CAJA

Increasing Uptake of Adolescent Immunisations

Project Report V1.2

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Durham County Council

PUBLIC HEALTH SOUTH TEES

HARTLEPOOL BOROUGH COUNCIL

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Executive Summary

Project Overview

Context

Concerns about declining adolescent vaccine coverage and widening health inequalities, have made it a public health priority in the North East. Analysis and behavioural insights identified that returning consent forms is one of the biggest barriers to raising levels of coverage. A successful proof of concept exercise in one Middlesbrough school led to the trial's expansion across four local authorities. As a result of a change in Schools Adolescent Immunisation Service (SAIS) provider who had a new process the initial solution required adaptation.

Findings

- **Behavioural science-informed communications, both in content and timing, consistently worked to nudged more parents to return consent forms. This was executed with the same effort as the standard SAIS process and with no additional expenditure .**
- Ensuring schools used both email and text messaging as channels resulted in positive improvements in the number of consents returned compared to text only.
- Heads Teachers buy-in and a well briefed, engaged immunisation co-ordinators improves consent rates. The more consistently the execution followed the designed process the greater the results.
- Despite this positive outcome, adapting the communications to align with the new SAIS process resulted in lower uptake, year on year, from the initial pilot school. We believe that one key contributing factor to this drop-off is that schools do not have access to their own return rate information. This meant that;
  (i) Communications could no longer be targeted. This has the effect of no longer making the message personal to the parent, distancing its relevance to them, and as a consequence, reducing the power to encourage the parent to act. Use of blanket reminder messages risks disengaging initially co-operative parents. They may feel frustrated and if asked to give consent for another vaccination, for this adolescent or a sibling, postpone giving consent knowing that reminders are coming.
  (ii) *Inability to utilise social norms as powerfully;* We are all strongly influenced and minded to act when we see lots of others doing something. This effect is optimised when we are able to make it relevant and specific by giving figures; "Most parents" does not have the same impact as "88% of our parents".
  A second key factor is the duration and timing of the consent window. Having an extended consent window, which opens early but closes a week before the session works against people's natural tendency to prioritise action when there is some time pressure, "I must do that now" vs "That can wait".

Recommendations

- To instantly, efficiently improve uptake, with no loss of choice, lobby NHS-E for a process change; making adolescent vaccinations an opt-out process removes a barrier to higher levels of coverage and reflects the majority of parents/carers wishes.
- To increase the current opt-in consent returns the communications trialled, content and timing, should be further scaled up across these four local authorities.
- Utilising Headteachers and Public Health Directors as the sole messengers, leveraging their positions of authority and trust, to aid parents' willingness to accept and act on the content of the communications.
- Making the consent window shorter and aligning the closure of the e-consent portal. Awareness and notification of session dates should be a ongoing.
- Enhance the roles of Public Health and the SAIS in building Head Teacher and Immunisation Co-ordinators understanding and engagement.
- Provide schools with return rate information and give School Immunisation Co-ordinators training and guidance to prevent any unintended consequences in utilisation.

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Increasing Uptake of Adolescent Immunisations – Project Report

Background

Project Purpose

Following recent success in developing a behavioural science approach to increase uptake of Td-IPV, MenACWY, and HPV vaccinations by up to 24% at Macmillan Academy in Middlesbrough, Caja was approached by Public Health South Tees, Hartlepool Borough Council, and Durham County Council to commence a collaborative project to scale up the approach trialled at Macmillan across four local authority areas: Middlesbrough, Redcar & Cleveland, Hartlepool, and Durham.

Adolescent vaccination is seen as a Public Health priority in the North East, with concerns about declining adolescent vaccine coverage and widening health inequalities post-COVID-19 being shared across the four named localities. Additionally, a change in the School Age Immunisation Service (SAIS) commissioned in each area highlighted the need for further testing of the Caja approach and closer alignment to the new local processes.

Publicly available data for 2021-22 highlights why there is a need for intervention to increase uptake of Td-IPV, MenACWY, and HPV across the North East:

- **Td-IPV:** Uptake is for the North East is below the UK average for Y9 students (64.1%) and whilst it is marginally above for Y10 students (79.8%), it is significantly below the 95% national target.
- **MenACWY:** Uptake is for the North East is below the UK average for Y9 students (64%) and whilst it is marginally above for Y10 students (80%), it is significantly below the 95% national target.
- **HPV:** Uptake is for the North East is below the UK average for Y8 females (70.5%) and males (64.1%) whilst it is marginally above for Y9 females (79.6%) and males (73.1%), it is significantly below the 95% national target for both cohorts.

The evidence provided implies that whilst catch-up activities seem to be reasonably impactful in the region, initial uptake rates require improvement across the board. Given this, Caja proceeded to lead on the development of a behavioural science approach to increase uptake of all vaccines available through the routine programme, rather than placing an additional emphasis on any one immunisation.

During project delivery, there was also the introduction of seasonal influenza immunisation for all secondary school students. This was incorporated into the trial as an opportunity to pilot the interaction between the Caja approach and the processes of the new SAIS.

Research

Primary Research

- To inform the development of our interventions, Caja conducted insights research with key adolescent immunisation stakeholders. The majority of this insights work was completed as part of the initial phase of work focussed in Middlesbrough with Macmillan Academy.
- During the initial phase of the project, interviews and focus groups were conducted with staff, students, and local SAIS, NHS-E, and Council representatives to identify barriers to uptake.
- Some additional insights were collected to assess for the applicability of the Macmillan approach to other localities. These additional activities included:
  - Proof of concept interviews with staff members at identified schools. Our priorities were to connect with the Head Teacher and the Immunisation co-ordinator to ensure that they were comfortable with the insights and messaging.
  - Review of an HPV vaccination survey conducted by the North East & North Cumbria Integrated Care Board.
  - Feedback interviews with Macmillan project stakeholders.
  - Onboarding on new SAIS representatives to the project steering board to collect their input on the proposed process and materials.
- Key Lines of Enquiry (KLOEs) for research activity with staff and students can be found at Appendix A and B and were designed to elicit responses that highlight conscious and unconscious barriers to vaccination uptake across the three elements of the COM-B Model of Behaviour (Capability, Opportunity, and Motivation; Michie et al., 2011).

