FACT SHEET | MARCH 2019
[*Translated and adapted from ORS PACA]

EVIDENCE-BASED INTERVENTIONS TO ENHANCE VACCINATION RATES

Community-based interventions

Client-based written education interventions when used alone

LEVEL OF EVIDENCE

- Strong evidence of effectiveness in increasing vaccination rates
- Moderate evidence of effectiveness in increasing vaccination rates
- Insufficient evidence of effectiveness in increasing vaccination rates
- **Strong evidence of ineffectiveness in increasing vaccination rates**

It is impossible to globally assess the effectiveness of community-based interventions to increase awareness and knowledge among the public to increase vaccine coverage. This is due to the heterogeneity of interventions included in that category, as well as the contradictory results that were obtained (Stone et al. 2002; Harvey et al. 2015). A separate fact sheet has therefore been created for each of the following four types of interventions: distribution of information alone, face-to-face interactions on vaccination, mass media campaigns, and multicomponent interventions with at least one education/information component.

This fact sheet is solely devoted to client-based written information or education strategies based on the distribution of pamphlets, fact sheets, posters, etc.

Expected impact

Increase in vaccination coverage.

Other possible impacts

Increase in vaccine knowledge and attitudes.
Increase in vaccine intention.
Decrease of vaccine hesitancy.

Review of evidence

Overview

There is strong scientific evidence to assess that interventions based solely on the use of written information to clients are ineffective in increasing vaccination rates in developed countries. These evidences come from several systematic reviews (Briss et al. 2000; Stone et al. 2002; Jarrett et al. 2015; Harvey et al. 2015) that point to an impact that is often insignificant or of little influence on vaccination rates. Some studies suggest that this type of intervention may reinforce vaccine hesitancy among parents already hesitant to vaccinate (Dubé et al. 2015).

There is, however, insufficient evidence to conclude whether or not this type of intervention is effective in increasing knowledge and positive attitudes toward vaccination in the population (Briss et al. 2000; Sadaf et al. 2013), or in increasing intention to vaccinate (Sadaf et al. 2013). This is due to contradictory results between studies.

Effectiveness according to population subsets and vaccines

The ineffectiveness of interventions based solely on the use of written information to clients to increase vaccination rates has been demonstrated in different settings: in health centres (Shourie et al. 2013; Tubeuf et al. 2014; Community Preventive Services Task Force 2015a) and in public places (Community Preventive Services Task Force 2015b; Dubé et al. 2015). It has been demonstrated with different sub-populations, such as children (Harvey et al. 2015; Kaufman et al. 2013; Sadaf et al. 2013; Williams et al. 2011), adults (Stone et al. 2002) and the elderly (Briss et al. 2000).

Two systematic reviews have shown that the availability of written documentation on vaccination could improve vaccination rates in developing countries (+13% on average) (Harvey et al. 2015) and among specific subsets of the population, such as ethnic minorities (Jarrett et al. 2015).

Effectiveness according to means of intervention

As of yet, no studies have determined the effectiveness of a specific type of support in increasing vaccination rates.

A few authors emphasize the need for targeted communications, and for adapting messages to targeted groups (Dubé et al. 2015; Jarret et al. 2015).

Several recently published randomized trials provide evidence that message-framing and means of communication are important components of communication interventions (Nyhan et al. 2014; Nyhan & Reifler 2015; Hendrix et al. 2014; Prati et al. 2012). Messages correcting misconceptions about the risks linked to vaccines may contribute to combating prejudice against some vaccines, but not among the most reluctant and anxious people, for whom negative attitudes may actually be reinforced (Nyhan et al. 2014; Nyhan & Reifler 2015). Testimonials (narratives) and images of people suffering from vaccine-preventable diseases may reinforce misconceptions and negative attitudes about vaccines (Nyhan et al. 2014). Informative messages about the dangers of vaccine-preventable diseases (Nyhan et al. 2014; Nyhan & Reifler 2015; Prati, Pietrantoni, & Zani 2012) have no impact on public attitudes. It must be noted that none of the messages evaluated had an impact on people's

intention to vaccinate themselves or their children (Nyhan et al. 2014).

A randomized trial suggests that insisting on the individual benefits of childhood vaccination is more effective than insisting on the collective benefits for increasing the intention to vaccinate children. However, when it comes to adult vaccination, emphasizing the collective benefits seems to be more effective (Hendrix et al. 2014).

Cost-effectiveness questions

There is not enough information on this question in the literature.

Promising interventions

Some educative or informative approaches appear promising for increasing vaccination rates. However, they have been insufficiently evaluated to date. Such promising approaches are, for example, online decision-making tools (Shourie et al. 2013; Tubeuf et al. 2014; Hendrix et al. 2014) and the use of new technology (social networks, smartphone applications, blogs, YouTube videos) in raising the awareness in subsets of the population (Odone et al. 2015).

