

Additional file 4 (Table): Analysis of models of vaccine delivery (n=33) according to the 2022 WHO Guide (25) priority action areas.

Author	Be driven by data	Coordinate, plan and implement	Address key barriers to health and vaccination systems	Ensure effective communication and build trust	Monitor and respond to social media	Ensure effective community engagement	Reinforce capacity and local solutions	Monitor, learn and evaluate
COVID-19 Vaccine								
Alcendor et al., 2022 (53)	Somewhat (targeting zip codes with low vaccination rates)	Yes (partnered with community, university, vaccine strike teams, community-based organizations, faith organizations, disease/health experts, community engagement personnel)	Yes (mobile vaccine distribution to urban/rural underserved communities in nontraditional settings)	Yes (on-site translators, bilingual medical staff, multilingual flyers, infographic, Facebook Live sessions; vaccine education)	Somewhat (Facebook Live sessions)	Yes (partnered with ethnic/immigrant community-based organizations, faith-based organizations, to support appropriate cultural context; support by community engagement personnel/community engagement alliance)	Yes (partnered with local school of nursing, COVID-19 vaccine strike teams; supported by disease experts)	Yes (vaccination coverage)
Bentivegna et al., 2022 (61)	Yes (vaccination coverage assessed; gap/barriers in the vaccination coverage identified; use of Framework for Equitable Allocation of COVID-19 Vaccine, National Academies)	Yes (local committee consulted; long-standing collaborations with healthcare/social support services)	Yes (barriers to vaccination assessed; free weekly health visits to each informal settlement)	Yes ('information days'; information leaflets in informal settlements designed in collaboration with other support organizations and translated into 10 languages)	No or Not reported	Yes (local committee with most authoritative figures in settlement; inhabitants)	Yes (collaboration with a non-profit association aimed at bringing healthcare to vulnerable populations; long-standing collaborations with healthcare/social support services)	Yes (weekly meetings to review daily experiences and assessments to optimize the campaign; vaccination coverage)
Berrou et al., 2022 (64)	Yes (vaccination uptake levels from insights from local vaccination networks/community teams; target population numbers and vaccination status; before and after outreach surveys; online public engagement surveys)	Yes (established dedicated group within regional vaccination programme to design/coordinate; commissioned by health services partnership; co-designed with community leaders and influencers)	Yes (pop-up clinics in nontraditional target locations with other outreach; culturally-adapted practices; access for undocumented migrants; streamlining process for GP registration; support by multilingual 'Link workers')	Yes (targeted communication and engagement campaign to address misinformation tailored to needs of specific groups; multilingual written materials/social media outputs delivered by local community influencers, community members, minority ethnic healthcare professionals; local ethnic media channels/ social media, community	Somewhat (participants encouraged to "spread the word" amongst friends and family using personal social media channels; social media outputs by local community influencers)	Yes (collaboration with community leaders and influencers ('community champions', faith leaders, and local influential business owners; significant contribution from the voluntary sector in supporting clinics)	Yes (partnered with trusted healthcare professionals to promote vaccine; bookings and appointments arranged by local community groups; designed and coordinated by dedicated group within a wider health program; coordination with national health service health professionals and volunteers; collaboration with trusted health experts)	Yes (routinely collected quantitative and qualitative data; before and after outreach/engagement surveys; vaccination data from campaign; follow-up interviews; vaccine uptake data from national data system; semi-structured interviews with programme leaders, facilitators, and local communities' representatives and

				venues, personal conversations; focus groups/informal conversations by trusted healthcare professionals; community champions co-designed information)				leaders)
Desens et al., 2023 (54)	Yes (targeting areas with low vaccine rates; vaccine coverage disaggregated by socioeconomic factors; public health data; analysis of online and on the ground discourse; community assessment; HIPE™ framework)	Yes (network of outreach workers; partnered with grassroots and community organizations, schools, collaboration to address digital health equity barriers in rural communities)	Yes (mobile vaccine outreach; vaccine sites in local communities at nontraditional target locations; door-to-door information delivery; cultural needs addressed; addressing digital health equity barriers in rural communities)	Yes (communication assets customized with messaging specific to each subpopulation; message testing sessions; communication for social media, WhatsApp, email, church bulletins, public announcements; local church pastors and healthcare providers acted as trusted messengers; regular education sessions via webinar and in-person at vaccine events; door-to-door information dissemination by outreach workers)	Yes (social media listening tools to identify narratives of inaccurate/misleading health discourse including “on the ground” strategies for crowdsourcing community discourse; mobile app that enables crowd-sourced reporting by recruited individuals; analysis of online discourse; custom information developed)	Yes (utilized network of outreach workers; partnered with local church pastors as trusted messengers for delivering the message; Promotoras (community volunteers) with special connection and understanding of community)	Yes (leveraged recognized local health providers; collaboration with collaboration to address digital health equity barriers in rural communities); partnered with community health resource specialists, volunteer community health workers/Promotoras)	Yes (formative evaluation sessions with pastors and community health care workers; HIPE™ framework’s formative and impact evaluation; vaccination rates using publicly available data)
