Vaccine Equity & Education

Barbara Rath, MD PhD HDR Vaccine Safety Initiative Berlin, Germany









Vaccine Equity



What is vaccine equity?



© UNICEF/Francis Kokoroko | A 76-year-old man shows his vaccination card after receiving a COVID-19 vaccine in Kasoa, Ghana.



UN: "Quite simply, it means that all people, wherever they are in the world, should have equal access to a vaccine which offers protection against the COVID-19 infection."



COVID-19: European infection spike confirmed, vaccine advice for kids

Senior UN official meets first person in US vaccinated against COVID



In 2021, WHO set the target for 70% global vaccination coverage by mid-2022.

- A continued, concerted and country-led push to deliver against nationally defined vaccination strategies can act in support of global targets.
- The greatest benefits within that approach will come from prioritizing full vaccination and boosters for high-risk populations – older adults, healthcare workers, and persons with comorbidities including immunocompromised persons.



Factors contributing to Vaccine Equity

- Development
- Affordability
- Production
- Allocation
- Deployment
- Messaging



mdpi.com/journal/vaccines/special_issues/COVID-19_Vaccines

Journals / Vaccines / Special Issues / Vaccines: Uptake and Equity in Times of the COVID-19 Pandemic



Journal Menu

- Vaccines Home
- Aims & Scope
- Editorial Board
- Reviewer Board
- Topical Advisory Panel
- Instructions for Authors
- Special Issues
- Topics
- Sections & Collections
- Article Processing Charge
- Indexing & Archiving
- Editor's Choice Articles
- Most Cited & Viewed
- Journal Statistics
- Journal History
- Journal Awards
- Society Collaborations
- Conferences
- Editorial Office

Special Issue "Vaccines: Uptake and Equity in Times of the COVID-19 Pandemic"

G Q &

Indexed in: VCITESCORE

7.0

<

PubMed

IMPACT

FACTOR

7.8

Û

- Special Issue Editors
- Special Issue Information
- Keywords
- Published Papers

A special issue of Vaccines (ISSN 2076-393X). This special issue belongs to the section "COVID-19 Vaccines and Vaccination".

Deadline for manuscript submissions: closed (30 June 2022) | Viewed by 205947

Share This Special Issue



Special Issue Editor



Prof. Dr. Barbara Rath E-Mail Website Guest Editor

Department of Public Health, Vienna Vaccine Safety Initiative, Berlin, Germany Interests: vaccine safety; vaccine communication and education; influenza and other respiratory viruses; pediatric infectious diseases







Review

Access to Vaccination among Disadvantaged, Isolated and Difficult-to-Reach Communities in the WHO European Region: A Systematic Review

Winifred Ekezie ^{1,2,3,4}, Samy Awwad ^{1,4,5}, Arja Krauchenberg ^{4,6}, Nora Karara ^{7,8}, Łukasz Dembiński ^{9,10}, Zachi Grossman ^{9,11}, Stefano del Torso ⁹, Hans Juergen Dornbusch ⁹, Ana Neves ⁹, Sian Copley ⁹, Artur Mazur ⁹, Adamos Hadjipanayis ⁹, Yevgenii Grechukha ⁹, Hanna Nohynek ¹², Kaja Damnjanović ¹³, Milica Lazić ¹⁴, Vana Papaevangelou ⁹, Fedir Lapii ⁹, Chen Stein-Zamir ¹⁵, Barbara Rath ^{1,2,4,*} and for the ImmuHubs Consortium [†]

