Tailoring immunization programmes for seasonal influenza (TIP FLU)

A guide for promoting uptake of maternal influenza vaccination

World Health Organization
REGIONAL OFFICE FOR Europe

Abstract

WHO recommends seasonal influenza vaccination of pregnant women to protect them and their newborn babies from infection, and to reduce the risk of influenza-related complications and hospitalization. Evidence shows that inactivated influenza vaccines are safe for both pregnant mothers and fetuses during all trimesters of pregnancy, and for breastfeeding women. However, maternal influenza vaccination uptake remains low in most of the WHO European Region, despite widespread national policies. The WHO Regional Office for Europe is proposing an approach – tailoring immunization programmes for seasonal influenza (TIP FLU) – founded on health promotion planning models and social and behavioural insights, to design evidence-informed solutions to increase uptake of maternal influenza vaccination among pregnant women. This publication offers information and concepts on which TIP FLU is founded (part one) and a step by step guide (part two), so that health professionals working on maternal influenza vaccination programmes can apply the approach.

Keywords

MATERNAL HEALTH
PREGNANCY
NEWBORN HEALTH
IMMUNIZATION PROGRAMMES INFLUENZA
HUMAN INFLUENZA VACCINES

Address

Address requests about publications of the WHO Regional Office for Europe to:

Publications
WHO Regional Office for Europe
United Nations City, Marmorvej 51
DK-2100 Copenhagen Ø, Denmark

Alternatively, complete an online request form for documentation, health information, or for permission to quote or translate, on the Regional Office website (http://www.euro.who.int/pubrequest).

Contents

Acknowledgements iii

Abbreviations vii

Introduction 1

Importance of maternal vaccination 1

The TIP and TIP FLU approach 1

Implementation requirements 3

Intended audience 4

Using this publication 4

Part one. Background information and concepts for TIP FLU 5

Influenza in pregnant women and newborns 6

Maternal influenza vaccination 6

Considerations for promotion of maternal influenza vaccination 7

Influenza vaccine effectiveness 7

New target groups: new providers and new recipients of seasonal influenza vaccination 7

Determinants of acceptance and uptake of maternal influenza vaccination 8

Concepts and frameworks that TIP FLU applies 10

Health promotion 10

Behaviour change 11

Social marketing 13

The socioecological model – understanding the determinants of maternal influenza vaccination 14

Part two. Implementing TIP FLU for pregnant women step-by-step 17

Objective 1: Describe the situation, target groups and partners to involve 20

Step 1. Decide the scope of TIP FLU 20

Step 2. Review the situation 21

Step 3. Analyse the situation 26

Step 4. Write a preliminary problem statement 29

Objective 2: Diagnose the demand- and supply-side facilitators and barriers 32

Step 5. Collect new information 32

Step 6. Describe the main target populations and the determinants of their behaviours 35

Step 7. Complete the problem statement with a behavioural analysis 38

Objective 3: Design evidence informed interventions to promote maternal influenza vaccination 44

Step 8. Set the TIP FLU objectives 44

Step 9. Use the social marketing framework to design TIP FLU interventions 46

Step 10. Develop the TIP FLU communications strategy, messages and materials 51

Objective 4: Deliver, monitor and evaluate TIP FLU interventions 55

Step 11. Deliver, monitor and evaluate the TIP FLU interventions 55

References 59

Annex 1. Semi-structured interview guide to gather information on health care providers 64

Annex 2. Focus group discussion guide to gather information on pregnant women 67

Annex 3. Sample survey questionnaire on influenza vaccination during pregnancy 71

Annex 4. Sample pretest questions for communications materials 83

Annex 5. List of possible outcome indicators 85

Acknowledgements

Preparing this publication involved many individuals to whom WHO is grateful for their contributions.

The following people were involved in the desktop review of this publication.

Aušrutė Armonavičienė
Head, Mother and Child Health Division, Ministry of Health, Vilnius, Lithuania

Susan Chu
Senior Epidemiologist, Global Immunization Division, Centers for Disease Control and Prevention, Atlanta, United States of America

Michael Favin
Vice President, Manoff Group, Washington DC, United States of America

David Green
Nurse-Consultant, National Infection Service, Public Health England, London, United Kingdom

Katrine Bach Habersaat
Technical Officer, WHO Regional Office for Europe, Copenhagen, Denmark

Cornelia Betsch
Scientific Manager, Center for Empirical Research in Economics and Behavioral Sciences, University of Erfurt, Erfurt, Germany

Orina Ivanauskienė
Head, Communicable Diseases Control Division, National Public Health Centre, Kaunas Department, Kaunas, Lithuania

Philipp Lambach
Medical Officer, WHO, Geneva, Switzerland

Louise Letley
Nurse Manager for Research, Immunisation, Hepatitis and Blood Safety Department, Public Health England, London, United Kingdom

Auksė Mickienė
Head, Department of Infectious Diseases, Lithuanian University of Health Sciences, Kaunas, Lithuania

Meilė Minkauskienė
Head, Preterm Birth and Prenatal Infection Sector, Department of Obstetrics and Gynecology, Lithuanian University of Health Sciences, Kaunas, Lithuania

Anna Pashalishvili
National Programme Officer, WHO Country Office, Tashkent, Uzbekistan

Gayane Sahakyan
National Immunization Programme Manager, Advisor to the Director General, National Centre of Disease Control and Prevention, Ministry of Health, Yerevan, Armenia

Brent Wood
Demand, Policy and Communication Team Lead, Global Immunization Division, Centers for Disease Control and Prevention, Atlanta, United States of America

Declarations of conflicts of interest were collected from all external reviewers. None were declared.

The following people and institutions were involved in the design, implementation and evaluation of the TIP FLU pilot project for pregnant women in Kaunas, Lithuania.