Elmore et al., 2022 (55)	Yes (target population totals and using residential information client lists from partner organizations; phone calls to assess baseline vaccination need)	Yes (multi-sector partnership; organizations collaborate closely; academic-health partnership, and engaging with local community and nonprofits; convening stakeholders in planning)	Yes (door-to-door outreach in target neighbourhoods for registration; tailoring strategy to the specific needs; clinic extended hours; interpretation services; multilingual hotline and ‘language access blocks’; all individuals approached; no cost and documentation not required; scheduling rides to clinic; appointments within week)	Yes (multilingual flyers; Information provision in outreach; multilingual text messages and emails sent to client lists; using partner organization as trusted messenger and source of support)	No or not reported	Yes (convening stakeholders including area nonprofits and community leaders to engage in planning and tailoring a vaccine access)	Yes (partnering with local health system; use of existing contracts with partners; partner organization health equipment; health teams from partners including community health workers, language interpreters, vaccine call center staff; registered nurse-care coordinator provided individualized follow-up; use of state Immunization Information System (IIS))	Yes (vaccination uptake; qualitative data: call center staff and nurse coordinator recorded notes related to reasons for postponing or declining vaccine; brief team member survey; Squire 2.0 guidelines to report system-level work)

Holdbrook et al., 2023 (65)	Somewhat (generally targeting high risk region of city)	Yes (collaboration of stakeholders involved and specified overarching goals and co-designed, including: healthcare/health system and public health employees, community organizations, administrators, government officials, university and research staff, resettlement organizations, and community volunteers)	Yes (pop-up mobile clinic in target neighbourhood location; free walk-up model which did not require appointments and open regardless of immigration status/documentation or health care coverage; free public transit; services in 16 languages; extended hours of operation; food hampers and additional social support to clinic attendees; cultural brokers/international medical graduates for language/cultural support)	Yes (communication provided directly by multilingual staff)	No or not reported	Yes (co-design and collaboration by community organizations, community volunteers, and cultural brokers; initiated by a local newcomers collaborative)	Yes (multi-stakeholder group, including health care workers, physicians, health system, international medical graduates, researchers)	Yes (formative evaluation by stakeholders qualitatively assessing pre-specified goals of effectiveness, efficiency, patient centeredness, and safety, and scalability; post-clinic survey with stakeholders; SQUIRE 2.0 reporting guidelines)
Lohr et al, 2023 (56)	Yes (data on burden of disease of target population; adopted CDC's Crisis and Emergency Risk Communication (CERC) framework; Rothman's community intervention approaches; cross-sectional survey to assess knowledge and attitudes of vaccine)	Yes (community-based COVID-19 Task Force and adopted communication framework; bidirectional communication between community and academic partners)	Yes (addressing language and scheduling barriers; flexibility in time, ease of registration, location, and language translation; walk-ins and pre-registration; clinics at multiple target community locations; sent reminders, followed-up with information on location and time of second dose; bilingual staff and language interpretation infrastructure)	Yes (developed and disseminated information in multiple languages and formats; formed a communication working group which used a seven-step process to adapt and distribute messaging (i.e., message maps; background research; adaptation of messages for cultural and language appropriateness; incorporating feedback; expert review; 'communication leader' feedback and delivery via social media)	Yes (systematically tracked vaccine concerns and adapted messaging for social media; seven-step process to adapt and distribute messaging; 'communication leaders' used social media platform most accessible to their network and responded to questions)	Yes (community-engaged and community-based intervention; community vaccine task force formed; Rothman's community intervention approaches: community organization model; community capacity development; community partners recruited 'communication leaders' based on trustworthiness; bidirectional communication between community and academic partners; feedback from community members; volunteers)	Yes (local healthcare institution collaboration with vaccine task force and clinical leaders; vaccine allocation and distribution workgroup from Mayo Clinic; resource, infrastructure, and vaccination provision and administration assistance through health services partnerships; partners including public health department staff attended weekly meetings; infectious disease experts and social/economic resource experts clarified questions)	Yes (numbers of vaccinations administered; feedback from communication leaders; community and academic partners, and county public health department staff attended weekly 60-min, virtual meetings to share progress and best practices; evaluation of the bidirectional CERC intervention with communication leaders/social networks via pre- and post-intervention member survey (knowledge and acceptability/attitudes about vaccine)