- ¹ Vienna Vaccine Safety Initiative e.V., 10437 Berlin, Germany; wce2@leicester.ac.uk (W.E.); samy.awwad7@gmail.com (S.A.)
- ² Department of Epidemiology and Public Health, University of Nottingham, Nottingham NG5 1PB, UK
- ³ College of Life Sciences, University of Leicester, Leicester LE5 4PW, UK
- ⁴ ImmuHubs Consortium, Coordinating Entity: Vienna Vaccine Safety Initiative e.V., 10437 Berlin, Germany; arja.krauchenberg@gmail.com
- ⁵ Stanford University, Palo Alto, CA 94305, USA
- 6 European Parents Association, 1000 Brussels, Belgium
- ⁷ Young European Academy of Paediatrics, 1000 Brussels, Belgium; norakarara@gmail.com
- ⁸ Evangelical Hospital Queen Elisabeth Herzberge, 10365 Berlin, Germany
- ⁹ European Academy of Paediatrics, 1000 Brussels, Belgium; lukaszdembinski@gmail.com (Ł.D.); zgrosman@netvision.net.il (Z.G.); deltorso@gmail.com (S.d.T.); hansjdornbusch@gmail.com (H.J.D.); amneves37@gmail.com (A.N.); sian.copley@gmail.com (S.C.); drmazur@poczta.onet.pl (A.M.); adamos@paidiatros.com (A.H.); ineugenius@gmail.com (Y.G.); vpapaev@gmail.com (V.P.); dr.fedirlapiy@gmail.com (F.L.)
- ¹⁰ Department of Pediatric Gastroenterology and Nutrition, Medical University of Warsaw, 02-091 Warsaw, Poland
- ¹¹ Adelson School of Medicine, Ariel University, Ariel 40700, Israel
- ¹² Finnish Institute for Health and Welfare, FI-00271 Helsinki, Finland; hanna.nohynek@thl.fi
- ¹³ Faculty of Philosophy, University of Belgrade, 11000 Beograd, Serbia; kdamnjan@f.bg.ac.rs
- 14 Faculty of Philosophy, University of Novi Sad, 21000 Novi Sad, Serbia; milica.lazic@ff.uns.ac.rs
- ¹⁵ Jerusalem District Health Office, Jerusalem 94341, Israel; chen.zamir@mail.huji.ac.il
- * Correspondence: barbara.rath@gmail.com
- + Collaborators/Membership of the ImmuHubs Consortium. Details are provided in the Supplementary Materials.

Dembiński, Ł.; Grossman, Z.; del Torso, S.; Dornbusch, H.J.; Neves, A.; Copley, S.; et al. Access to Vaccination among Disadvantaged, Isolated and Difficult-to-Reach Communities in the WHO European Region: A Systematic Review. Vaccines 2022, 10, 1038. https://doi.org/10.3390/ vaccines10071038

Academic Editor: Juan C. De la

Torre

Citation: Ekezie, W.; Awwad, S.;

Krauchenberg, A.; Karara, N.;







ImmuHubs



www.immunisationhubs.eu

ImmuHubs Partners





Coordinator





The ImmuHubs project and this website are co-funded by the European Union's Health Programme (2014-2020)

ImmuHubs Governance





ImmuHubs External Advisory Board

- International Pediatric Association
- Vaccines Today
- WHO-EURO
- WHO-EMRO
- Families Fighting Flu



immunisation hubs

Reducing Transmission of Vaccine-Preventable Diseases

innovative

WP Synergies

The complementary nature of the 6 Work Packages allows for lean management and focus on innovative immunisation action





Synergy





Literature Review

Publication

Access to Vaccination among Disadvantaged, Isolated and Difficult-to-Reach Communities in the WHO European Region: A Systematic Review

Winifred Ekezie ^{1,2,3,4}, Samy Awwad ^{1,4,5}, Arja Krauchenberg ^{4,6}, Nora Karara ^{7,8}, Łukasz Dembiński ^{9,10}, Zachi Grossman ^{9,11}, Stefano del Torso ⁹, Hans Juergen Dornbusch ⁹, Ana Neves ⁹, Sian Copley ⁹, Artur Mazur ⁹, Adamos Hadjipanayis ⁹, Yevgenii Grechukha ⁹, Hanna Nohynek ¹², Kaja Damnjanović ¹³, Milica Lazić ¹⁴, Vana Papaevangelou ⁹, Fedir Lapii ⁹, Chen Stein-Zamir ¹⁵, Barbara Rath ^{1,2,4,*} and for the ImmuHubs Consortium ⁺