Research

Literature Review

Our approach to developing interventions was also informed by a review of available literature investigating the impact of behavioural interventions to increase vaccine uptake. Across the numerous research articles and meta-analyses (references to which are provided at the end of this report) that were reviewed, the following key considerations for influencing choice in this context were identified:

- Provide clinical recommendations in support of vaccinations.
- Highlight the benefits of vaccinating your child on others in the community.
- Provide only basic and necessary facts.
- Position vaccinations as a default behaviour.
- Make use of loss aversion and negative framing to highlight the risks of non-vaccination.
- Make use of positive framing when highlighting vaccine efficacy.
- Highlight social norms around vaccination.
- Use well timed reminders to prompt action.
- Increase the sense of self-efficacy felt by parents; switching from receipt when booking appointments in research to completion of the consent process.
- Encourage parents to actively state their intentions to bring their child forward.
- Create a sense of ownership around each vaccination.
- Account for the tendency for people to undervalue benefits that aren't immediately realised (temporal discounting).

Our approach was also directly informed by the Behavioural and Social Drivers (BeSD) Framework for increasing vaccination uptake (Brewer et al., 2017), which identifies four domains that relate to vaccine uptake: Thinking and Feeling, Social Processes, Motivation, and Practical Issues. We aimed to target the first three domains specifically with our behavioural interventions, whilst also designing these interventions to reduce any practical issues as best as possible.

Barriers

COM-B

Outputs of our primary research activities as part of the initial phase of this work can be categorised according to the COM-B Model of Behaviour to support the identification of key barriers to positive vaccine choices surrounding adolescent immunisations. Through this activity, it was determined that the key barriers preventing uptake were impacting parents, as they held the responsibility of consenting to their children receiving the vaccine in school. This led to parents becoming the main targets of our interventions.

Capability	Opportunity	Motivation
▪ Technological literacy/capabilities. ▪ Unfamiliarity with the online consent process. ▪ A perceived gap in communication and correspondence between the SAIS and schools flagged by the schools teams. ▪ Poor parental education. ▪ Language barriers. ▪ Lack of awareness of Gillick Competency. ▪ Children uneducated (missing from curriculum/assemblies). ▪ Lack of awareness of the process.	▪ Access to technology. ▪ Tutors unaware vaccines are happening until the day. ▪ No school nurse. ▪ No yearly onboarding pack. ▪ Negative parental influence. ▪ Social media influence. ▪ Given sheet of side effects after the jab and pass on the message to other students. ▪ Letters promoting vaccination sent straight to home.	▪ Parents don't want to give consent. ▪ Anti-vax literature. ▪ Fear of needles. ▪ Fear of side-effects. ▪ Negative associations with COVID-19 vaccines impacting the perception of routine immunisations. ▪ Lacking reassurance. ▪ "Just don't want them". ▪ "Never catch anything so don't need them".

Hypothesis

Context Statement and Behavioural Goal

Based on the evidence gathered through our primary and secondary research activities, we developed the following main hypothesis for behaviour change:

Uptake of school age immunisations is below national targets because parents are not completing consent forms for their children due to lack of capability, opportunity, and motivation to do so.

We will therefore develop a suite of behavioural interventions to increase the rate of returned parental consents for in-school vaccination clinics.

Intervention Design

Techniques

A variety of evidence-based concepts from behavioural science were implemented to effectively "nudge" parents towards being more likely to give consent for their child to be vaccinated in school. The table below outlines some of the main concepts, their definitions, evidence of their effectiveness, and an example of their application for this project.

Concept	Definition	Evidence	Example
Power of Free	If we can avoid losing anything when engaging in a behaviour we are more attracted to it. A free product means no effort or time has to be invested in the decision and is psychologically more attractive to us, simply because it costs nothing.	In an experiment, two types of chocolates were offered in a cafeteria, Hershey for 1 cent and Lindt for 14 cents. At these prices 8% of people chose Hershey and 30% chose Lindt. However, when one cent was reduced so that Lindt cost 13 cents and Hershey was free - the demand for Hershey almost quadrupled to 31%.(Ariely, 2010).	Highlighting explicitly to parents that the vaccinations are all free.
Framing Effects	The way a message is framed – be it positively or negatively – has a major influence on how people respond to it.	Providing information about how many deaths might happen if a treatment is not trialled (loss-framed) changes people's favourability for that treatment, compared to the same information in terms of how many lives it could save if it was trialled (gain framed; Tversky & Kahneman, 1981).	Framing information about diseases negatively (e.g. "HPV can cause seven different types of cancer") and vaccine effectiveness positively (e.g., "cases of HPV-linked cancers have dropped by 87% in vaccinated groups").
Loss Aversion	The pain of losing is psychologically more powerful than the pleasure of winning, so we seek to avoid loss.	Traders are more likely to hold on to stocks that are decreasing in value because they don't want to experience the loss (Kumar & Goyal, 2015).	Stating to parents that without their consent, their child may miss out on the protection they need.
Endowment Effect	A feature of loss aversion whereby we place higher value on things we already own.	Referring to a vaccine as being owned by the individual increases vaccine uptake (Dai et al., 2021).	Using language like "their vaccines" to convey to the parent that the child owns the vaccinations.