Malone et al., 2022 (57)	Somewhat (targeting region generally known for high migrant numbers)	Yes (engaged with community partners; community engagement coordinator)	Yes (individualized registration procedures with community engagement coordinator; transportation to vaccine appointments; community-based clinic in target location; telephone translation service and variety of racial/ethnic backgrounds and languages spoken)	Yes (multilingual information materials)	No or Not reported	Yes (community partners with trusted relationships and culturally sensitive approaches; community engagement coordinator; volunteers from variety of racial/ethnic backgrounds)	Yes (hiring additional staff including vaccine coordinator, nurse, registration coordinator, and community engagement coordinator; using a community-based primary care clinic)	Yes (vaccination coverage)
Marquez et al., 2021 (58)	Yes (data on population size, ethnicity, income, COVID-19 rates, predisposing and enabling factors; door-to-door outreach survey to gather attitudes; theory informed approach using PRECEDE Model)	Yes (community, academic, public health partnership model and co-design)	Yes (door-to-door outreach; client-centered neighborhood vaccination site in convenient location; low-barrier registration; strategy to address predisposing, enabling and reinforcing factors; no requirement to show ID, prove residency/health insurance status; utilizing trusted bilingual or monolingual community members; culturally-tailored)	Yes (information via direct outreach by multilingual community health care workers; interviews on ethnic language radio shows, vaccine townhalls, posters, social media, community websites, newspapers; information events; text messages with health information sent)	Somewhat (community leaders vaccinated at the site posted photos on social media encouraging others to get vaccinated; dissemination of information via social media)	Yes (community-centered and neighborhood vaccination strategy; Community-academic-public health partnership model; use of trusted messengers and social networks; use of peer vaccine ambassadors)	Yes (site staff provided vaccine-related education and regular refresher trainings; leveraging peer vaccine ambassadors; collaboration with local health services, Latino Task Force-Response to COVID-19, universities, local phlebotomy and lab services, primary health, department of public health, primary health informatics support; experienced staff who worked for prior mass community-based COVID-19 testing events)	Yes (vaccination coverage, reasons for choosing vaccination; RE-AIM framework to evaluate both individual client-level outcomes (reach and effectiveness) and community-level outcomes (effectiveness, implementation, and maintenance); programmatic vaccination data; surveillance data; census data; structured survey; strategy adapted in response to rapid evolving eligibility criteria and site capacity)
Morisod et al., 2023 (66)	Somewhat (general background information on lower rates of vaccination among undocumented migrants)	Yes (multidisciplinary working group formed with administrative, healthcare professionals, with expertise in vaccination and migrant population; system in place adapted; working group met weekly; large number of community partners involved)	Yes (linguistically and culturally appropriate care; no health insurance required; no appointment needed; free vaccine; anonymous vaccination possible; extension of opening hours; interpreters if needed)	Yes (multilingual information materials and other documents; communication campaign explicitly delivered in the communities; community partners promoted campaign by sharing communication campaign messages through online social	Somewhat (community partners shared communication campaign via online social network groups; physician who was part of community sent message to community's chat group with thousands of target community members)	Yes (contacted at least 50 community partners including migrant associations, churches, NGOs and community partners had active role in promoting campaign)	Yes (member of community physician promoting vaccine via social media; multidisciplinary working group composed healthcare providers/manager with expertise in vaccination and migrant population formed; system already in place was adapted to address the barriers to healthcare that; qualified nursing and	Yes (vaccination uptake; working group met weekly to monitor the project and make necessary modifications; vaccination appointment data)

				network groups including by influential messengers; community-associated media; distributed documents inside communities)			administrative staff with previous experience with populations)	
Nair et al., 2022(67)	No or not reported	Somewhat (conducted by an expert medical professional from target community; recruitment via social media and using virtual platform to deliver educational session)	Somewhat (using virtual platform to deliver educational session)	Yes (intervention was education webinar)	Somewhat (social media to recruit participants; use of virtual platform to deliver intervention and interact with participants: interact directly with a health-care professional and clarify any doubts they had surrounding the vaccine)	No or not reported	Yes (intervention delivered by an expert medical professional from target community)	Yes (pre/post survey on confidence in receiving vaccine)