- ¹ Vienna Vaccine Safety Initiative e.V., 10437 Berlin, Germany; wce2@leicester.ac.uk (W.E.); samy.awwad7@gmail.com (S.A.)
- ² Department of Epidemiology and Public Health, University of Nottingham, Nottingham NG5 1PB, UK
- ³ College of Life Sciences, University of Leicester, Leicester LE5 4PW, UK
- ⁴ ImmuHubs Consortium, Coordinating Entity: Vienna Vaccine Safety Initiative e.V., 10437 Berlin, Germany; arja.krauchenberg@gmail.com
- 5 Stanford University, Palo Alto, CA 94305, USA
- ⁶ European Parents Association, 1000 Brussels, Belgium
- 7 Young European Academy of Paediatrics, 1000 Brussels, Belgium; norakarara@gmail.com
- ⁸ Evangelical Hospital Queen Elisabeth Herzberge, 10365 Berlin, Germany
- ⁹ European Academy of Paediatrics, 1000 Brussels, Belgium; lukaszdembinski@gmail.com (Ł.D.); zgrosman@netvision.net.il (Z.G.); deltorso@gmail.com (S.d.T.); hansjdornbusch@gmail.com (H.J.D.); amneves37@gmail.com (A.N.); sian.copley@gmail.com (S.C.); drmazur@poczta.onet.pl (A.M.); adamos@paidiatros.com (A.H.); ineugenius@gmail.com (Y.G.); vpapaev@gmail.com (V.P.); dr.fedirlapiy@gmail.com (F.L.)
- ¹⁰ Department of Pediatric Gastroenterology and Nutrition, Medical University of Warsaw, 02-091 Warsaw, Poland
- ¹¹ Adelson School of Medicine, Ariel University, Ariel 40700, Israel
- ¹² Finnish Institute for Health and Welfare, FI-00271 Helsinki, Finland; hanna.nohynek@thl.fi
- ¹³ Faculty of Philosophy, University of Belgrade, 11000 Beograd, Serbia; kdamnjan@f.bg.ac.rs
- ¹⁴ Faculty of Philosophy, University of Novi Sad, 21000 Novi Sad, Serbia; milica.lazic@ff.uns.ac.rs
- ¹⁵ Jerusalem District Health Office, Jerusalem 94341, Israel; chen.zamir@mail.huji.ac.il
- * Correspondence: barbara.rath@gmail.com
- + Collaborators/Membership of the ImmuHubs Consortium. Details are provided in the Supplementary Materials.



Krauchenberg, A.; Karara, N.; Dembiński, Ł.; Grossman, Z.; del Torso, S.; Dornbusch, H.J.; Neves, A.; Copley, S.; et al. Access to Vaccination among Disadvantaged, Isolated and Difficult-to-Reach Communities in the WHO European Region: A Systematic Review. *Vaccines* **2022**, *10*, 1038. https://doi.org/10.3390/ vaccines10071038

Citation: Ekezie, W.; Awwad, S.;

Academic Editor: Juan C. De la

Ŧ

Review

Selection





Figure 1. Flow diagram of study inclusion.

Table 2. Summary of identified drivers, barriers and facilitators of vaccination.

Levels	Drivers	Barriers	Facilitators
National	 Official authorities NGOs National Healthcare Employees Social media Economic status Deprivation index 	Insufficient cultural sensi- tivity Vaccine shortage Pre-existing social inequal- ities	Point of entry and holding level in Europe as optimal timing for vac- cination Nationwide vaccine programme Policy of mandatory vaccine Non-mandatory system option Television ads Health surveillance system
	 Public healthcare facilities Professional healthcare • staff Immunisation database • 	Finances where payments • were required Lack of trust in health ser- vices, health approaches and need for opinions • from home country Poor access to basic facili- ties at clinics Long waits • Overload and stressful en- vironment at clinic • Follow-up challenges (mostly refugees) •	Free-of-charge preventive health service Reminders from clinic, schools, HMO on upcoming scheduled visits Flexible appointments, easy plan- ning Healthcare staff education and train- ing Recommendation from healthcare staff Health education collaboration with local NGOs Pre-existing condition monitoring
	 Social contacts (information from family and friends) Community and religious leaders 	Deprivation Discrimination Religious and cultural con- cerns	Promotional and outreach pro- grammes Increased educational activities and resources, including school-led events





Results

Vaccines 2022, 10, 1038

• Dis resi	placement camp dence • • • •	Number of cultural media- tors Refugee camp population changes and closures Negative and scientifically "incorrect" opinions Negative peer pressure Poverty Residential segregation (especially COVID-19)	Community involvement, religious support and spiritual endorsements Obligation to the community Familial support network Camp dwelling Importance of preventing diseases and protecting the health of children
 Par (mo Fac cati Fin Pre Per tior 	ental decisions ostly mothers) e-to-face communi- on ance vious experience sonal documenta- n	Low-risk perception Lack of faith in vaccine's need, safety Fear of side effects and complications Never being offered vac- cination Delayed receipt of the first • dose Not returning after their initial dose Transportation challenges • Language barrier and low literacy Undocumented status Short residence duration Certain demographic fac- tors (e.g., being female, high birth order, ethnicity, most deprived locations)	Having risk factors Awareness and understanding that unvaccinated children pose risk of transmissible infection to others Lower-income predicted higher compliance Health insurance Ability of individuals to be reached by, or to reach, recommended vac- cines School attendance Work employment Information material in own lan- guage Certain demographic factors (e.g., age of the index child, vaccination status of other family members, ed- ucation)



