their interactions with the study team throughout the trial. Furthermore, the interviews were conducted at a challenging time of the school year, which impacted the availability of stakeholders to participate in these interviews. Finally, interviews were conducted by a research assistant not involved in the initial trial, which may have led to some loss of context. However, this provided advantages in achieving a more independent appraisal of the challenges encountered during the trial.

CONCLUSION

Overall, stakeholders perceived the Vaxcards trial positively, although they concede that it may not be suitable in all school settings. The findings do not tell us a great deal about Vaxcards as an incentive. However, we are encouraged about the ability of Vaxcards to support conversations about vaccine-preventable disease and immunisation in the classroom. The distribution of Vaxcards in this context was not seen as a burden. However, earlier provision of the cards and integration into other curriculum areas are strategies that should be explored in future trials.

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