Noack, Schaning, & Muller, 2022 (62)	Somewhat (listening to target population to determine needs; interviewed staff at vaccination centers; Spiral Technology Action Research (STAR) model to create the app; literature/guidelines, field trials)	Yes (app creation involving various processes and input from healthcare professionals (HCPs), approval by the Robert Koch Institute (German National Institute for Public Health), and German Federal Ministry of Health)	Yes (pilot of app with mobile vaccination outreach teams across multiple outreach deployments; providing linguistic assistance during vaccine delivery in 39 languages)	Yes (multilingual app providing information in 30 languages to target population needs)	No or Not reported	Yes (target community involved; interviewed medical, organizational, and administrative staff at vaccination centers who provided the necessary information to combine theory and practice; listened to the community)	Yes (app used to improve vaccine administration by healthcare providers; created with support of healthcare professionals and approval by public health and ministry of health institutes)	Yes (monitored progress post-release; real life pilot tested with observation protocol)
Rosales et al., 2023 (59)	Somewhat (some data on burden of disease among target population; adopting vaccination readiness plans, clinical guidelines, best practices)	Yes (managed by border health commission and partnerships; three strategic initiatives and their corresponding activities: disseminate and adopt, inform and adapt, and target and train; collaboration at governmental, academic, community-organization, and community level; partnerships with Consulates)	Yes (mobile health units with targeted outreach; culturally and linguistically adapted, free, and accessible regardless of insurance/immigration status)	Yes (digital dissemination of existing and developed cultural and linguistically adapted materials via social media; original infographics, video, and audio resources in alignment with CDC guidelines; testimonials, and public radio and television spots; feedback sessions on best practices and addressing misinformation;	Somewhat (dissemination of information on social networks; Facebook live, open virtual forums; documented key myths and misleading information that users shared and efforts made to address information; medical professionals and pharmacists available during vaccination events to address concerns)	Yes (partnerships with community-based organizations; participation and organization of local community; planned with the assistance of local governments, as well as other community organizations; 301 local alliances made with local health, religious and educational centers, and community organizations; essential workers, their families, and communities)	Yes (managed by border health commission in partnership with health services organizations; created alliances with local city and state health departments and with non-governmental organizations; training in CDC best practices; recruitment and training of community health workers, volunteers, interns, and students; medical professionals and pharmacists available during	Yes (vaccines provided; services delivered; various process measures)

				education shared at community events; dissemination of photos of people being vaccinated)			vaccination events to address concerns; health promoters Promotoras, received specialized training and support in self-care from faculty of psychology)	
Shah et al., 2023 (60)	Somewhat (some general statistics related to target population)	Yes (intervention designed via community-based participatory research; developed accessible testing and vaccination services in partnership with local community-based organizations; community advisory board involved at each stage; guided by input from Latino community members)	Yes (social marketing to disseminate timely information; community health worker navigation and community-based services to address structural barriers to care; free community-based events; hotline for Latinos, staffed by a team of bilingual CHWs)	Yes (culturally and linguistically appropriate communication for target population outside of traditional health care settings; project Web site which included COVID-19 information in English and Spanish; guided by input from community members and media designers; advertisements on social media and community-based organization groups; offline advertisements on radio, billboards)	Somewhat (social marketing intervention; advertisements distributed through social media and community-based organization social media platform groups)	Yes (community-based participatory research; partnership with local community-based organizations; guided by input from Latino community members; community advisory board guiding at each stage; campaign name was developed through a crowdsourcing open contest to incorporate community input)	Yes (campaign coupled with community health worker navigation and community-based services)	Yes (reach of campaign evaluated via online metrics and surveys at community-based venues)
Tjaden, Haarmann, & Savaskan, 2023 (63)	Somewhat (general vaccination rates of migrant population; interviews with local stakeholders)	Yes (design of interventions with local stakeholders working with migrant communities, including a local public health agency, affiliated social work providers and an agency for intercultural communication)	Yes (delivered intervention virtually; advertisements were linguistically and culturally appropriate to each migrant group)	Yes (social media advertisements; easy access to vaccination appointment booking tools; randomly assigned to advertisement in native language or local language and to different messengers; ads disseminated in native language of each migrant group and images adjusted for each language group; vaccination appointment booking tool/website with information in own language)	Somewhat (social media advertisements adjusted to match user ethnic background)	Yes (interviews with local stakeholders working with migrant communities to help design intervention; collaboration with agency for intercultural communication)	Yes (collaboration with a local public health agency, social work providers; campaign included link to book local vaccination appointment)	Yes (aggregate data on reach and click-through rate: number of unique users who click on the COVID-19 vaccination appointment link; automatic tracking by Facebook; cost-effectiveness)