Improving Vaccine Equity in Europe

- Identification of strategies for effectively reaching isolated populations with information about vaccinations;
- D Providing early screenings, testing and immediate vaccination for migrant and traveler communities;
- Improving health monitoring by establishing secure databases, implementing vaccination policies that take into consideration the unique factors influencing specific population groups; Improving knowledge and understanding of vaccines by providing more information about personal benefits and risks;
- Using new communication techniques (social media) in the active and effective reaching of isolated groups with vaccine information establishing secure immunisation databases that can be frequently updated;
- Supporting vaccine literacy by providing more information to both health providers and isolated, disadvantaged and difficult-to-reach population groups; Enhancing community intervention strategies and involvement;
- □ Strengthening advocacy with community leaders and representatives.



Source: Ekezie et al. Vaccines 22 (10)

WINIFRED EKEZIE



Winifred Ekezie just completed her PhD in Epidemiology and Public Health at the University of Nottingham, United Kingdom. She has a Bachelor's degree in Microbiology, a Master's in Public Health and work experience in monitoring and evaluation of primary healthcare services including vaccination, maternal and child healthcare. Her PhD research was focused on healthcare management for conflict-induced internally displaced populations in Northern Nigeria. This topic was motivated by Winifred's passion for population health and health protection, especially vaccination coverage and communication. Overall, her core interests are field epidemiology, resource management, intervention development and health economics. Winifred has been part of the ViVi team since 2016 'I received tremendous support on vaccination practices in complex situations, and this has strengthened the global perspective of my research.'

Young ViVI member since 2016.

Winifred's publications can be found here.



First Author

SAMY AWWAD



Samy Awwad is a 17-year-old pre-medical student at Stanford University based in California, United States. At 15 years old, Samy became the sole founder and CEO of a pandemic preparedness organization called ImmuniGlobal, through which he was able to predict the devastation of the next pandemic. Through ImmuniGlobal, Samy has worked on a plethora of diverse projects, including a thorough GIS data analysis of California counties at risk of infection, influenza hands-on school workshops, and a 2-year partnership with a CDC-backed nonprofit organization.

Outside of infectious disease control, Samy is experienced in immunocytochemistry, immunohistochemistry, and cell culture as a cancer researcher. He has worked on 2 publications, one of which was honored in the 2020 Regeneron Science Talent Search, America's oldest and most prestigious science research competition for high schoolers.

At Stanford, Samy hopes to continue his intense passion for entrepreneurship for social good. In July 2020, he competed in a Hackathon where he co-founded a social justice organization, adding to his list of 3 startups he's founded in the past few years.

He's incredibly grateful and humbled by the work of ViVI and looks forward to collaborating with everyone!



Second Author





Tech Platform

innovative immunisation hubs



SOLUTION:



Aimed to increase vaccination uptake among disadvantaged, isolated and difficult to reach populations groups.

		PERIOD:
6	CYPRUS GREECE FINLAND	MAX
COUNTRIES	PORTUGAL POLAND SERBIA	2021
3 ImmuHubs REPRESENTING	1 Disenfranchised populations 2 Isolated/closed communities 3 Ethnic/cross-border populations	
2 additional ImmuHubs engaging populations with health risks		A P R I L
Belgium and Germany coordinate the project. ImmuHubs is managed by 9 partners, coordinated by ViVI, and counts on a stakeholder forum and an External Advisory Board (EAB)		2024



Goal







Expected Results of the ImmuHubs Project

- ✓ 10% increase in the uptake of childhood and life-course vaccines
- ✓ >75% accuracy in awareness of the immunisation status
- ✓ 80% accurate understanding of vaccination needs specific to the population group
- ✓ 20% increase in planned consultations with health mediators or professionals
- ✓ 20% increase in inter-generational vaccine communication in the household/family unit







Engage





VaccApp

VIVI VaccApp

Empowering Families to Keep Vaccination Record up to Date



A user-centered mobile application inviting users to take a closer look at their vaccination status and to 'explain' it through friendly avatars deepening the doctor-patient relationship. It can be used at home or in the waiting room prior to a doctor's visit, empowering users to become active in getting protected against vaccine preventable diseases. A 'traffic light system' allows users to mark aspects in their vaccination history that may be unclear to them, and to seek clarification when they visit a medical professional.