Intervention Design

Techniques

A variety of evidence-based concepts from behavioural science were implemented to effectively "nudge" parents towards being more likely to book and attend a vaccination appointment for their child. The table below outlines some of the main concepts, their definitions, evidence of their effectiveness, and an example of their application for this project.

Concept	Definition	Evidence	Example
Urgency	People prioritise urgent tasks over ones they might perceive to be more important.	Evidence shows that people's are more likely to make quick and emotional purchases when time pressure is also high (Liu et al., 2022).	Sending out reminder prompts as close to the consent deadline as possible (24 hours) and stating this explicitly to parents (e.g., "Just 1 day left").
Default	People find it easier to go with the flow of pre-set options.	Deceased organ donation rates are on average 42.7% higher in countries with opt-out registers than opt-in registers (Shepherd et al., 2014).	Setting default expectations amongst students (e.g., you will be getting your vaccines next Wednesday") to encourage them to report back to their parents.
Altruism	People have the natural tendency to be altruistic and care about the thoughts, feelings, and safety of others.	Altruism and the consideration of benefit to others is a significant factor that predicts vaccine uptake intentions (Shim et al., 2012).	Showing that giving their consent may also encourage other parents to do the same.
Salience	People respond best to things that are novel and relevant to them.	Physical activity models who match the profiles of a target population can limit the barriers to physical activity participation experienced by that particular group (Kariuki et al., 2019).	Highlighting key information in bold or coloured text and using norms that relate to the North East specifically.

Intervention Design

Techniques

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Concept	Definition	Evidence	Example
Affect	Emotions powerfully shape our actions.	Building a media campaign around "disgust" about not washing hands has a significantly better impact on soap use than informational campaigns (Curtis, et al., 2007).	Explaining to parents that they will be protecting their child for life by giving their consent.
Norms	We are likely to engage in behaviours that we see lots of other people engaging in.	Feedback around the step counts of others significantly increases individual physical activity levels (Wally & Cameron, 2017).	Highlighting that most adolescent children in the North East are vaccinated.
Messenger	Who communicates the message is important.	Recommendations from a GP via SMS can increase uptake of flu vaccinations over reminders alone (Tuckerman et al., 2023). In previous behavioural insights work around other vaccines in the North East (childhood flu, 0-5s, COVID-19, etc.) receiving messages from trusted and recognised sources has been referenced as a key motivator to uptake by residents.	Signing off communications from the Director of Public Health and using Headteachers to spread the message from a trusted and recognisable source. Most parents will be more familiar with these messengers than the SAIS and thus more likely to act on the request to return consent.
Priming	Our behaviours can be influenced by subconscious cues and associations.	Exposing people to smiley faces encourages them to drink more alcohol than sad faces (Winkielman et al., 2005).	Using the colour green to prompt people into clicking a link to give online consent.

Intervention Design

Application

To effectively apply the concepts described, a full suite of assets was developed to be shared with local schools as a means of encouraging increased parental consent returns. Assets developed can be found in Appendix C and included:

- An informational letter, personalised and made specific by being from the relevant Local Authorities Director of Public Health.
- 3 Email templates to be sent out from school Headteachers.
- 2 SMS messages to serve as reminders to any parents who had not consented in response to the letter or emails.
- Recommendations for statements to be made by staff during assembly time for the relevant school years, as a call-to-action for the students to report back to their parents that their vaccinations were due.

The assets above were shared with schools through an Implementation Pack that also highlighted an optimal three-week implementation plan. An outline implementation schedule is provided below:

Whilst the core suite remained the same, individual assets were developed for all three vaccination programmes (Td-IPV/MenACWY, HPV, and Influenza).

Implementation Timeline														
Days to Deadline	14	13	12	11	10	9	8	7	6	5	4	3	2	1	**Vaccine Consent Deadline**
Asset(s)	Email 1 + Parent Letter							Email 2 + SMS 1						Email 3 + SMS 2	
	Assembly/Form Time Recommendations														

Implementation

Conducting a Trial

To test the effectiveness and applicability of the approach and assets developed on a wider scale, the suite of assets was trialled across all three vaccination programmes for the 2023/24 academic year (Td-IPV/MenACWY, HPV, and Influenza) at one school in each local authority area. With the change of SAIS, it was determined that there was a need to identify both a trial and a comparable control school in each locality. Without vaccination data from 2022/23 being available to the project team, the trial schools were primarily selected on the basis of deprivation indices (a well know influence on immunisation and proactive health care measures) and local knowledge about schools who historical presented concerns about vaccination coverage. Some Local authorities used additional measures, such as free school meals, to enhance their selection of the trial school. Control schools, who needed no engagement or activity in relation to the trial, were then selected based on demographic as being the closest match to the trial schools. The table below shows the schools recruited to take part in the trial:

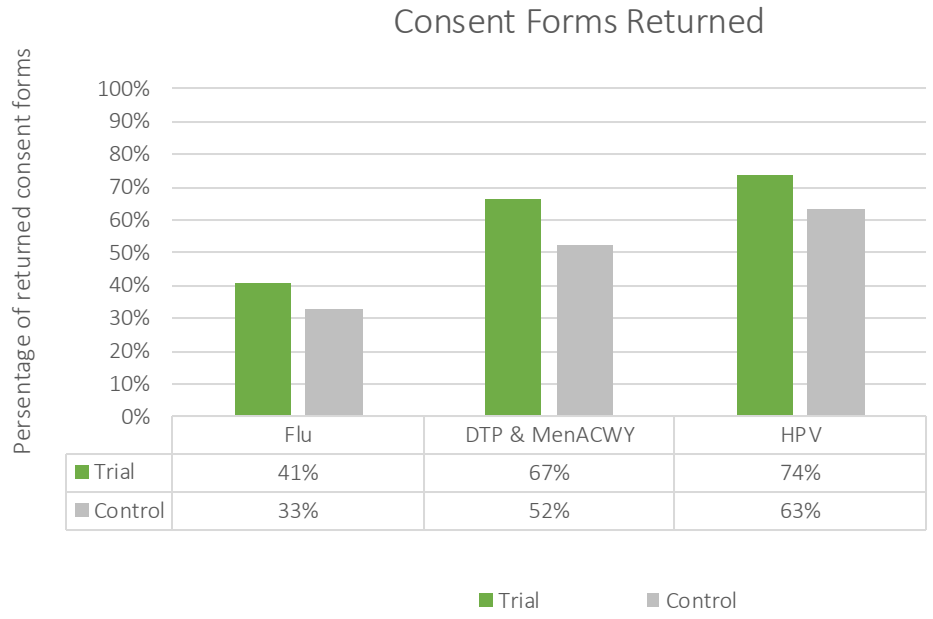
Locality	Trial School	Control School
Middlesbrough	Macmillan Academy	Outwood Academy Acklam
Redcar & Cleveland	Outwood Normanby	St. Peter's Catholic College
Hartlepool	St. Hild's	High Tunstall (Changed from Manor College)
Durham	Belmont	Greenfield (Changed from Easington Academy)

Ahead of the first vaccination rollout (Influenza), relevant staff at trial schools were provided with a short briefing on behavioural science, the development of the approach, and the content of each asset. For all programmes, trial schools were provided with an Implementation Pack two weeks prior to the closure of the consent portal. At this point, they were instructed to follow the instruction of Caja to share the assets according to the implementation plan. To carry out the plan, trial schools sent the relevant communications out to the parents of all students in the required school year. 24 Hours prior to each scheduled communication, Caja provided an email reminder to the lead staff member at each school. Communications were scheduled to follow the same regularity as the existing SAIS process, other than the final parental reminder being scheduled for 24 hours prior to the consent portal closing, as opposed to 48 hours prior. Control schools followed the existing process put in place by the SAIS, using their standard communications.

Consent rate data was collected and shared with Caja by named SAIS representatives for all schools and all vaccination programmes at 2 weeks before the consent deadline (to assess consent rates prior to Caja input). To assess for the impact of the Caja approach, consent data was also recorded at 1 week and 48 hours prior to the consent deadline and immediately following the consent deadline. As an additional measure, overall uptake rate was also reported.

Evaluation

Summary Findings



	Flu	DTP & MenACWY	HPV
Z-Score	3.98	5.55	4.43
P-Value for Z-Score	6.823×10^{-5}	2.919×10^{-8}	9.62×10^{-6}

Our trials were in place to test whether the use of behavioural science in the design, content, and timing of communication to parents/carers could significantly increase the number of consent forms returned. Given the positive impact anticipated, and delivered, by the new SAIS, the use of additional schools as control sites to directly measure the added impact of the behavioural science approach becomes key to evaluation. Under real world trial criteria, the following hypothesis where tested;

H_0 = There is no significant difference in number of consents returned from trial and control schools

H_1 = There will be a significant difference between consents returned from trial and control schools

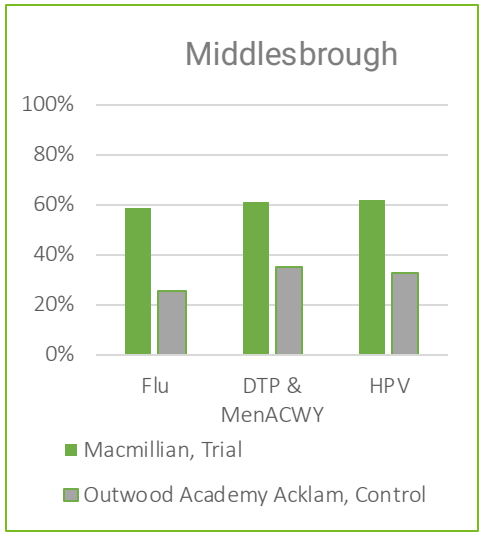
There has been a positive increase in consent rates across the regions but the results from the trial prove statistically that in each of the three vaccinations the parents/carers who received the behaviourally informed communications returned more consent forms that those in the control groups. Variance of between +8 and +15 percentage points between control schools receiving the new SAIS service and those who received the service AND included behavioural science informed communications were achieved. Z score tests proves these results are over 99% statistically significant (P>0.01), meaning that we can be over 99% sure that the difference in consent rates can be directly attributed to the altered communications.

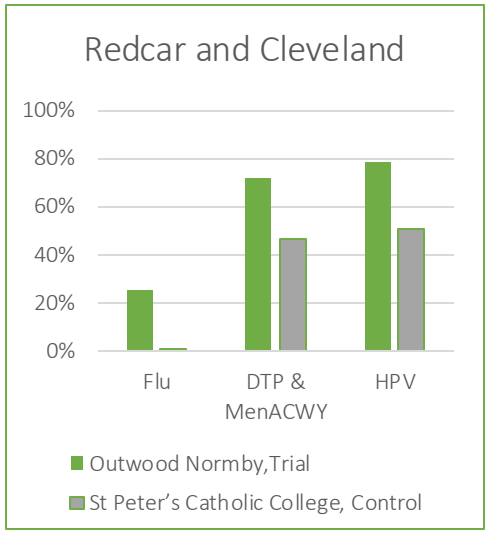
Without any additional effort or activity, the delivery of the right messages at the right times appears to consistently "nudge" parents to return consent forms.