Impact on inequalities

There is not enough information on this question in the literature.

Example

In the United Kingdom, a website was developed in order to help parents decide whether to vaccinate their child with the measles, mumps and rubella (MMR) vaccine (Shourie et al. 2013). This tool provides personalized information about the diseases and the MMR vaccine in accordance with parents' responses to a questionnaire. It helps parents sift out the pros and cons (the risks related to the diseases and the risks related to the vaccine, and thus the advantages and disadvantages of vaccination).

Results suggest that the use of an internet-based decision-making tool is less expensive than mailing documentation and is more efficient: such a tool has had an impact on informed decision-making by parents, and on vaccine uptake rates in their children (Shourie et al. 2013; Tubeuf et al. 2014).

Last modified: March 27, 2017

References

- Briss, P. A., L. E. Rodewald, A. R. Hinman, A. M. Shefer, R. A. Strikas, R. R. Bernier, V. G. Carande-Kulis, H. R. Yusuf, S. M. Ndiaye, and S. M. Williams. 2000. “Reviews of Evidence Regarding Interventions to Improve Vaccination Coverage in Children, Adolescents, and Adults. The Task Force on Community Preventive Services”. American Journal of Preventive Medicine 18 (1 Suppl): 97-140.
- Community Preventive Services Task Force. 2015a. “Vaccination Programs: Clinic-Based Client Education when Used Alone”, May. https://www.thecommunityguide.org/findings/vaccination-programs-clinic-based-client-education-when-used-alone.
- Community Preventive Services Task Force. 2015b. “Vaccination Programs: Community-Wide Education When Used Alone”. https://www.thecommunityguide.org/findings/vaccination-programs-community-wide-education-when-used-alone.
- Dubé, Eve, Dominique Gagnon, Noni E. MacDonald, and SAGE Working Group on Vaccine Hesitancy. 2015. “Strategies Intended to Address Vaccine Hesitancy: Review of Published Reviews”. Vaccine 33 (34): 4191-4203. doi:10.1016/j.vaccine.2015.04.041.
- Harvey, Hannah, Nadja Reissland, and James Mason. 2015. ”Parental Reminder, Recall and Educational Interventions to Improve Early Childhood Immunisation Uptake: A Systematic Review and Meta-Analysis”. Vaccine 33 (25): 2862-80. doi:10.1016/j. vaccine.2015.04.085.
- Hendrix, Kristin S., S. Maria E. Finnell, Gregory D. Zimet, Lynne A. Sturm, Kathleen A. Lane, and Stephen M. Downs. 2014. “Vaccine Message Framing and Parents’ Intent to Immunize Their Infants for MMR”. Pediatrics 134 (3): e675-683. doi:10.1542/peds.2013-4077.
- Jarrett, Caitlin, Rose Wilson, Maureen O’Leary, Elisabeth Eckersberger, Heidi J. Larson, and SAGE Working Group on Vaccine Hesitancy. 2015. “Strategies for Addressing Vaccine Hesitancy - A Systematic Review”. Vaccine 33 (34): 4180-90. doi:10.1016/j.vaccine.2015.04.040.
- Kaufman, Jessica, Anneliese Synnot, Rebecca Ryan, Sophie Hill, Dell Horey, Natalie Willis, Vivian Lin, and Priscilla Robinson. 2013. “Face to Face Interventions for Informing or Educating Parents about Early Childhood Vaccination”. The Cochrane Database of Systematic Reviews, no 5 (May): CD010038. doi:10.1002/14651858.CD010038. pub2.
- Nyhan, Brendan, and Jason Reifler. 2015. “Does Correcting Myths about the Flu Vaccine Work? An Experimental Evaluation of the Effects of Corrective Information”. Vaccine 33 (3): 459-64. doi:10.1016/j. vaccine.2014.11.017.
- Nyhan, Brendan, Jason Reifler, Sean Richey, and Gary L. Freed. 2014. “Effective Messages in Vaccine Promotion: A Randomized Trial”. Pediatrics 133 (4): e835-842. doi:10.1542/peds.2013-2365.
- Odone, Anna, Antonio Ferrari, Francesca Spagnoli, Sara Visciarelli, Abigail Shefer, Cesira Pasquarella, and Carlo Signorelli. 2015. “Effectiveness of Interventions That Apply New Media to Improve Vaccine Uptake and Vaccine Coverage”. Human Vaccines & Immunotherapeutics 11 (1): 72-82. doi:10.4161/hv.34313.
- Prati, Gabriele, Luca Pietrantoni, and Bruna Zani. 2012. “Influenza Vaccination: The Persuasiveness of Messages among People Aged 65 Years and Older”. Health Communication 27 (5): 413-20. doi:10.1 080/10410236.2011.606523.