Chatbot

The VaccApp Chatbot is designed to empower parents and caretakers to becoming active partners with regards to vaccine protection. Its user-friendly design invites lay people to take a closer look at their own vaccination record and the records of their children and family members. This allows individuals to gain clarity about their personal level of health protection and to keep track of immunization visits. If clarification is needed, the app will keep a list of questions, readily available via smartphone during upcoming doctor's visits.

The VaccApp was created through a Design Thinking partnership between ViVI and the School of Design Thinking in Potsdam, Germany, the first school for innovation in Europe.





Preventive Medicine Reports 5 (2017) 241-250

Contents lists available at ScienceDirect

Preventive Medicine Reports



journal homepage: http://ees.elsevier.com/pmedr

Educating parents about the vaccination status of their children: A user-centered mobile application

Lea Seeber ^{a,b}, Tim Conrad ^c, Christian Hoppe ^{a,b,c}, Patrick Obermeier ^{a,b}, Xi Chen ^{a,b}, Katharina Karsch ^a, Susann Muehlhans ^{a,b}, Franziska Tief ^{a,b}, Sindy Boettcher ^d, Sabine Diedrich ^d, Brunhilde Schweiger ^e, Barbara Rath ^{a,b,f,*}

^a Department of Pediatrics, Charité University Medical Center, Augustenburger Platz 1, 13353 Berlin, Germany

^b Vienna Vaccine Safety Initiative, Berlin, Germany

^c Department of Mathematics and Computer Sciences, Freie University, Arnimallee 14, 14195 Berlin, Germany

^d National Reference Center for Poliomyelitis and Enteroviruses, Robert Koch Institute, Seestr. 10, 13353 Berlin, Germany ^e National Reference Center for Influenza, Robert Koch Institute, Seestr. 10, 13353 Berlin, Germany

^f The University of Nottingham School of Medicine, Hucknall Road, Nottingham NG51PB, UK

ARTICLE INFO

ABSTRACT

Article history: Received 22 July 2016 Received in revised form 6 January 2017 Accepted 8 January 2017 Available online 14 January 2017

Keywords: Immunization Patient education Vaccination history Patient empowerment Mobile health Electronic health records



Parents are often uncertain about the vaccination status of their children. In times of vaccine hesitancy, vaccination programs could benefit from active patient participation. The Vaccination App (VAccApp) was developed by the Vienna Vaccine Safety Initiative, enabling parents to learn about the vaccination status of their children, including 25 different routine, special indication and travel vaccines listed in the WHO Immunization Certificate of Vaccination (WHO-ICV). Between 2012 and 2014, the VAccApp was validated in a hospital-based quality management program in Berlin, Germany, in collaboration with the Robert Koch Institute. Parents of 178 children were asked to transfer the immunization data of their children from the WHO-ICV into the VAccApp. The respective WHO-ICV was photocopied for independent, professional data entry (gold standard). Demonstrating the status quo in vaccine information reporting, a Recall Group of 278 parents underwent structured interviews for verbal immunization histories, without the respective WHO-ICV. Only 9% of the Recall Group were able to provide a complete vaccination status; on average 39% of the questions were answered correctly. Using the WHO-ICV with the help of the VAccApp resulted in 62% of parents providing a complete vaccination status; on average 95% of the questions were answered correctly. After using the VAccApp, parents were more likely to remember key aspects of the vaccination history. User-friendly mobile applications empower parents to take a closer look at the vaccination record, thereby taking an active role in providing accurate vaccination histories. Parents may become motivated to ask informed questions and to keep vaccinations up-to-date.

© 2017 The Author(s). Published by Elsevier Inc, This is an open access article under the CC BY-NC-ND license (http://orgativogo



VaccApp Webapp

- Use as often as you like
- Edit and add information
- Build your own Vaccination record
- Share Include family members
- Share with your doctor, nurse or pharmacist
- Use in medical group practice



HealthSurvey

VIVI HealthSurvey

People on the Move Reporting Their Health Needs



Helping people 'on the move' to keep track of their overall health status. Users report health needs securely and anonymously. Originally developed for natural disaster situations, the HealthSurvey has also been used by refugees, as featured in the Institute of Migration -Health Research Portal.

The HealthSurvey helps stakeholders to allocate resources in real-time, to conduct rapid crisis assessments. Using federated learning methodologies, the app preserves data privacy. Components of the Health Survey can be used to support cross-border populations.