Lithuanian University of Health and Sciences, Kaunas, Lithuania

Danga Akstinienė
Midwife, Department of Obstetrics and Gynaecology

Ramunė Dilienė
Midwife, Department of Obstetrics and Gynaecology

Vladas Gintautas
Head of Obstetrics Unit, Department of Obstetrics and Gynecology

Vytautas Griška
Medical Resident, Department of Infectious Diseases

Jurgita Ivanauskienė
Midwife, Department of Obstetrics and Gynaecology

Edgaras Ivanauskis
Midwife, Department of Obstetrics and Gynaecology

Gintvilė Jokūbaitienė
Midwife, Department of Obstetrics and Gynaecology

Indrė Jonikaitė
Medical Resident, Department of Infectious Diseases

Ramunė Kasiukevičiūtė
Midwife, Department of Obstetrics and Gynaecology

Monika Kuliešė
Medical Resident, Department of Infectious Diseases

Auksė Mickienė
Head, Department of Infectious Diseases

Meilė Minkauskienė
Head, Preterm Birth and Prenatal Infection Sector, Department of Obstetrics and Gynecology

Rūta Jolanta Nadišauskienė
Head of Department of Obstetrics and Gynaecology

Skaistė Prielaidaitė
Medical Resident, Department of Family Medicine

Rosita Stanislovaitienė
Midwife, Department of Obstetrics and Gynaecology

Zita Strelcovienė
Physician Resident, Department of Obstetrics and Gynaecology

Audronė Tamošiūnienė
Midwife, Department of Obstetrics and Gynaecology

Leonas Valius
Head of Department of Family Medicine

Laima Venckūnienė
Midwife, Department of Obstetrics and Gynaecology

Kaunas City Municipality Public Health Bureau, Kaunas, Lithuania

Alina Didžiokienė
Specialist, Public health specialist, Public Health Education and Programmes Division

Lina Laurinaitienė
Acting director

Renata Padleckienė
Public health specialist, Public Health Education and Programmes Division

Monika Straupytė
Public relations specialist

Kaunas City Municipality

Asta Garmienė
Head, Health Care Division

Kėdainiai District Municipality Public Health Bureau, Kėdainiai, Lithuania

Aida Butkienė
Specialist

Lithuanian Society of General Practitioners

Edita Šiaudikytė
Representative

Sonata Varvuolytė
President

Municipal Public Health Bureaus' Association

Danguolė Avižiuvienė
Chair

Ministry of Health, Vilnius, Lithuania

Aušrutė Armonavičienė
Head, Mother and Child Health Division, Personal Health Care Department

Loreta Ašoklienė
Head, Public Health Care Department, Epidemiological Surveillance Division

Romalda Baranauskienė
Deputy director, Personal Health Care Department

Radvilė Jakaitienė
Head, International Affairs Division

Nerija Kuprevičienė
Chief Specialist, Public Health Care Department, Epidemiological Surveillance Division

National Centre for Communicable Diseases and AIDS, Vilnius, Lithuania

Saulius Čaplinskas
Director

Joana Korabliovienė
Specialist, Immunoprophylaxis Division

Rasa Liausėdienė
Deputy director

Daiva Razmuvienė
Head, Immunoprophylaxis Division

Asta Skrickienė
Specialist, Immunoprophylaxis Division

National Health Insurance Fund under the Ministry of Health

Neringa Bernotienė
Deputy director

Agnė Dmitrijevaitė
Chief specialist

Juratė Sabalienė
Head, International Affairs Department

National Public Health Centre, Kaunas Department, Kaunas, Lithuania

Orina Ivanauskienė
Director, Communicable Diseases Control Division

Rima Gabrielaitė
Chief specialist, Communicable Diseases Control Division

Kristina Rudžinskaitė
Deputy head, Communicable Diseases Control Division

Jonė Vanagė
Deputy head, Communicable Diseases Control Division

Polyclinics

Centras Polyclinic, Kaunas, Lithuania

Ilona Gurnienė
Chief administrator

Dovilė Morkūnaitė-Čerekienė
Chief obstetrician-gynaecologist

Dainava Polyclinic Kaunas, Lithuania

Jūratė Puidokienė
Obstetrician

Daiva Špiliauskienė
Deputy director

Kalniečiai Polyclinic Kaunas, Lithuania

Rasa Abariuvienė
Deputy director

Miglė Bučelytė
Obstetrician

Tatjana Fiodorova
Obstetrician-gynaecologist

Šilainiai Polyclinic Kaunas, Lithuania

Janina Didžiulienė
Deputy director

Inga Šatienė
General practitioner

State Medicines Control Agency under the Ministry of Health

Simona Kudelienė
Chief Specialist, Medicines Safety and Information Unit

Vilnius University, Faculty of Medicine, Vilnius, Lithuania

Arvydas Ambrozaitis
Head, Clinic of Infectious, Chest Diseases, Dermatovenerology and Allergology

Nijolė Drazdienė
Head, Centre of Neonatology, Clinic of Children's Diseases

Ligita Jančorienė
Infectologist, Clinic of Infectious, Chest Diseases, Dermatovenerology and Allergology

Vytautas Usonis
Head, Center of Pediatrics, Clinic of Children's Diseases

Vytauto Didžiojo University

Eglė Audickaitė
Student in Public Communication

WHO Regional Office for Europe

Giedrė Gefenaitė-Bakker
Consultant, Influenza and other Respiratory Pathogens

Pernille Jorgensen
Technical Officer, Influenza and other Respiratory Pathogens

Nathalie Likhite
Consultant, Influenza and other Respiratory Pathogens

Ingrida Zurlytė
Head, WHO Country Office, Lithuania

Abbreviations

AEFI	Adverse Events Following Immunization
ANC	Antenatal care
CDC	Centers for Disease Control and Prevention
EVAP	European Vaccine Action Plan 2015–2020
FAQ	Frequently asked questions
HCP	Health care provider
LUHS	Lithuanian University of Health Sciences
KPHB	Kaunas Public Health Bureau
MCH	Maternal and child health
NITAGs	National immunization technical advisory groups
NPHC-KD	National Public Health Centre, Kaunas Department
PHC	Public health centre
SAGE	WHO Strategic Advisory Group of Experts on Immunization
SWOT	Strengths, weaknesses, opportunities, threats
TIP FLU	Tailoring immunization programmes for seasonal influenza
ULAC	Lithuanian Centre for Communicable Diseases and AIDS

Introduction

Importance of maternal vaccination

WHO's influenza vaccine policy recommendations aim to protect vulnerable, high-risk groups from severe disease. In 2012, WHO placed pregnant women as the most important target group for seasonal influenza vaccination in countries considering the initiation or expansion of vaccination programmes *(1)*. The recommendation was based on numerous factors, including a higher risk from complications from influenza in pregnant women and their infants in the first months after birth.

Despite scientific evidence of influenza vaccine effectiveness and safety during pregnancy, uptake of influenza vaccination in pregnant women, when monitored, remains low in the WHO European Region *(2)*. Documented experiences of the implementation of maternal influenza vaccination programmes in Europe are rare *(3)*.

Several factors make maternal influenza vaccination special in the field of immunization.

First, pregnancy is a distinct time in a woman's life, during which shared social and cultural beliefs, values, expectations and practices guide her health-seeking behaviour.

Second, due to its relatively recent policy implementation, maternal influenza vaccination is a new vaccination for pregnant women, and represents a new practice for the health care providers (HCPs) who offer it.