- Sadaf, Alina, Jennifer L. Richards, Jason Glanz, Daniel A. Salmon, and Saad B. Omer. 2013. “A Systematic Review of Interventions for Reducing Parental Vaccine Refusal and Vaccine Hesitancy”. Vaccine 31 (40): 4293-4304. doi:10.1016/j.vaccine.2013.07.013.
- Shourie, S., C. Jackson, F. M. Cheater, H. L. Bekker, R. Edlin, S. Tubeuf, W. Harrison, et al. 2013. “A Cluster Randomised Controlled Trial of a Web Based Decision Aid to Support Parents’ Decisions about Their Child’s Measles Mumps and Rubella (MMR) Vaccination”. Vaccine 31 (50): 6003-10. doi:10.1016/j.vaccine.2013.10.025.
- Stone, Erin G., Sally C. Morton, Marlies E. Hulscher, Margaret A. Maglione, Elizabeth A. Roth, Jeremy M. Grimshaw, Brian S. Mittman, Lisa V. Rubenstein, Laurence Z. Rubenstein, and Paul G. Shekelle. 2002. “Interventions That Increase Use of Adult Immunization and Cancer Screening Services: A Meta-Analysis”. Annals of Internal Medicine 136 (9): 641-51.
- Tubeuf, Sandy, Richard Edlin, Swati Shourie, Francine M. Cheater, Hilary Bekker, and Cath Jackson. 2014. “Cost Effectiveness of a Web-Based Decision Aid for Parents Deciding about MMR Vaccination: A Three-Arm Cluster Randomised Controlled Trial in Primary Care”. The British Journal of General Practice: The Journal of the Royal College of General Practitioners 64 (625): e493-499. doi:10.3399/bjgp14X680977.
- Williams, Nia, Helen Woodward, Azeem Majeed, and Sonia Saxena. 2011. “Primary Care Strategies to Improve Childhood Immunisation Uptake in Developed Countries: Systematic Review”. JRSM Short Reports 2 (10): 81. doi:10.1258/shorts.2011.011112.

This vaccination-themed fact sheet was written by the l'Observatoire Régional de la Santé Provence-Alpes-Côte d'Azur (ORS Paca) as part of a study conducted in 2016-2017, thanks to financial support from l'Agence Régionale de Santé Provence-Alpes-Côte d'Azur (ARS Paca). The original version is available here: http://www.sirsepaca.org/territoires-actions-probantes/.

This study's objectives were to help actors and decision-makers identify their territory's strengths and weaknesses with the help of synthetic indicators on the state of health and its determinants (available in SIRSéPACA) and to go from observation to action, through guiding them in the choice of actions to put in place. This study built on the American experience, *County Health Rankings and Roadmaps* (**www.countyhealthrankings.org**).

On the choice of actions to implement, bibliographic research was undertaken using different databases (Cochrane Library, Health Evidence, The Community Guide, Medline…). This permitted the identification of three main types of interventions (interventions to increase community demand for vaccination, to enhance access to vaccine services or provider-based interventions). The effectiveness of these interventions was evaluated in accordance with the number, type and methodological quality of studies available, as well as the breadth and coherence of the results (Briss P et al. *Developing an evidence-based Guide to Community Preventive Services-methods*. Am J Prev Med 2000;18(1S):35-43).

Ten themed fact sheets oriented to the principal types of interventions in the field of vaccination were written. All documents are available on the website of the System of Regional Health Information PACA (www.sirsepaca.org).

TYPE OF INTERVENTIONS	FACT SHEETS
Interventions to increase community demand for vaccination	**Client-based written education interventions when used alone** Person-to-person interactions Mass media campaigns Multicomponent interventions with at least one education / information component Client incentives and rewards Reminder and recall systems for clients
Interventions to enhance access to vaccine services	Home visits
Provider-based interventions	Reminder and recall systems for providers Audit and feedback Standing orders

We extend thanks to the study's follow-up committee, which includes ARS Paca, Comité Régional d'Education pour la Santé Paca, l'Union Internationale de Promotion de la Santé et d'Education pour la Santé, University of Wisconsin Madison (USA), Observatorio de Salud en Asturias, and ORS Paca.

**This fact sheet has been translated and adapted from ORS PACA (Observatoire Régional de la Santé Provence-Alpes-Côte d'Azur, France) with their permission. The views expressed herein do not necessarily represent the views of the Public Health Agency of Canada.*

Editorial Committee/Supervision
Aurélie Bocquier, Hélène Dumesnil, & Pierre Verger (ORS Paca)

English translation
John-Samuel MacKay & Dominique Gagnon