Home ImmuHubs Team

Projects News

Achievements Contact



VIVI HealthSurvey

on the move can safely report their and their child's health needs



Helping people 'on the move' to keep track of their overall health status. Users report health needs securely and anonymously. Originally developed for natural disaster situations, the HealthSurvey has also been used by refugees, as featured in the Institute of Migration – Health Research Portal.

The HealthSurvey helps stakeholders to allocate resources in real-time, to conduct rapid crisis assessments. Using federated learning methodologies, the app preserves data privacy. Components of the Health Survey can be used to support cross-border populations.



HealthSurvey

Relevant Publications

Title	Author	Year Published	Link to Publication
A comparative analysis of psychological trauma experienced by children and young adults in two scenarios: evacuation following a natural disaster versus forced migration to escape armed conflict	P Myles, S Swenshon, K Haase, T Szeles, C Jung, F Jacobi, B Rath	2018	View
Using a mobile application to detect health needs among children and adolescents who are newly arrived migrants in Europe	B Rath, S Swenshon, K Haase, T Szeles, C Jung, F Jacobi, P Myles	2018	View
Adverse Respiratory Symptoms and Environmental Exposures Among Children and Adolescents following Hurricane Katrina	B Rath, E A Young, A Harris, K Perrin, D Bronfin, R Ratard, R VanDyke, M Goldshore, and M Magnus	2011	View
Adverse Health Outcomes after Hurricane Katrina among Children and Adolescents with Chronic Conditions	B Rath, J Donato, A Duggan, K Perrin, D Bronfin, R Ratard, R VanDyke, M Magnus	2007	View

International Organization for Migration



Migration Health Division (MHD) MHD Research and Epidemiology Unit Email: mhdrap@iom.int

About Us

The migration health research portal is a one-stop shop open-access global repository of IOM's migration and health publications, projects, academic partnerships, bulletin, podcasts, guidelines, and tools.



Source: https://migrationhealthresearch.iom.int/users/barbararath

ScoreApp

VIVI ScoreApp

Taking Control of your Health During a Pandemic



For healthcare professionals, patients adn caregivers to score influenza/RSV/COVID-19 disease severity within 1-2 minutes. It improves quality of care, vaccine effectiveness surveillance, pandemic preparedness, antibiotic stewardship, as well as the accuracy and interoperability of clinical trial data. For patients and families: from home, in clinics or during Telehealth sessions. Validated for patients of all ages, from mild cold symptoms to severe illness requiring intensive care.



ScoreApp

EXPERT REVIEW OF ANTI-INFECTIVE THERAPY, 2017 https://doi.org/10.1080/14787210.2017.1295847



REVIEW



Influenza and other respiratory viruses: standardizing disease severity in surveillance and clinical trials

Barbara Rath (D^{a,b,c}, Tim Conrad (D^d, Puja Myles (D^c, Maren Alchikh (D^{a,b}, Xiaolin Ma (D^{b,e}, Christian Hoppe (D^{a,d}, Franziska Tief (D^{a,b}, Xi Chen (D^{a,b}, Patrick Obermeier (D^{a,b}, Bron Kisler (D^f and Brunhilde Schweiger (D^e)

^aDivision of Pediatric Infectious Diseases, Vienna Vaccine Safety Initiative, Berlin, Germany; ^bDepartment of Pediatrics, Charité University Medical Center, Berlin, Germany; ^cDivision of Epidemiology and Public Health, University of Nottingham, Nottingham, UK; ^dDepartment of Mathematics and Computer Science, Freie Universität Berlin, Berlin, Germany; ^eNational Reference Centre for Influenza and Other Respiratory Viruses, Robert Koch Institute, Berlin, Germany; ^fClinical Data Standards Interchange Consortium (CDISC), Austin, TX, USA

ABSTRACT

Introduction: Influenza-Like Illness is a leading cause of hospitalization in children. Disease burden due to influenza and other respiratory viral infections is reported on a population level, but clinical scores measuring individual changes in disease severity are urgently needed.

Areas covered: We present a composite clinical score allowing individual patient data analyses of disease severity based on systematic literature review and WHO-criteria for uncomplicated and complicated disease. The 22-item ViVI Disease Severity Score showed a normal distribution in a pediatric cohort of 6073 children aged 0–18 years (mean age 3.13; S.D. 3.89; range: 0 to 18.79).