Finally, as with most vaccines, HCPs play a decisive role as the main gatekeepers for maternal influenza vaccination. Evidence shows that an HCP's recommendation often has a critical influence on a pregnant woman's decision to accept influenza vaccination *(4)*. This underscores the importance of HCPs feeling confident in the vaccine and being aware of their vital role in promoting it.

The tailoring immunization programmes for seasonal influenza (TIP FLU) approach can be used to address the reasons why pregnant women do not receive influenza vaccination and to help increase vaccination uptake.

The TIP and TIP FLU approach

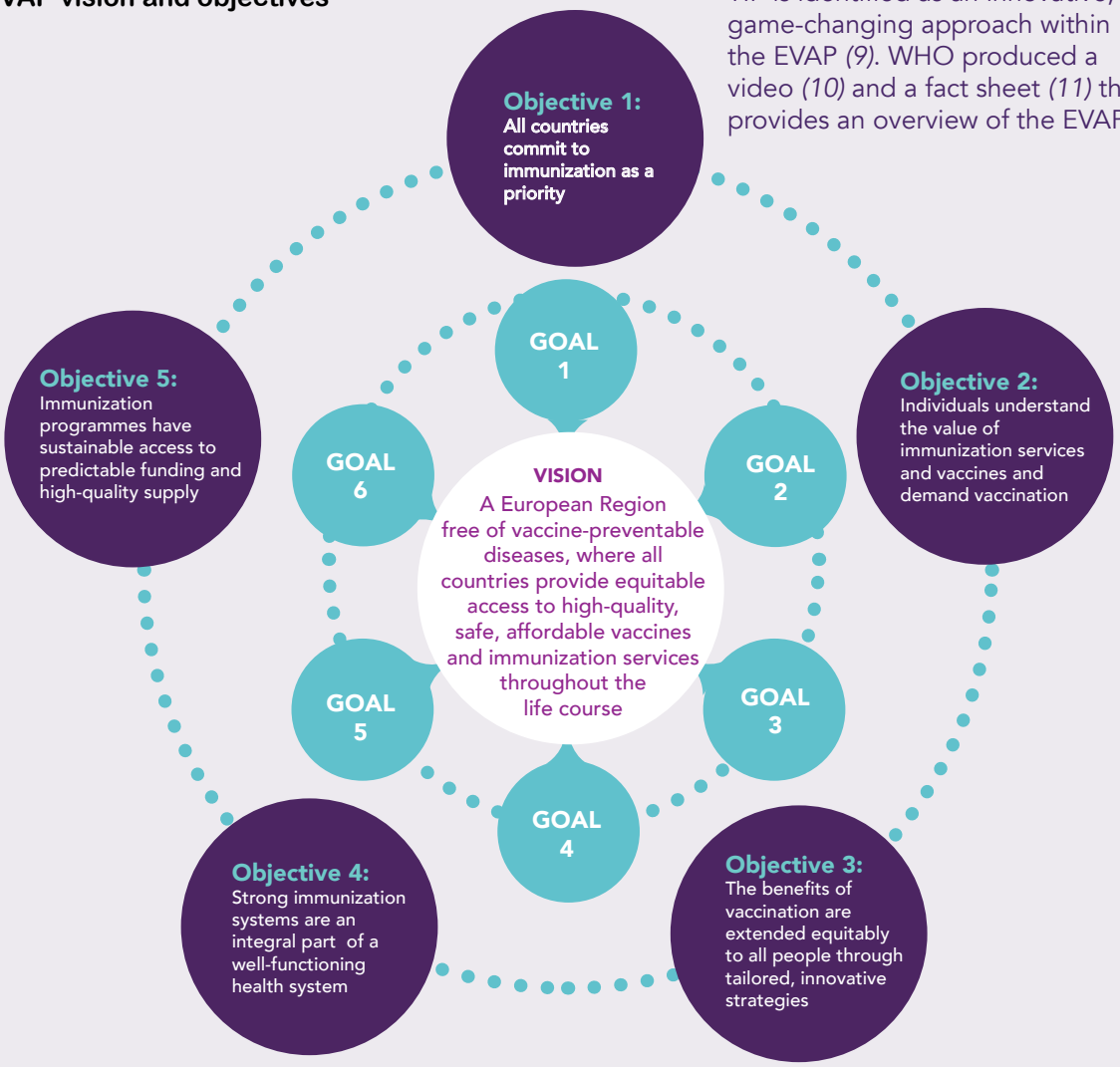
In 2011, the European Technical Advisory Group of Experts on Immunization called for the rapid development of evidence-based tools to tailor immunization programmes to ensure the protection of children, adults and communities in the WHO European Region from vaccine-preventable diseases *(5)*. The *TIP Guide (6)* was created in response to growing public health concerns regarding suboptimal childhood vaccination coverage in pockets of the European population. Its sibling guide: *Tailoring Immunization Programmes for Seasonal Influenza (TIP FLU) - A guide for increasing health care workers' uptake of seasonal influenza vaccination (7)* and this present guide were subsequently created to promote acceptance and uptake of seasonal influenza vaccination among HCPs and pregnant women respectively.

The TIP approach is an adaptable, people-centred approach to immunization programmes, engaging individuals and communities in shaping how vaccination services are provided, in order to achieve and sustain high immunization coverage in the WHO European Region (Box 1). Along with evidence-based knowledge on vaccination and a thorough understanding of immunization programmes, the TIP approach includes vaccine recipients' and their main influencers' *subjective experiences of immunization and vaccine-preventable diseases as legitimate sources of knowledge (8)* to inform the design and delivery of vaccination programmes.