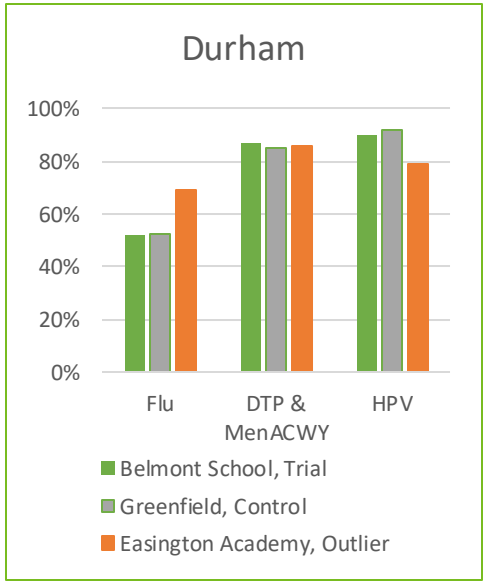
It is worth noting that the flu sessions were seen as a lead in and introduction to deploying the new process with the new SAIS. As the trial progressed, all parties, the SAIS, the Schools, and the councils became more consistent in the deployment of the process to the agreed standard process. We strongly believe this is why the results for trial schools show a steady increase in returned consents across the three vaccinations.

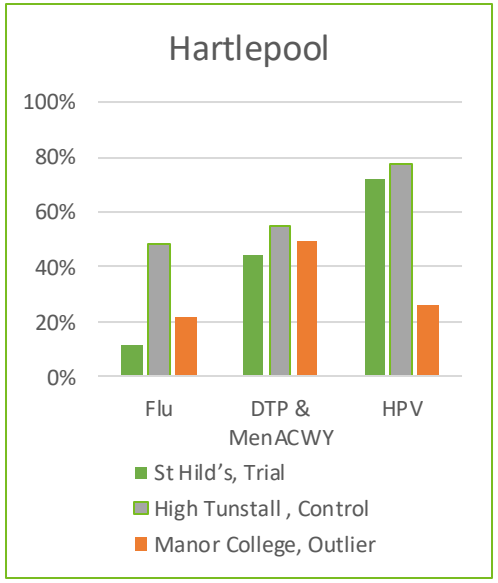
Evaluation

Individual Schools









As all trial schools received the same communications and all control schools used the contracted process, variations in performance can only be attributed to either *differences in school deployment* or *differences in the community behaviours associated with school led activities and/or immunisation*. Historically, this can be seen with Durham and Hartlepool consistently outperforming Middlesbrough and Redcar and Cleveland's immunisation rates. It is worth noting that Durham have an active communications programme for schools and so continuously focus on the importance of vaccinations.

Trial schools in Middlesbrough and Redcar and Cleveland appear to have most consistently benefited from the trialled communication approach.

In Durham, we discovered that the original control school, Easington, had a dedicated school nurse, who was actively canvasing to ensure high levels of vaccination. This was therefore not a like for like comparison, so it was replaced as a comparator. It is worth noting that the option of a school nurse is not a sustainable solution across the board and that Belmont, our trial school, have achieved the same or more uptake, at much lower cost, for the second and third vaccinations when the full trial process was deployed.

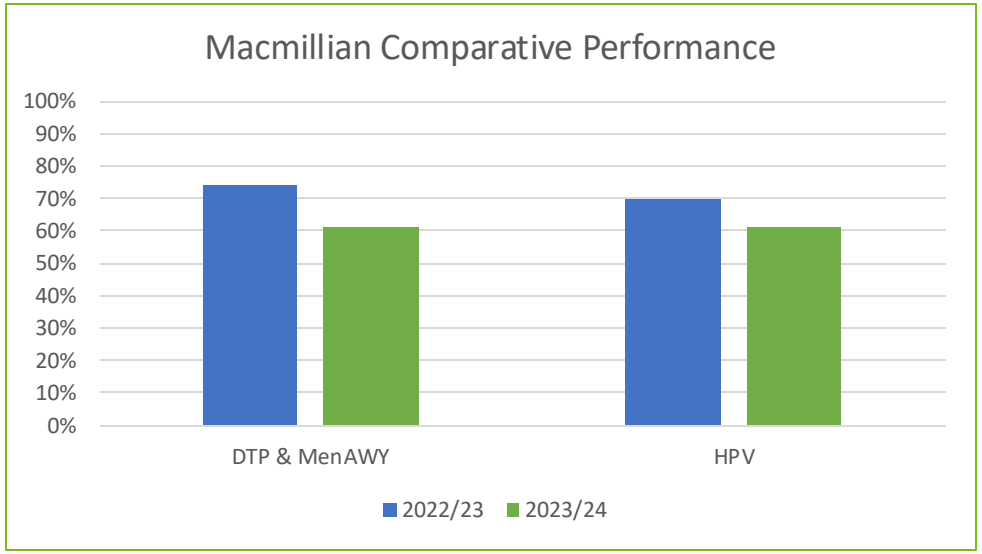
We were positively encouraged by the results seen at Greenfield school. Deeper analysis suggests that they have a strong immunisation co-ordinator who actively chases consent forms. We are unsure of her specific approach to this at this stage without information on the families/carers to target from the consent portal.

In Hartlepool, we discovered that Manor College had a new head and, working with the DPH, was focused on improving vaccination levels. This resulted in the school not adopting e-consent until the third session of HPV. Again, since this meant that they were not a direct comparison for our trial schools, they were removed as an outlier. Prior concerns about levels of roll out of e-consent processes are outweighed by the positive result from the trial schools where e-consent is the primary mechanism. Although further consideration should be given to target those where true digital literacy is a barrier.

St Hild's, the Hartlepool trial school, had a change of immunisation co-ordinator. We believe that this disruption, creating less familiarity with the process and understanding the design, may have impacted deployment. In addition, there was an issue with one of the consent links during flu roll-out.

Evaluation

Preliminary Trial Vs New SAIS process



With the change of SAIS , it was not possible to directly replicate and scale up the preliminary process completed with Macmillian the previous year.