Expert commentary: The ViVI Score was correlated with risk of antibiotic use as well as need for hospitalization and intensive care. The ViVI Score was used to track children with influenza, respiratory syncytial virus, human metapneumovirus, human rhinovirus, and adenovirus infections and is fully compliant with regulatory data standards. The ViVI Disease Severity Score mobile application allows physicians to measure disease severity at the point-of care thereby taking clinical trials to the next level.

ARTICLE HISTORY

Received 10 July 2016 Accepted 13 February 2017

KEYWORDS

Disease severity; influenzalike illness; influenza; respiratory syncytial virus; human metapneumovirus; human rhinovirus; adenovirus; seasonality; antivirals; clinical trials







The SymptomSurvey aims to educate doctors and nurses, about what really matters to us when children, adults and elderly citizens experience COVID or flu-like symptoms.

The SymptomSurvey aims to learn, from the perspective of patients & caregivers:

- · Which symptoms are important?
- How does improvement look like?
- What constitutes recovery from a patient's perspective?



Learn More







Most people have experienced flu or COVID symptoms.



Real Provide P



survey SymptomSurvey For better healthcare during the current pandemic

Hi 👋
Welcome to the SymptomSurvey
SymptomSurvey By VIVI
Hi
*By clicking "Hi" you are accepting our <u>Privacy Policy</u>





What are we learning from the SymptomSurvey?



WHAT IS THE GOAL OF THE SYMPTOMSURVEY?

Most people have experienced flu or COVID symptoms. When we communicate our symptoms to healthcare professionals, the message does not always get across. Sympotoms that worry us, may not always get the attention they deserve.

The SymptomSurvey aims to educate doctors and nurses, about what really matters to us when we experience COVID or flu-like symptoms.





The SymptomSurvey serves citizens who wish to keep themselves and their families healthy and safe.

- designed by the Vaccine Safety Initiative (VIVI)
- part of the EU-funded project 'ImmuHubs'.
- organized with patient organizations, NGOs & medical associations

The SymptomSurvey aims to inform decision makers about your healthy choices and priorities as a citizen.





WHICH SYMPTOMS AFFECT HOW WE FEEL AND FUNCTION?

This information is crucial for decision makers that license vaccines and drugs. Regulatory agencies, such as the FDA and the European Medicine Agency, focus on the subjective patient experience and well-being rather than laboratory parameters.







vaccine safety initiative

ImmuHubs on the Ground



Analog Tool for all Participants



Reducing Transmission of Vaccine-Preventable Diseases



Approach

An ImmuHub (short for Innovative Immunisation Hub) is a physcial location where you and your family can meet with experts on vaccines & immunisation and their teams.



Grassroots Innovation









Focus Groups,



Focus Groups





Inclusion





Social Media, Podcasts, Videos



Channels



WEBSITE Content hub with 3 levels of content

TWITTER

Focus on engagement with press, policy makers and global community



LINKEDIN

Focus on awareness and use of power of the network (partners as individual members become ambassadors)



MAIL internal communication* for partners and stakeholders forum *internal communication: mails + meetings



TIK-TOK, FACEBOOK, INSTAGRAM

Direct contact with primary (local) and secondary (global) groups for awareness and conversion campaigns (no need to create accounts), choice based on local use of these channels among target communities



ImmuHubs LinkedIn



ImmuHubs

Innovative Immunisation Hubs (ImmuHubs) -Reducing Transmission of Vaccine-Preventable Diseases.

Public Health • Berlin • 154 followers

Christopher & 109 other connections follow this page



Recommendations from ImmuHubs



https://www.linkedin.com/company/immunisationhubs/



ImmuHubs Twitter



ImmuHubs

@ImmuHubs

#ImmuHubs ("Innovative Immunisation Hubs") is a European Consortium funded by @EU_HadEA to improve access to #immunisation in the #EU, lead by @_VaccineSafety

Berlin, Germany *O* immunisationhubs.eu

🖾 Joined June 2021

1,013 Following 321 Followers

Posts Replies Highlights Media Likes

Pinned



ImmuHubs @ImmuHubs • 6/7/23 •••• The VaccApp, available in 20 languages, used by 20 @ImmuHubs in 6 #European countries, centeres around individuals and families helping them to understand their vaccinations better, no matter where in the #EU they live.