Box 1. European Vaccine Action Plan 2015–2020 (EVAP) and TIP

EVAP vision and objectives

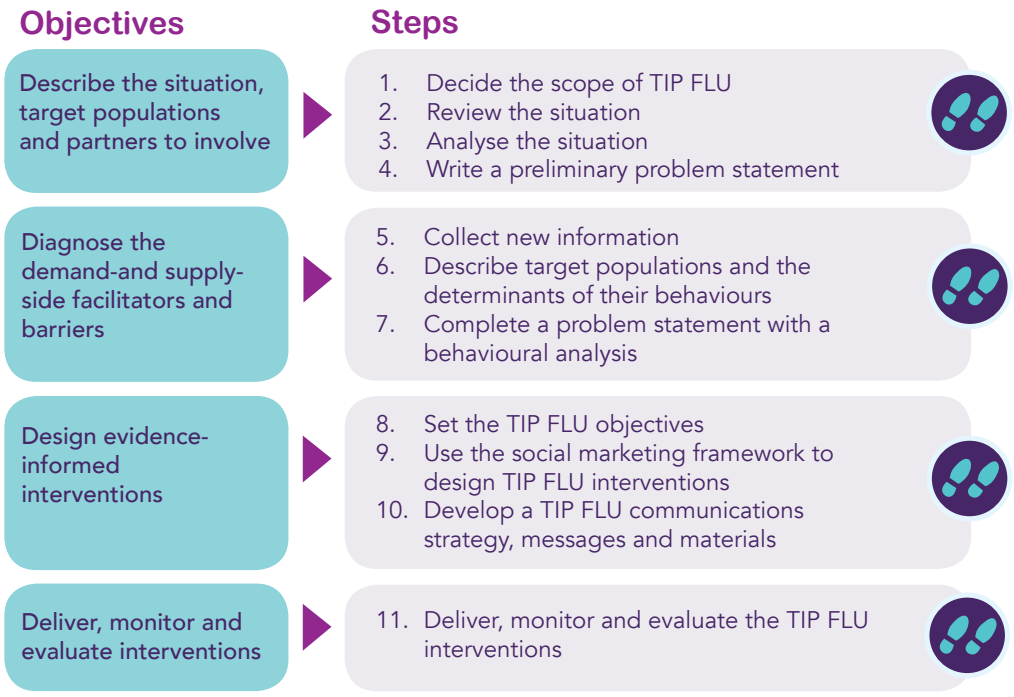
TIP is identified as an innovative, game-changing approach within the EVAP *(9)*. WHO produced a video *(10)* and a fact sheet *(11)* that provides an overview of the EVAP.



TIP and TIP FLU builds on a deep understanding of the behavioural, social and environmental factors that influence vaccination behaviours and demand in a given context and on health promotion planning models. This guide provides information and resources through multiple steps (Fig. 1) to:

1. identify, prioritize and describe target populations for vaccination interventions;
2. diagnose the demand- and supply-side barriers and facilitators for vaccination among these target populations and those who influence them;
3. design evidence-based interventions tailored to the specific vaccine, context and characteristics of the target populations; and
4. deliver, monitor and evaluate the interventions aimed to increase uptake of influenza vaccination among pregnant women.

Fig. 1. TIP FLU approach to improve uptake of maternal influenza vaccination



Implementation requirements

Implementing the TIP FLU approach requires the application of knowledge and skills from multiple disciplines, including public health, social and behavioural sciences, communications, epidemiology and medicine.

Engaging multiple stakeholders from diverse institutions or different departments, depending on the scope of its implementation, is also needed. Stakeholders should include those who care for women during pregnancy. They may include representatives of the health ministry, national health insurance bodies, public health institutions, health care facilities, professional associations, academia, civil-society organizations, communications agencies, the media and different socio-cultural or ethnic communities, and family members.

A multidisciplinary working group should be established from the beginning and reconvened at critical points throughout the implementation of the TIP FLU approach. This working group should include both subject matter experts and the main partners. Including a person with expertise in social marketing or social and behavioural change to help design the TIP FLU interventions is advantageous. A well- functioning working group will help to maintain partners'

commitment and participation in the TIP FLU interventions and contribute to sustainable behaviour change.

Following the steps in this guide requires that commitment and resources are available to develop and implement new interventions to increase acceptance and uptake of maternal influenza vaccination in a specific setting.

Intended audience

This guide is intended for individuals responsible for designing, implementing and assessing seasonal influenza vaccination interventions targeting pregnant women, including HCPs, civil-society organizations and communities.

Using this publication

The main body of text includes general statements and guidance. It is organized in a series of steps that represent the main methods for implementing the TIP FLU approach.

Separate boxes introduce examples from a pilot project to promote uptake of maternal influenza vaccination in Kaunas, Lithuania during the 2015/2016 influenza season. These examples illustrate the steps that were taken to implement the approach.

Visual icons draw attention to key content in the publication (Table 1).

Table 1. Icons and related content

Icon	Content
	The estimated amount of time required to carry out each step
	Tips to help implement each step
	Available instruments, tools and other resources that are adaptable
	Answers to questions one might ask along the way

The guide is organized in two parts.

Part One offers essential information and concepts for understanding the founding principles of TIP FLU for pregnant women.

Part Two provides guidance to implement TIP FLU for pregnant women step by step. The guide can be read as a whole or by consulting individual sections depending on information requirements.

Part one. Background information and concepts for TIP FLU

This part of the guide introduces essential information and concepts relevant to the design, delivery and assessment of interventions for increasing maternal influenza vaccination acceptance and uptake.

It describes:

- the complications caused by influenza infection during pregnancy and benefits of maternal influenza vaccination;
- the considerations for promotion of maternal influenza vaccination;
- three concepts or frameworks that TIP FLU applies, including
  - health promotion
  - behaviour change
  - social marketing; and
- the socioecological model to explain the determinants of maternal influenza vaccination.

Influenza in pregnant women and newborns

Influenza is a highly contagious virus and an important cause of acute respiratory infections worldwide. Infection with influenza is characterized by a sudden onset of fever and respiratory symptoms. In most cases, influenza is mild and uncomplicated, but it may occasionally lead to severe disease, including pneumonia, respiratory failure and death.

Pregnant women have an increased risk of developing severe disease due to influenza compared to non-pregnant adults *(12)*. Increased susceptibility to influenza-related complications in pregnant women is believed to be related to temporary physiological changes in the heart and lungs, as well as immunological modifications that occur during pregnancy *(13)*. The risk of developing severe illness increases with advancing gestational age. Presence of underlying medical conditions, such as asthma and diabetes mellitus, can further exacerbate the risk of severe influenza infection and hospitalization during pregnancy *(14,15)*.

Influenza is also an important cause of disease and hospitalization among infants under six months of age *(12)*. Influenza infection in young infants can cause complications such as dehydration, worsening of underlying medical problems, pneumonia, bronchiolitis, sinus and ear infections, febrile seizures and in rare cases, encephalitis or encephalopathy *(16,17)*. Furthermore, some studies have indicated that influenza during pregnancy may increase the risk of premature labour and low birth-weight of newborns *(18–20)*.

Maternal influenza vaccination

The most effective way to prevent influenza during pregnancy is through vaccination.