Other Vaccines

Amani et al., 2021 (68)	Yes (target population identified through refugee camp statistics)	Yes (different levels of the ministry of health involved in campaign planning and coordination; technical and financial partners (ICG, WHO) were present at each level of coordination)	Yes (campaign in refugee camps; installation of fixed and temporary posts; social mobilization)	Yes (posters in both national languages; advocacy, communication; advocacy, communication and social mobilization with journalists/health animators involved in training of media professionals)	No or Not reported	Yes (collaboration and communication with refugee camps leaders and partners; social mobilization strategies)	Yes (regional and districts coordinating teams briefed; collaboration with vaccination staff, involvement of ministry of public health and technical and financial partners (e.g., WHO, UNHCR, UNICEF))	Yes (vaccine coverage data collected during the campaign from the campaign tally sheets; evaluation meetings daily between vaccination staff and district team lead)
Aragones et al., 2015 (69)	Somewhat (general data on populations disproportionately affected by disease; self-selected group attending Health Windows at the consulate)	Yes (collaboration between humanitarian associations and the local health authorities)	Yes (trusted community settings; those who accessed the Health Window program at the Mexican Consulate in New York City)	Yes (parental text messaging reminders in Spanish; one on one educational session and answering questions; brochure from CDC provided)	No or Not reported	Yes (community setting serving large Mexican American populations; trusted community settings)	Yes (collaboration between humanitarian associations and the local health authorities)	Yes (vaccine series completion)
Brown et al., 2021 (70)	Somewhat (general information on target population)	Yes (interprofessional, student-run vaccine outreach program; interprofessional collaboration between healthcare staff and coordinators/directors)	Yes (outreach program with free vaccines; vaccination events in nontraditional community locations; recruitment of interpreters for each event/telephone-based medical interpreting service)	Yes (one on one conversations with potential patients; student volunteers provide education at events)	No or Not reported	Yes (coordinators contacted community organizations that serve vulnerable populations to schedule vaccine events; community partners advertised influenza vaccinations offered on a certain day; community events)	Yes (interprofessional, student-run vaccine outreach program with collaboration between nurse practitioner, medical, nursing, pharmacy students; interprofessional collaboration between healthcare staff and project coordinators)	Yes (vaccine rates monitored; demographic data through optional survey)
Chu et al., 2021 (71)	Yes (review of formative research on barriers; focus groups on needs; Washington State Immunization Information System (WAIIS) for vaccination history; pre-intervention survey for baseline knowledge, attitudes, and intentions)	Yes (collaborated with project assistants from community; feedback from community partners and stakeholders)	Yes (barriers/facilitator information reviewed and focus group findings incorporated to deliver culturally-appropriate interventions/events; research staff fluent in target language)	Yes (culturally-targeted education delivered by co-ethnic health professionals in native language; materials reviewed by co-ethnic research assistants and feedback from stakeholders; question and answer period; video testimonial by community member)	No or Not reported	Yes (focus group with target community; team/co-ethnic research assistants; community partners provided contacts; video testimonial of a mother from community; worked closely with project assistants from community who are fluent in target language)	No or Not reported	Yes (pre/post-tests on knowledge, attitudes, and intentions; confirmation of vaccination after 6 months with registry data)
Coady et al., 2008 (72)	Yes (estimated size of hard-to-reach populations; venue-based and door-to-door)	Yes (community-based participatory research (CBPR) approach; intervention working)	Yes (outreach activities in target communities with hard-to-reach populations; door-to-	Yes (flyers, comic strips, and informational pamphlets distributed to passerby and	No or Not reported	Yes (partnership of academic researchers and community members; community-based	Yes (vaccines administered door-to-door; nurses and physicians provided vaccination to	Yes (interest in vaccination pre and post intervention; working group met throughout

	sampling; surveys to examine vaccination barriers)	group met regularly throughout the project to develop study design and to guide project implementation and evaluation)	door, on the street, at community-based organizations; free clinics)	neighbourhood residents)		participatory research (CBPR); community organization presentations given to local community boards and organizations)	eligible participants during the vaccination phases; working group comprised of members of local health department)	project; vaccines administered)