As the **schools no longer had direct access to e-consent rates** it was not possible to, where appropriate, use the actual figures for consent rates in the communications. Normative influences are extremely powerful. Research tells us that descriptive norms are most effective when they are relevant to the audience. Giving a figure about what other parents in the same school have done (e.g. 70% of your children's year group) is more compelling because it is specific and relevant than using the generalised comment "most children".

Absence of information in schools about who had/had not returned their consent status meant that the ongoing communications could **no longer be targeted to specific people** who needed them and had to be adapted to cover all. For parents/carers who have already returned consent, this runs the risk of becoming irritating and has the propensity to erode their willingness to act swiftly in future situations. Receiving multiple reminder messages after submission may lead parents to think that they have not yet completed it and need to resubmit (increasing frustration or nervousness about the digital platform's efficacy) or that they can postpone responding in the future as they will get another reminder.

The new SAIS also **introduced a change to timings**. They close the e-consent portal one week before the session. In the previous campaign, the e-consent portal was open right up to the date of the session. This enabled communications to be delivered in better alignment with the activity, creating less mental confusion for parents/carers who are now being presented with two dates; one for e-consent close and one for the session itself. Beyond this being confusing, human nature, if not prompted to act immediately, will naturally default to seeing the opportunity being open until the later date. Subsequently learning that the portal re-opened will potentially only serve to reinforce parent/carers subsequent willingness to delay submission on subsequent sessions.

It is our working assumption that the variation in performance between the two years is highly likely to be a consequence of the three factors described above. This assumption is shared by representatives of Macmillan Academy, who note the lessened ability to personalise messages and keep up to date with consent rates, compared to the previous process.

Evaluation

Limitations

During the trial we experienced some challenges that may have impacted the delivery of the approach and t's overall evaluation. These need to be considered and addressed in the future in order to effectively improve vaccination uptake on a wider scale:

- **Limited baseline data:** Given the change in SAIS for the 2023/24 academic year, we were unable to access any comparable data to show pre- vs. post- intervention trends in consent rates. This was to some extent mitigated by the use of control schools.
- **Scheduling**: We experienced a range of session date changes, even after links and communications had been launched. Schools respond well to and need adequate forward planning and consideration needs to be given to the alignment of vaccinations into the school programme in a timely manner, well before any programmes of work are finalised and links generated and communicated. Macmillan, Outwood Normanby, and St Hild's all experienced or requested changes to their session date with a knock-on impact to their communication. In some cases, this meant that links were launched some months in advance reducing the urgency and call to action to submit.
- **Half term impact (notifications out of schedule and lessened priority):** The current communication programme is a fixed schedule and does not accommodate communications landing across the holiday period.
- **Some schools using SMS only for Flu:** Email was not a favoured communication channel for some schools but when persuaded to include it for the DTP and HPV sessions, results improved. It is important to recognise that both channels have their place and there is a need to ensure that schools have up to date contact information for both channels wherever possible.
- **Broken consent link**: This occurred for St. Hild's school during the flu session. Once reported to us and then rectified it left only 3 days to communicate with parents.
- **Control schools having additional input:** Working with NHS-E, the provider has a duty of care to optimise the vaccination rate at sessions. As a result, weekly reviews of consent rates can trigger additional activity (e.g., text messages from the SAIS direct to parents who have not responded). For the trial, we agreed that trial schools would be excluded from any additional activity and that control schools would only receive additional activity between the close of the portal and the session. We had hoped to monitor the variation and assess the cost and benefit gained by this approach. In practice, the fact that the consent figures are not recorded daily but simply monitored up until the date of the session means that this information did not consistently get recorded and shared with us. It is possible, therefore, that some of the control figures are inflated by additional activity and thus not a true representation of the standard process.
- **Commitment of the schools immunisation co-ordinator:** This is a key variable in vaccination coverage. High engagement (i.e., that seen in the Durham schools) leads to higher coverage, but this can only be achieved efficiently *IF* the co-ordinators are given routine updates about who has yet to return their consent form.

Future Recommendations

Opportunities for Scale-Up

The data suggests that there is **huge potential to improve vaccination consent rates and thus vaccination coverage through the use of the communications package trialled** across the four councils. This could potentially deliver a step change improvement in schools where response rates are lowest. Given that communications are going out to parents/carers already, **this should be a cost neutral, simple transition to new standard messaging at new timing points** that provides a higher basline uptake rates for schools regardless of whether they have access to a dedicated and motivated internal immunisation coordinator.

This work will be **negatively impacted** if;

- The relationships between schools, parents, local authority, and SAIS are not better supported. Does the SAIS have adequate resources and processes to deliver effective, responsive communication with schools and parent/carers? Does the SAIS and the system recognise the need to be responsive to schools and parents/carers as customers and consumers of their services? How is the customer and consumer experience planned, managed and monitored?
- Scheduling and planning is not brought forward and better integrated into the school calendar, giving consideration to the impact of half term on communications.
- A right first-time approach is applied to the use of technology; it is essential that all links are fully tested before release.
- Commitment to improvement is assessed by reactive responses creating more and different activity. Efficiency and effectiveness will only be consistently delivered if standard processes are adopted and adhered to and then subject to measured continuous improvement reviews and appropriate change control.

It could be **positively enhanced** if;

- **Schools aid the deployment of the process by ensuring they have a single point of contact for the SAIS**, the immunisation co-ordinator, who has the time to effectively support the process.
- Release of the e-consent link and reminder communications could be delivered to generate a **greater sense of urgency and a stronger call to action.**
  - Links should be sent out weeks not months in advance. Awareness can be raised months before hand, but action should be prompted closer to the deadline.
  - Communications need to be fully aligned with the session date, not closing a week before,
  - Re-opening the portal should not be seen as a default
- A **better solution is found to the sharing of appropriate information between SAIS and schools** so that;
  1) Reminder/chase messaging can be appropriately focused.
  2) Norms can be utilised as part of the nudge and/or regional norms can be utilised once positive levels have been achieved.