The benefit of maternal influenza vaccination is threefold. First, it can prevent influenza in pregnant women. Second, maternal influenza vaccination can provide protection of the newborn through transplacental transfer of antibodies against influenza or through breastfeeding *(1,21)*. The protection of the infant against influenza through maternal antibodies is an important attribute of maternal influenza vaccination, because children under six months are too young to receive vaccination and are vulnerable to severe influenza illness. Recent randomized controlled trials have shown that maternal influenza vaccination could reduce influenza infection by 50–58% in pregnant women and by 49–63% in infants *(22,23)*. Finally, influenza vaccination given during pregnancy also has the potential to protect the fetus; a recent study has proposed that women who received influenza vaccination during pregnancy were less likely to experience stillbirth compared with unvaccinated women *(24)*.

Influenza vaccines have been administered to pregnant women for decades *(25)*. Accumulated evidence indicates that inactivated influenza vaccines are safe for the pregnant woman and the fetus during all trimesters of pregnancy, and for breastfeeding women *(26)*. Inactivated influenza vaccines contain killed viruses that cannot replicate or cause influenza in the pregnant woman.

More information on maternal influenza immunization is available on the WHO website *(27)*.

Considerations for promotion of maternal influenza vaccination

From a behavioural change point of view, maternal influenza vaccination occurs as a single event at the time of a woman's pregnancy. This may lead to the belief that promoting maternal influenza vaccination uptake is less challenging than promoting behaviours that are repeated and must be maintained over time. Nevertheless, designating pregnant women as a target group introduces challenges related to the context in which it is introduced, the vaccine, its delivery and the population it targets.

From a programmatic point of view, including pregnant women as a target group for influenza vaccination will be guided by actions similar to those needed to introduce a new vaccine *(28)*.

- Prepare and disseminate additional guidelines.
- Make new projections for vaccine procurement, distribution and storage.
- Identify new locations (e.g. antenatal care (ANC) clinics) and adapted systems for vaccine service delivery.
- Build new capacity of HCPs, especially of obstetric care providers.
- Modify "facility-based" and "take-home" pregnancy- or vaccination-specific recording forms.
- Communicate the risks and benefits to pregnant women and their families.
- Ensure that influenza surveillance systems capture disease among pregnant women.
- Track adverse events following immunization.
- Monitor uptake within the national health information systems.

WHO provides guidance on introducing maternal influenza immunization in low and middle income countries *(28)*.

Influenza vaccine effectiveness

The influenza vaccine is unique among vaccines due to the rapid evolution of influenza viruses, which means that the composition of the vaccine is frequently reformulated. To provide protection, influenza vaccination therefore must be administered every year before the influenza season begins. However, because the composition of the influenza vaccine is based on forecasts of which influenza viruses are most likely to circulate, some degree of a mismatch may occur between the viruses included in the vaccine and those circulating in the upcoming season. These antigenic drifts can contribute to a reduced effectiveness of the vaccine. Vaccine effectiveness also can be affected by the vaccine manufacturing process and waning immunity. Recent estimates suggest that the pooled efficacy of influenza vaccines in healthy adults against all strains is 59% *(29)*. These limitations to influenza vaccine effectiveness may negatively influence HCPs and vaccine recipient's perceptions regarding vaccine-induced protection and intentions to receive seasonal influenza vaccination.

New target groups: new providers and new recipients of seasonal influenza vaccination

Maternal influenza vaccination introduces both new vaccine providers – such as obstetrician-gynaecologists and midwives – and new recipients (pregnant women) to influenza vaccination programmes. It also introduces a new element in the relationship between HCPs and women during pregnancy. Vaccine acceptance among both HCPs and pregnant women is therefore a critical consideration for the adoption of maternal influenza vaccination *(4)*.

From the provider's point of view

Understanding HCPs' acceptance and recommendation of maternal influenza vaccination is essential given that they remain the primary and the most trusted gatekeepers to both evidence-based information on the benefits and risks of the seasonal influenza vaccine and to vaccination *(4)*.

In a systematic review of the determinants of seasonal influenza vaccination uptake among pregnant women, Yuen and Tarrant (2014) report that pregnant women "who received a recommendation from their HCP were anywhere from 20 to 100 times more likely to receive the vaccine".

HCP recommendation also affects coverage of other vaccines during pregnancy. In the United States of America, low rates of pertussis vaccination during pregnancy have been associated with *obstetric providers not viewing pertussis as an important vaccine-preventable disease for their primary patient population (pregnant women) and not viewing themselves as vaccinators (30,31)*.

Lack of HCP recommendation for influenza vaccination during pregnancy may be driven by several factors.

- HCPs caring for pregnant women may not perceive seasonal influenza as a relevant vaccine-preventable disease for their pregnant patients. This may partly result from lack of awareness or local evidence about the burden of seasonal influenza on pregnant women and their newborns.
- Vaccinations, including for influenza, may not traditionally have been part of the practices of obstetric providers, such as obstetrician-gynaecologists or midwives.
- HCPs may have misperceptions or lack sufficient information on the benefits, effectiveness and safety of the vaccination for pregnant women.

From the vaccine recipient's point of view

Opportunities for influenza vaccination are limited by the number of pregnancies in a woman's reproductive life. A woman of reproductive age may therefore be offered seasonal influenza vaccination only a limited number of times during her reproductive life, if at all, unless the reason for recommending influenza vaccination is other than pregnancy (e.g. an underlying chronic disease or belonging to an occupational risk group).

Pregnancy is a unique period in a woman's life. A variety of shared cultural and personal beliefs, expectations, values, fears and social influences guide her perceptions and practices during her pregnancy. Taking these into account is important when introducing vaccination during pregnancy.

Next are some specific considerations regarding acceptance of influenza vaccination among pregnant women.

Determinants of acceptance and uptake of maternal influenza vaccination

A systematic literature review conducted by Yuen and Tarrant (2014) *(4)* analysed the psychosocial determinants of seasonal influenza vaccination acceptance and uptake among pregnant women. The authors used the Health Belief Model to classify and explain the factors that determine why pregnant women participate in seasonal influenza vaccination programmes (Table 2). The Health Belief Model is a widely used behaviour change theory focusing on the intrapersonal determinants of change.

Table 2. Types of psychosocial determinants and factors associated with absence, refusal or uptake of influenza vaccination among pregnant women

Type of determinant	Factors associated with vaccine uptake	Factors associated with non-uptake of vaccination
Perceived severity of influenza infection.	• Perception of influenza as a threat to personal health. • Presence of comorbidities or underlying conditions.	• Perception that influenza is not a serious disease.
Perceived susceptibility to influenza infection.	• Perception of a higher chance of exposure to influenza infection and its related complications.	• Low personal risk perception for influenza. • Belief that vaccination is not necessary because already in good health or acquired immunity.
Perceived benefits of influenza vaccine (safety and effectiveness).	• Positive attitude to influenza vaccine. • Awareness of benefits. • Knowledge about dual protective effects for mother and child. • Belief in vaccine effectiveness.	• Lack of awareness of benefits of influenza vaccination during pregnancy. • Concerns regarding vaccine effectiveness.