Harvey et al., 2020 (73)	Yes (campaign designed from data collected from focus groups and participatory mapping discussions; qualitative and geospatial data)	Yes (engaged with local health department to coordinate services; collaboration with community mobilizers, non-governmental health agencies)	Yes (twenty-four vaccination sites were determined based on migration routes; mass vaccination campaign; static teams placed at key locations)	Yes (community mobilizers and other leaders provided mass awareness sessions)	No or Not reported	Yes (collaboration between community-based data collectors and utilization of local knowledge; community mobilizers)	Yes (engaged with local department of health and international and national non-governmental health agencies (e.g. International Organization of Migration, IOM))	Yes (vaccination rates; other health services delivered)
Hoppe & Eckert, 2011 (74)	Yes (target population numbers from clinic administrative data; standardized data form collected age, ethnic background, spoken language, acceptance or refusal of the H1N1 vaccine, and confirmed cases of H1N1)	Somewhat (innovation in service delivery; educational sessions for team members; planned future obstetrical visits to occur within two weeks of vaccine release; created real-time vaccine registry with electronic schedule prompts)	Yes (facilitated patient appointments and transportation; information accessible in own language; contacting patients personally in own language)	Yes (culturally and linguistically appropriate, accurate, timely and user-friendly information; interpreters invited; educational video in the waiting room in 9 languages; written material provided to patients)	No or Not reported	No or Not reported	Yes (improved training and awareness among health-care and frontline workers; adapted existing clinic practices; standing orders for vaccine administration; certified medical interpreters and cultural case workers to facilitate the integration of recent immigrants into new medical system)	Yes (demographic and outcome characteristics of vaccinated versus unvaccinated patients; "real-time" information on vaccine administration)
Kong et al., 2020 (75)	Somewhat (identified hard-to-reach populations; sites selected based on stakeholders' perceived potential of these sites to access hard-to-reach populations at risk of severe influenza; data from pilot immunization program)	Yes (key stakeholders met and discussed priority populations and potential community sites.)	Yes (mobile outreach vaccinations provided at each site and at community centres; 21 sites including community centres for migrants, refugees and the homeless, and outpatient clinics)	Yes (promotional material sent to the site before each visit)	No or Not reported	Yes (vaccinations at community centres)	Yes (key stakeholders from primary health and tertiary health networks; vaccinations provided at community centers and outpatient clinics; innovative model of vaccine delivery to community organisations and healthcare centres that have limited capacity to provide influenza vaccines themselves; teams of nurse immunisers visited and provided influenza vaccines at various sites)	Yes (reasons for receiving vaccine; risk factors; perceived barriers and facilitators; vaccination rates*) *also reported elsewhere
McPhee et al., 2003 (77)	Yes (selected areas with large Vietnamese-American populations that had not received	Yes (coalition formed and developed an action plan to improve vaccination rates with 3	Yes (home visits to new refugees; weekly work at community clinics to translate and help	Yes (educational materials distributed in Vietnamese at targeted venues and events;	No or Not reported	Yes (community mobilization strategy; advisory committee advised and introduced	Yes (promoting physicians' registration as providers; distribution of referral lists of providers; weekly work at	Yes (pre-post surveys via interviews of vaccination rates and knowledge of hep B with

	interventions for hepatitis B vaccination; census data of ethnic population size)	committees: an advisory committee to advise and introduce the project and staff to the community and make sure the health education was appropriate and culturally sensitive; a planning committee; and an outreach committee to identify, conduct, and evaluate outreach activities)	children's vaccination; incentives from charitable agencies to offer prizes for vaccinations; bilingual, bicultural Vietnamese-American project coordinator hired to coordinate campaign)	health education brochures and other print materials; health fairs; targeted mailings; articles and announcements in local media including radio, newspaper; media campaign reviewed by a panel of Vietnamese-American physicians, focus groups of consumers, and Community Advisory Board; electronic (mass) media; billboards designed by local Vietnamese advertising firm for cultural appropriateness)		the project and staff to the community; outreach committee; coalition identified community channels that could be mobilized to promote vaccinations; educational presentations at community-based organizations)	community clinics to translate and help children's; hired new Vietnamese-American health care providers; educational material reviewed by physicians, consumers and advisories)	parent/provider reported data; provider medical records of vaccinations administered)
Mellou et al., 2019 (78)	Yes (vaccination coverage data from meeting with the UNHCR/NGOs; door-to-door assessment of needs)	Yes (new programme took over vaccination coordination; set up standard operating procedures; coordinated approach to vaccination with ministry of health, regional health authorities, other international, non-governmental, and stakeholders)	Yes (visited families door-to-door to assess needs and inform about program; delivering interventions in refugee camps and in the community; surveys with the support of cultural mediators; community healthcare centres used in various locations)	Yes (written information in multiple languages; information campaigns; door-to-door dissemination of information about vaccination program)	No or Not reported	Yes (non-governmental organizations; community healthcare centres)	Yes (partner non-governmental organizations; health regions designated at least two community healthcare centres as vaccination centres; collaboration with ministry of health, UNHCR)	Yes (vaccine coverage and area they were received; challenges reported to improve coordination of interventions)