Conclusions and Observations

Informing the Continuous Improvement Agenda

- **The implementation of behavioural science techniques to redesign parental communication strategies is an effective way of increasing consent rates for adolescent vaccinations:** Evidence from the initial Macmillan pilot was replicated by the activities in this trial. This suggests that the approach developed is appropriate for scale up across all four trial regions and all three vaccination campaigns tested through this work.
- **Feedback from school is needed to optimise the learning for any further scaling up/roll out.** It has not been possible, within the agreed timeframes, for us to close out the loop and get feedback from the trial schools regarding their experience of the process. It would be very valuable to capture this insight and learning as a key element to optimise the learning from the trial and ensure that the improvements are embedded in any scale up activity planning.
- **The optimum solution to increasing the coverage of adolescent vaccinations would be to make the process an opt-out default rather requiring active consent:** This would however require NHS-E consideration and cannot be regionally or locally implemented. The majority of parents are willing and wish their children to have vaccinations. The process of completing the consent is creating a barrier to some children receiving their vaccinations. If the process could be moved to a default opt-out system, communicating that the vaccination was due and that your child will be vaccinated UNLESS you return the form to indicate your objection, there would potentially be a significant step change in uptake rates. It does not take away any of the parent/carer or child's choices. For those who do not want to have their children vaccinated the process would be identical. This potential improvement would not be working on increasing parents/carers willingness to have their children vaccinated but the ease with which they can enable this to happen.
- **More active understanding of where to target activity to raise consent rates and reduce specific barriers to completion is needed:** Currently the data available for adolescent immunisation is only structured to overall uptake. It does not enable schools, service providers, or the system to better understand;
  (i) who, at an individual level, specifically needs "nudging" to increase uptake within a specific session.
  (ii) which specific community groups fail to return consent forms and their underlying reason, circumstances and constraints for not doing so.
  Further behavioural insights may be beneficial to understand how best to encourage uptake amongst more resistant groups and groups experiencing specific inequalities (e.g., lack of digital access/literacy).
- **Work may be required with participating schools to understand more about what would motivate students to push their parents to consent or apply their own Gillick Competency.** It was our desire to consider student engagement in the consent process. Given the challenges of realigning the trial to the new SAIS providers process this has not been possible. It is one of a few other potential points in the process, along with school websites and parent engagement outside the school environment, which could be fruitful themes for further development to gain the additional harder to reach community members.

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Appendix

Appendix A – Student KLOEs

COM-B Category	Question
Capability	• What do you understand about the process for school vaccinations? • How aware are you of the different vaccines you get at school and how you get them? • What do you know about the health effects of not being vaccinated? • What do you know about Gillick Competency? • What do you know about the diseases these vaccines protect you against? • How at risk of these diseases do you think you are?
Opportunity	• What do you know about your parents' view on vaccines? • How does it work getting your vaccines in school? • How does your school communicate the need for vaccines to you? • Do you think your parents know that they have to give consent for you to be vaccinated at school?
Motivation	• What is your opinion of vaccinations in general? • Do you know anything about potential vaccine side effects? • Why do you think some people might not want to be vaccinated? • How do you find the vaccination process at school?

Appendix

Appendix B – Staff KLOEs

COM-B Category	Question
Capability	• What do you understand about the process for school vaccinations? • How aware are pupils of the different vaccines they get at school and how they get them? • What do you know about the vaccination process in schools? • What do you know about Gillick Competency? • What do you know about these diseases? • What do you know about the consent process? • How able do you think parents are to give consent?
Opportunity	• What do you know about parents' views on vaccines? • How does the consent process work? • How does your school communicate the need for vaccines to parents? • What impact does Harrogate have on the vaccination process? • What level of influence does the school have on pupils' vaccination behaviours?
Motivation	• What are pupils'/parents' opinions of vaccinations in general? • Do you know anything about perceived potential vaccine side effects? • Why do you think some pupils might not want to be vaccinated? • How do you find the vaccination/consent process at school?

Appendix

Appendix C – Asset Design (Influenza)

The following assets have been designed specifically to encourage parents of secondary school students to give consent for their child to be vaccinated against flu. **The content and wording of these communications has been carefully tailored based on local insights and empirical behavioural science research evidence. The communications are best applied by following the process outlined on page 12 of this report. Any deviation from this process or amendment to the wording or colour schemes may significantly impact the assets' effectiveness. Assets for DTP & MenACWY are shared separately to this document.**

Asset 1: Public Health Letter (Use council headers and footers to increase trust)

<Council Address/Details>

<date>

You have the power to help protect your child and your community against the flu in just 60 seconds.

Dear <name>,

Working with your school, Public Health South Tees and the NHS have arranged for your child to receive their **FREE flu immunisation** in <school> on <date of session> and need your consent **on or before <consent deadline>** to continue.

The flu vaccine is given every year to those at most risk of getting or passing on the illness and, this year, your child is one of them. Between September 2022 and February 2023, **more than 1 million people in the North East were vaccinated** against flu.

Your child's vaccine will be given as a nasal spray and has proven to be highly effective at safely preventing flu cases over a number of years.

By giving your consent, you will be helping to protect your child against getting ill and missing out on important lessons, activities, and time with their friends at school. Once vaccinated, they themselves will be helping to reduce the risk of the illness spreading to the most vulnerable people in your community.

Thank you to the **all the parents at <school>** who have already consented. If you have not already done so, it only takes one minute to **give your consent** and make sure that your child doesn't miss their chance to get protected. Simply fill in and return the short consent form enclosed or complete a digital form at <link>.

If you have any queries about the vaccines or require further information, then please contact the School Aged Immunisation Service on 0300 003 2554.