Perceived risks of influenza vaccine (safety and effectiveness).	• Trust in vaccine safety.
	• Less concerned about vaccine side effects.
		• Lack of confidence in vaccine safety.
		• Misconceptions regarding vaccine safety and side effects, including a belief that the:
		  • vaccine has not been adequately tested;
		  • vaccine could have consequences on fetal development and cause miscarriage or infertility; and
		  • vaccine may cause influenza.

Medical treatment restrictions and preferences.	–	• Preference for curative treatment of influenza. • Desire to avoid vaccination during pregnancy, especially during first trimester. • Previous reactions to vaccines, existing underlying medical conditions and medical contraindication. • Fear of needles.

Table 2 (contd.)

Type of determinant	Factors associated with vaccine uptake	Factors associated with non-uptake of vaccination
Risk-benefit analysis (heuristics).	• Higher anticipated inaction regret (feeling of regret if the failure to vaccinate harmed oneself or the fetus).	• Lack of accurate awareness concerning influenza risk versus vaccine benefits.
Access- and availability-related.	• Easy access to vaccination. • Free vaccination.	• Perceived costs of vaccination (loss of time, fear of needles). • Shortage of vaccines. • Lack of proximity to or knowledge of place of vaccination.
Cues to action.	Regarding the role of HCPs: • recommendation from a HCP; • trust in HCP; and • good communication with HCP. Other: • previous history of influenza vaccination • family members receive influenza vaccination • pre-vaccination support from spouses, family members and peers; and • information from a government health authority or official website.	Regarding the role of HCPs: • absence of a recommendation; • negative advice or discouragement; and • distrust in HCPs and/or health system. Other: • lack of awareness of influenza vaccine recommendation during pregnancy • absence of previous history of influenza vaccination; and • negative media influence.

Source: Yuen and Tarrant *(4)*.

Concepts and frameworks that TIP FLU applies

TIP FLU is a multidisciplinary approach that draws on various theories, models, processes and tools used in social and behavioural sciences. This section describes the three major concepts and frameworks that serve as a foundation for the TIP FLU approach – health promotion, behaviour change and social marketing – and provides links to additional resources for more information.

Health promotion

TIP FLU is anchored in health promotion principles and practices. Health promotion is the process of enabling people to increase control over their own health. It goes beyond a focus on individual behaviour to incorporate a wide range of social and environmental interventions. It emphasizes the importance of understanding health behaviours within their social environment, and encourages governments to take responsibility for creating enabling environments that maximize equitable access to health and well-being.

In practice, health promotion draws on multiple disciplines, including economic, social and other behavioural sciences, to generate an understanding of the individual, social, environmental and structural determinants and actions necessary to both maintain and promote health and well-being in populations.

More information on health promotion is available on the WHO website *(32)*.

Behaviour change

Behaviour change refers to any transformation or modification of individual behaviour. A number of theories have been developed to explain how and when behaviour change occurs, and what circumstances and determinants are most conducive to influencing health enhancing behaviours and practices. Lessons learned from social and behavioural sciences from other areas of health can also be applied to promote the adoption and maintenance of life-saving vaccination behaviours and practices.

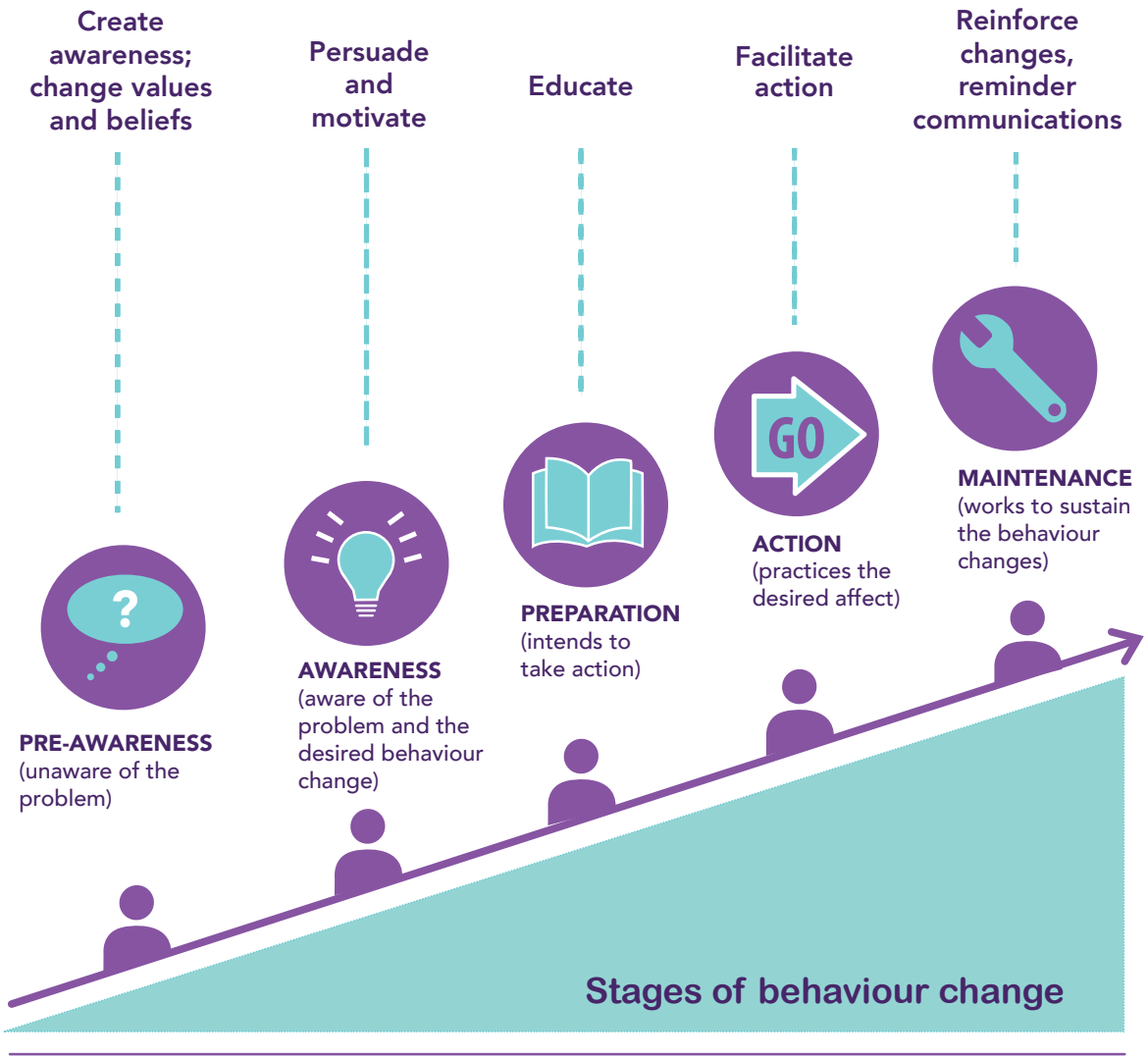
In the context of health, behaviour change is conceived as a process whereby individuals move progressively through five stages of change towards the adoption and maintenance of a desired behaviour (Table 3, Fig. 2), but the stages may vary depending on the health behaviour or practice *(33)*. Behaviour change is conceived as a circular, rather than linear, process as people may move back and forth between stages and achieve, or not, a change in their behaviour. The stages in the change model are helpful in deciding the types of interventions needed to move individuals towards sustainable adoption of the desired behaviour or practice.