#UnitedInProtection

immunisationhubs.eu/projects/techn...

https://twitter.com/immuhubs



ImmuHubs YouTube

PouTube DE	Search			Q	1 (() Sign in
Home Shorts	Waldorf Students in Lisbon AIDFM	Project ordinator ViVI	Y Facilitator S UBE	ERBIA Usplaced War Veteran in Belgrade UBE	GREECE	Seasonal Workers in Greek Islands PRX
Subscriptions					People living	2nd Gen
Library	PORTUGAL	Homeless Project people in Manager		in Eastern Serbia	with HIV/AIDS	Immigrants in Athens
History	Inr	novative Immunisatio	n Hubs		6	Subscribe
n to like videos,	innovative @In immunisation hubs Imm	nmuHubs 8 videos nuHubs ("Innovative Immunisation Hu	ubs") is a European Consortium fu	. x.		
nent, and subscribe.	Onduceg Tarterbeichen Vesche Neventstät Dassen	whubs eu and 2 more links	<i></i>			
nent, and subscribe. Sign in	United to the second se	nuhubs.eu and 2 more links				
nent, and subscribe. Sign in	HOME VIDEO	nuhubs.eu and 2 more links	HANNELS ABOUT	Q		
nent, and subscribe. Sign in re Trending	HOME VIDEO Videos Play all	nuhubs.eu and 2 more links	HANNELS ABOUT	Q		
sign in re Trending Music	HOME VIDEO Videos Play all	nuhubs.eu and 2 more links	HANNELS ABOUT	Q		
sign in re Trending Music Movies & TV	HOME VIDEO Videos Play all	nuhubs.eu and 2 more links DS PLAYLISTS CI	HANNELS ABOUT		25	
e Trending Music Live	HOME VIDEO Videos Play all	auhubs.eu and 2 more links DS PLAYLISTS CI	HANNELS ABOUT	23	2.23	533
nent, and subscribe. Sign in re Trending Music Movies & TV Live Gaming	HOME VIDEO Videos ▶ Play all Videos ▶ Play all Videos ▶ Play all	nuhubs.eu and 2 more links DS PLAYLISTS CI 3336 Insights on Living with HIV/AIDS in Greece: Mrs Statement	HANNELS ABOUT	23 Asthma Care in Children: Dr. Joana Fermeiro Unveils the	2223 Projeto ImmuHubs em Portugal (AIDEM) - Ana	5:39



https://www.youtube.com/@ImmuHubs

Podcasts

innovative immunisation

immunisationhubs.eu/news/





Children with Asthma in Portugal April 13, 2023

Read More »



project April 13, 2023 Read More » Podcast: Greece Seasonal Workers April 13, 2023

innovative

immunisation

hubs

Reducing Transmission of Vaccine-Preventable Diseases

ImmuHubs Podcast Series

Read More »

北下



Poland: War refugees from Ukraine April 12, 2023 Dood More »



Second-generation migrants in Greece April 12, 2023 Dood More »



Podcast: Immunization of Bosniaks from Sandžak region September 25, 2022

https://immunisationhubs.eu/news/

GQÓI



ImmuHubs Spotify

e > c

podcasters.spotify.com/pod/show/immuhubs





https://podcasters.spotify.com/pod/show/immuhubs

10 D D





Education





- -> C 🔒 seki.eu/for-you/

SEK

vaccinesafety

G ∞ ₫ ☆ ± 🛛 😩 :

FOR DOCTORS Y FOR SCIENTISTS FOR YOU ABOUT Y



GOT VACCINE QUESTIONS OR FEEDBACK ON HOW WE'RE DOING?

Individuals and famileis have a vested interest in receiving well-balanced, up-to-date vaccine information from their healthcare professionals. This is particularly important to everyone who wants to take a well informed decision on getting vaccinated, but especially for parents and caretakers who wish to see their children or loved ones safe and protected from vaccine preventable diseases.

We know that individuals and their families are the most important advocates of vaccination.

Are you a citizend e ciding on vaccinations or a parent or caretaker decising on behalf of a child or loved one? SEKI plans to engage you in the creation of the SEKI educational program.

We would like to know how you communicate about vaccines with your own healthcare providers or those of your children and loved ones.

We want you to tell us where your doctor, nurse, or pharmacist could have done better, where you see difficulties in accessing vaccines and vaccine-related information, where you sense gaps in your providers' knowledge, and how you believe your experience

surrounding vaccination can be improved.

EDUCATE YOURSELF

COLLABORATE

Thank You

For information, contact us at

info@vaccinesafety.org







The ImmuHubs project and this website are co-funded by the European Union's Health Programme (2014-2020)