Your Sincerely,

<Director of Public Health>

Appendix

Appendix C – Asset Design (Influenza)

Asset 2: School Emails

Email 1 - Following Initial Intrahealth Message (Minimum of 2 weeks prior to the consent deadline) – LETTER ATTACHED TO THIS EMAIL
Subject: ACTION REQUIRED – Flu Vaccine Dear Parents/ Carers This year, a free flu vaccine has been reserved for your child and all other secondary school students. This is an important step for keeping the most vulnerable people in our community safe this winter. For more information, please see the attached letter from our director of public health. The flu vaccinations will take place at your child's school on **<date>**, please use the link below to complete either a consent form or a refusal for the vaccinations. The link contains the consent form and additional information such as FAQs regarding the vaccination. The link will close on **<Date>**. <link> **If your child has already had the Flu vaccine since September 2023 please ignore this message.** If you have any problems accessing the link, please phone the Immunisation Team on 0333 358 3397. Kind Regards, The Immunisation Team

Appendix

Appendix C – Asset Design (Influenza)

Asset 2: School Emails

Email 2 – 1 Week Prior to the Consent Deadline
Subject: ACTION REQUIRED – Flu Vaccine Dear Parents/ Carers A reminder that there are just **7 days left** to give/refuse your consent for your child to have their free flu vaccine at school on **<Date>**. The flu vaccine is a quick and painless spray up the nose that keeps millions of people safe from flu every year (jabs are also available for those who need them). It will help to make sure that your child is less likely to miss important lessons and social time at school. Thank you to all the parents at <school> who have already responded. If you are not one of them, it's not too late. It only takes one minute to **give or refuse your consent by following this link:** <link> The link contains the consent form and additional information such as FAQs regarding the vaccination. The link will close on **<Date>**. **If your child has already had the Flu vaccine since September 2023 please ignore this message.** If you have any problems accessing the link, please phone the Immunisation Team on 0333 358 3397. We will also be sending out text messages with the consent form link to all parents. Kind Regards, <Head teacher>

Appendix

Appendix C – Asset Design (Influenza)

Asset 2: School Emails

Email 3 – 1 Day Prior to the Consent Deadline
Subject: ACTION REQUIRED – Flu Vaccine Dear Parents/ Carers Today is your **last chance** to give/refuse your consent for your child to have their free nasal flu vaccine at school on **<Date>**. Without your consent, your child may miss out on the protection they need. Thank you to all the parents at <school> who have already responded. If you are not one of them, it's not too late. It only takes one minute to **give or refuse your consent by following this link:** <link> The link contains the consent form and additional information such as FAQs regarding the vaccination. The link will close on **<Date>**. **If your child has already had the Flu vaccine since September 2023 please ignore this message.** If you have any problems accessing the link, please phone the Immunisation Team on 0333 358 3397. We will also be sending out text messages with the consent form link to all parents. Kind Regards, <Head teacher>

Appendix

Appendix C – Asset Design (Influenza)

Asset 3: SMS Reminders (Split into 2 to account for character limits)

SMS 1	
1a.	ACTION REQUIRED Just 7 days for you to give consent for your child to have their free nasal flu vaccination at school.
1b.	Without your consent, your child may miss out on the protection they need. Please ACT NOW to give/refuse consent at: <link>

SMS 2	
2a.	ACTION REQUIRED Just 1 day for you to give consent for your child to have their free nasal flu vaccination at school.
2b.	If you haven't responded, this is your last chance to ACT NOW and join all the parents at <school> who have already consented at: <link>

Appendix

Appendix C – Asset Design (Influenza)

Asset 4: Form Time/Assembly Recommendations (Techniques for teachers to encourage students to push their parents for consent)

Technique	Description	Example
Set the session as a default	Set up the session as a default behaviour. Creating an expectation within students that it is favourable option to attend.	▪ "You will all be getting your vaccinations" ▪ "Nurses will be coming in to give out vaccines"
Create a sense of ownership	Make sure that students are aware that the vaccinations are for them personally. This can create a sense of loss aversion in students and increase the chances that they feel as though they would be missing out by not attending.	▪ "Make sure your parents have given consent so that you can have **your** vaccine"
Create a social norm	As consent rates increase over time, reference this in assembly. By showing that a number of other students will be getting their vaccine, you can highlight that this is a normal behaviour and play on students' want to be part of the crowd. As well as live updates on consents, you can also use more general statements.	▪ "More than 7 in 10 North East students like you have these vaccinations when they need them".
Clarify vaccine importance	To counteract a lack of awareness, it is important to highlight the effectiveness of the vaccines to pupils.	▪ "Since meningitis vaccines were introduced in 1999, the number of people getting the disease has dropped by 96%." ▪ "Your 3-in-1 Booster vaccine makes sure that the protection you received as a baby against tetanus, diphtheria, and polio, lasts a lifetime. Without this booster, your chances of catching these diseases and becoming seriously ill may increase"
Positively frame messaging	To encourage students to engage, you need to make sure that you frame the action as being as easy as possible.	▪ "It only takes 60 seconds to give consent" ▪ "It only takes 30 seconds to ask your parents" ▪ "You can get protection for life"
Facilitate altruism	Other-regarding messaging is a strong motivator for vaccine intention. Highlight to students that they will not only be protecting themselves by getting vaccinated but also other people.	▪ "Once you are vaccinated you will be helping to reduce the risk of diseases spreading to the most vulnerable people in your family and community" ▪ "If you consent, you might help to encourage somebody else to do the same and make sure they are protected too"
Trigger action	To maximise the impact of any of the above techniques, it is important to end on a call to action for students to ask their parents to consent.	▪ "Ask your parents when you get home" ▪ "I'll give you all 1 minute to text your parents now"

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