Considering TIP FLU for pregnant women, maternal influenza vaccination requires that a specific *action* (vaccination) be taken by pregnant women, and a practice be *maintained* (vaccination recommendation) by their HCPs.

Table 3. Stages of change model

Stage	Definition
Pre-awareness	Unaware of the problem
Awareness	Aware of the problem and of desired behaviour change
Preparation	Intends to take action
Action	Practices desired behaviour
Maintenance	Works to sustain the desired behaviour over time

Fig. 2. Stages of behaviour change



TIP FLU recognizes that a person's decision to demand or receive vaccination is a complex process that can be influenced by multiple factors or *determinants*, which may favour or inhibit vaccination uptake *(34)*. A thorough understanding of these environmental, social and personal factors, and the relationships between them, helps to interpret the situation and guide decisions about what programmatic actions optimize vaccination uptake. Depending on the area of focus (individual, community, institutional, etc.) and the nature of the health problem, different theoretical approaches may be appropriate. Health promotion and health behaviour change practitioners will often use more than one theory to comprehensively address a problem and to produce a stronger impact.

TIP FLU has adapted the socioecological model to explore the determinants for seasonal influenza vaccination acceptance and uptake among pregnant women. This model is described in detail in the next section. Other behaviour change theories are also available and used, but are not presented within this guide.

The United States Department of Health and Human Services described influential theories of health-related behaviours, the process of shaping behaviours and the effects of ecological factors on behaviour in a guide that addresses the ways in which theory and models can be used in planning, implementing and evaluating health promotion programmes *(35)*.

The United Kingdom National Institute for Health and Care Excellence issued guidance for policy-makers and programme managers on behaviour change as a general approach to improve health *(36)*.

Social marketing

Social marketing uses a commercial marketing approach to influence people's behaviours to benefit the health and well-being of individuals, communities and societies. However, rather than persuading people to adopt a commercially-branded product or service, the aim of social marketing is to encourage individuals and communities to value and adopt positive health actions, ideas and/or products.

Social marketing offers a practical framework for systematically planning, implementing and evaluating health promoting interventions including vaccination. It helps immunization programmes to think of vaccination services in new ways, particularly from the perspective of the wants and needs of vaccination recipients.

It also encourages programmes to view their target population as a heterogeneous group of individuals, who must first be understood and then engaged in order to best respond to their values and needs, and to attract them to use the desired services.

Social marketing takes into account both the demand- and supply-side factors that influence the adoption of health behaviours. It includes an analysis of behaviours and practices that replace or compete with the desired behaviour. It employs the traditional 4 Ps of commercial marketing – product, price, place and promotion – to design a comprehensive strategy or *marketing mix* to encourage the preferred positive health behaviours. In social marketing, three additional Ps – partnerships, policy and purse strings – can be added to this mix to reflect the specific needs of public health programming (Fig. 3) *(37)*.

Fig. 3. The seven Ps of social marketing

Resources on social marketing can be found on the Centers for Disease Control and Prevention (CDC) website *(38)*.

Formed as part of The Robert Wood Johnson Foundation's Turning Point Initiative, the Turning Point Social Marketing National Excellence Collaborative is a network of public health professionals from all sectors who seek to increase the understanding and use of social marketing in public health at all levels *(39)*.

The website of the National Social Marketing Centre hosts a variety of resources for social marketing, including an independent review of the effectiveness of social marketing, documents, presentations, and other reports *(40)*. It produced a video describing what social marketing is *(41)*.

The socioecological model – understanding the determinants of maternal influenza vaccination

TIP FLU uses the socioecological model *(42)* to explore the determinants for seasonal influenza vaccination uptake among pregnant women (Box 2). This model assumes that an individual's behaviours are determined by multiple levels of influence, which interact with one another, within a complex ecological environment (Fig. 4). It offers a comprehensive and pragmatic approach for developing effective health promotion programmes centred on a specific behaviour and which are capable of targeting change at multiple levels. It also provides a simple framework for understanding the different levels of influence in the TIP FLU decision-making pathway.

The **individual level** explores the intrapersonal or internal biological, sociodemographic, psychological and experiential factors that influence the adoption of maternal

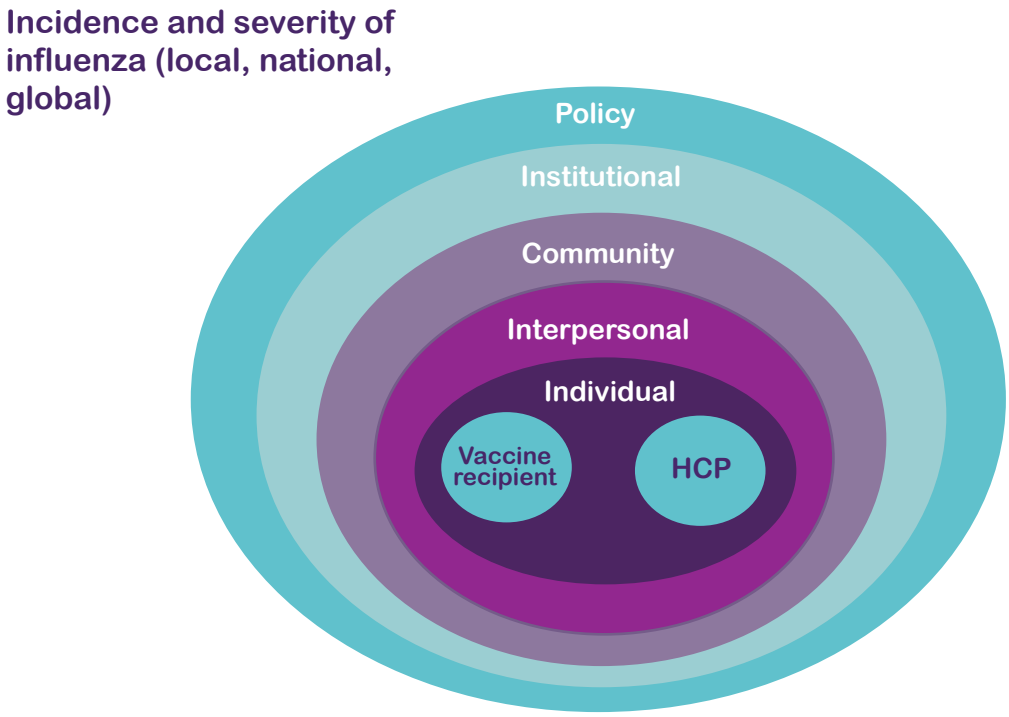
Box 2. How does using the socioecological model help?