Milne et al, 2006 (79)	Yes (surveyed self-reported immunization status and use of health services)	Somewhat (innovation in service delivery-school-based immunisation service; referral letters to GP for last dose to coordinate care)	Yes (culturally respectful and well- integrated targeted immunisation program; delivered at school)	Yes (information was provided to students and their families; translated surveys into 6 target languages)	No or Not reported	Yes (school-based immunization program for refugee and migrant young people)	Yes (referred to local general practitioner for the third dose of vaccination to link to PHC services)	Yes (vaccinations administered)

Mitchell et al., 2021(80)	Yes (data from IOM's Migrant Management & Operational Systems Application (MiMOSA) including infection rates, population size, demographics, immunization coverage, vaccine refusal; program first piloted)	Yes (global immunization program for US-bound refugees; collaboration with Centers for Disease Control and Prevention, US Department of State, IOM; implementation in 3 phases; immunization schedule (developed based recommendations in close consultation with a panel of vaccine subject-matter experts)	Yes (mobile medical teams traveled to remote sites to conduct health assessments; multiple sites across different countries and conditions to populations that may not fall within the traditional framework of either host/asylum country or US national immunization guidelines)	Yes (IOM partnered with a public health organization to develop illustrated print and video informational materials; refugees counseled about vaccines; materials, vetted in focus group settings, rolled out in all program sites)	No or Not reported	Somewhat (local clinics to administer vaccines)	Yes (infrastructure developed to standardize program services: staff, tools and references, immunization schedule, immunization procedures and documentation; established IOM clinical facilities; using infrastructure for the USRAP Vaccination Program, IOM regional hubs supported sites; outside medical facilities sub-contracted for immunization services, or refugees were provided vaccine requisition forms to present at outside clinics; non-IOM panel sites; IOM contracts with local clinics to administer vaccines)	Yes (vaccine coverage rates)
Peterson et al., 2019 (81)	Yes (surveyed clients about vaccination knowledge and beliefs; qualitative/quantitative programmatic data informed project; data on health disparities; focus groups with community members)	Yes (partnerships with community partners and reporting outcomes to partners)	Yes (interpreters; surveyed clients in own language; nontraditional settings; community-based services; culturally-appropriate informed by focus groups; free influenza vaccination delivery; 99 community-based vaccination clinics with various times and locations)	Yes (printed materials in the host community's language and arranged for interpreters as needed; media and educational outreach; developed messages with local health consortium)	No or Not reported	Yes (building relationships with community leaders and involving as full partners; worked with community and faith-based organizations to deliver vaccinations; collaborative led by community members; communities part of the leadership; health consortium had experiences working with community and faith-based organizations)	Yes (clinics in trusted community facilities; hosts of the non-traditional sites oversaw logistics such as client registration, room assignment, and interpretation when needed; various representatives from health departments and community organizations; health messages refined by health consortium)	Yes (vaccines administered; survey of clients at time of vaccination with demographics and reasons for choosing clinic; monitoring of processes/outcomes with logic model; lessons learnt)
Phares et al., 2016 (82)	Yes (enumerated target population in a census three months before the campaign and issued barcoded OCV cards; reviewed surveillance data)	Yes (meetings with camp-based governance committees, religious and civic leaders, school principals and teachers)	Yes (mass vaccination campaign in refugee camp using fixed-post strategy plus mobile teams to offer vaccines to house-bound refugees and other community settings; barcoded	Yes (information at meetings with camp-based governance committees, religious/civic leaders, school principals and teachers who informed their constituencies	No or Not reported	Yes (social mobilization included personal communications by community health workers during routine home visits)	Yes (fixed-post strategy plus mobile teams; vaccines to house-bound refugees, hospital inpatients, and children at some schools; vaccinators retrained)	Yes (vaccine coverage, adverse events following immunization)

			vaccine cards used)	through town hall meetings, camp newsletter, informal communications; personal communications by health workers; classroom presentations, posters, and reminders via loudspeaker prior)				
Pollack et al., 2011 (83)	Yes (screening surveys to gather barriers and needs; population screened by antibody testing)	Yes (collaboration of stakeholders, community health centers, social service groups, community-based organizations, city council members, public hospitals, physician groups, academic institutions; online database customized to coordinate program activities and update partners; procedures for testing/follow-up standardized)	Yes (free community-based screenings, vaccination, and care; uninsured individuals referred to specific clinics; vaccination offered at screening site; delivery of culturally and linguistically tailored services)	Yes (multimedia educational outreach campaign developed with assistance from an advertising agency focused on reaching target population refined in focus groups; ads in ethnic language publications; radio and TV; educational workshops developed and implemented at community screenings; website established to provide information on screenings/educational materials)	No or Not reported	Yes (collaboration with community health centers, social service groups, community-based organizations, city council members, and academic institutions; screening services planned and organized with community-based partners; coalition formed with community, clinical and government partners)	Yes (collaboration with public hospitals, physician groups, community health centers; providers received training and updates from program specialists; infrastructure to support the training of providers and referral services for specialty care; individuals with insurance were referred to own health care provider; citywide program; case management added; primary care centres; community leaders, clinicians, researchers, and politicians formed coalition)	Yes (vaccination coverage/rate; evaluation facilitated by a central or linked electronic database to coordinate all program activities, collect data, track specimens, and report results to partners and the program directors; survey to assess reach; screenings completed and health services provision)
Ponce-Gonzalez et al., 2021 (84)	Somewhat (general vaccination data on target population; recruitment from community with high concentration of migrants and refugees)	Yes (multicomponent campaign led by community health workers with coalition for migrants and refugees; bidirectional sharing of knowledge)	Yes (virtual workshops; Spanish language information targeted in spaces accessed by Latino community)	Yes (multicomponent health education campaign led by community health workers; multimedia and online workshops; CHW created videos; information on Spanish language public radio; social media posts and live content; educational materials designed by CHWs, (banners, infographics, brochures, flyers, posters)	Somewhat (programs produced for the radio were also broadcast live on social media; infographic on social media; video about influenza was produced for social media)	Yes (Community Health Worker (CHW)-led influenza campaign; Community Health Worker Coalition for Migrants and Refugees (CHWCMR), working with migrants and refugees from target community; bidirectional sharing of knowledge; 60 CHWs developed content and served as trusted messengers to deliver information to their communities)	Yes (Community Health Workers integral to campaign; Washington Department of Health; Community Health Worker Coalition for Migrants and Refugees (CHWCMR))	Yes (monitored progress; survey administered before and after each workshop to assess participant knowledge about influenza and vaccinations; number of social media users reached)

Sheikh et al., 2014 (76)	Yes (focus groups conducted before campaign to assess barriers; target population numbers in refugee camps and communities)	Yes (coordination among implementing partners in developing operational plans; ministry of health planned and implemented immunization activities with refugee camp coordinating agencies; United Nations High Commissioner for Refugees Registry (UNHCR))	Yes (delivered at five refugee camps and surrounding communities on the Kenya-Somalia border; 299 teams 173 in camps, 126 in host communities; permanent “fixed” posts in health facilities and “temporary fixed posts” in camps or village in host communities; mobile teams used to reach nomadic settlements)	Yes (communication materials provided)	No or Not reported	Yes (social mobilization strategies guided by pre-campaign focus-group interviews; coordination among implementing partners; refugee camp coordinating agencies)	Yes (campaign implemented by 299 teams in temporary and permanent “fixed” posts; each team included 1 health-care worker and 2 volunteers in host communities or 3 volunteers in camps; partnerships with health services partners including national ministry of health, Global Polio Eradication Initiative)	Yes (vaccination activities were assessed by trained campaign monitors using a standardized checklist; post-campaign coverage surveys, estimated coverage with convenience sample, reasons for not vaccinating)
Vita et al., 2019 (85)	Yes (vaccination status with interviews; demographics; epidemiological monitoring and microbiological surveillance)	Yes (collaboration with local vaccine services; national ministry of health, health services, local public health companies)	Yes (vaccinations offered directly upon arrival of migrants in the asylum seekers’ centre or through monthly visits; linguistic and cultural mediators; single “on arrival appointment; clinic open 24/7/365; cultural mediators)	Yes (informing patients and informed consent for vaccinations in target language)	No or Not reported	Yes (campaign in asylum seeker center residential institution with semi-open community)	Yes (collaboration with local vaccine services; vaccination service staff of local national health institute; physicians of the internal healthcare facility; collaboration with ministry of health, national health services, local public health companies; consultant physicians; nurses, psychologists; outpatient facility for migrant health)	Yes (vaccination rates and changes year to year and over course of program changes; adverse events)