Adapted for maternal influenza vaccination, it guides certain activities that are part of the TIP FLU approach, including:

- determine which questions to ask during the situation analysis and formative studies (quantitative and qualitative);
- determine who is most likely to influence vaccination acceptance and uptake;
- identify the factors that encourage or discourage maternal influenza vaccination in a given context;
- pinpoint the differences between subgroups within each target population (segmentation);
- select which determinants to act upon in order to increase pregnant women's uptake of seasonal influenza vaccination;
- select determinants to act upon to encourage HCPs' acceptance, recommendation and delivery of maternal influenza vaccination; and
- define the indicators to track changes in knowledge, attitudes and behaviours or practices of each target population, as a result of the TIP FLU interventions.

influenza vaccination. It identifies two primary target groups for behavioural change: the vaccine recipient (pregnant woman) and her HCP(s).

Fig. 4. Adapted socioecological model for maternal influenza vaccination uptake



Representing both pregnant women and HCPs at the same level in the figure emphasizes that they should be considered equally important in the vaccination decision-making process, and in designing interventions for introducing and increasing maternal influenza vaccination.

Evidence shows that the strength of the recommendation from a pregnant woman's HCP and the trust she places in this recommendation are decisive factors for receiving seasonal influenza vaccination.

The **interpersonal level** highlights the close and influential relationships that may affect maternal influenza vaccination acceptance and uptake. These refer to the pregnant woman's relationships with her spouse, family, friends and co-workers, for example, and her relationship (and level of trust) with her HCP.

From the perspective of the HCP, this level may include the HCP's relationships with trusted peers, vaccination champions and influential mentors.

The **community level** encompasses the social networks with which pregnant women, spouses, families and HCPs identify. These include communities set within geographical, religious, cultural, civil society, and informational (media) boundaries, for example. Community-level influences shape the norms that guide pregnancy-related behaviours and the strength of community support for influenza vaccination during pregnancy.

For HCPs, this level includes the influence of professional community, networks and associations that regulate medical and obstetric practice.

The **institutional level** takes into account the influence of health care institutions and organizational systems within which HCPs operate and pregnant women receive advice and care. Health care institutions define institutional norms and communities of care that shape

support for maternal influenza vaccination through capacity-building of HCPs and standing orders. They also regulate the conditions of access and availability (convenience) of maternal influenza vaccination.

The **policy level** describes influences outside the control of individuals or their immediate communities that affect availability, accessibility, affordability and acceptability of influenza vaccines and vaccination. They are national and subnational policies and norms that guide medical practices and define the environment within which health care institutions and providers can operate.

Policy-level decisions may provide opportunities to access maternal influenza vaccination, for example, by integrating seasonal influenza vaccination in routine pregnancy care, initiating national influenza vaccination promotion campaigns, defining which HCPs are authorized to provide maternal immunization, or incorporating training on influenza vaccination into standard preservice and continuing medical education curricula. Stakeholders to involve at this level include representatives of governments (including health and finance ministries), heads of professional medical organizations and networks, academia, patient associations and other civil-society organizations that work in reproductive, maternal and newborn health.

The WHO Strategic Advisory Group of Experts on Immunization (SAGE) Working Group on Vaccine Hesitancy has made an inventory of vaccine-specific determinants that can enrich the adapted socioecological model for maternal influenza vaccination *(43)*.

Part two. Implementing TIP FLU for pregnant women step-by-step

This section is intended to help design, implement, monitor and evaluate a maternal influenza vaccination programme tailored to the needs of pregnant women and their HCPs in a specific context.

It can be used for multiple purposes such as:

- to introduce vaccination as part of a nationwide roll-out;
- to introduce a phased roll-out of vaccination; and
- to improve maternal influenza vaccination acceptance and uptake within an existing programme.

The section describes four objectives.

1. **Describe the situation, including target populations and partners to involve in increasing uptake of maternal influenza vaccination.** Formative research helps in understanding and analysing the environmental context in which maternal influenza vaccination takes place, and which individuals and factors are likely to influence pregnant women's influenza vaccination-related behaviours and HCPs' practices.

2. **Diagnose the demand- and supply-side facilitators and barriers to influenza vaccination acceptance among pregnant women, their HCPs and other influencers.** Mapping barriers and enablers of influenza vaccination of pregnant women at different levels – individual, interpersonal, community, institutional and policy – helps to delineate the multiple factors that influence target populations' behaviours and practices, and prioritize those to act upon.

3. **Design evidence-informed interventions to promote maternal influenza vaccination acceptance and uptake.** Selecting the behavioural determinants to act upon guides the main decisions the vaccination programme needs to take. TIP FLU offers frameworks, tools and other resources to help the decision-making process.

4. **Deliver, monitor and evaluate the interventions.** As TIP FLU interventions are implemented, monitoring and evaluation should enable both continuous quality improvement of the interventions and measurements of their overall success. This guide proposes key indicators to consider and methodologies for monitoring interventions and assessing their results.

To complete these actions, the TIP FLU approach follows 11 steps depicted in Table 4, each of which is described in the following sections.

Table 4. TIP FLU step by step

Objective	Steps	Time needed
Describe the situation, target populations and partners to involve.	1. Decide the scope of TIP FLU. 2. Review the situation. 3. Analyse the situation. 4. Write a preliminary problem statement.	A few hours up to 1 week. Up to 2 weeks. A few days up to 2 weeks. A few hours up to 1 day.
Diagnose the demand-and supply-side facilitators and barriers.	5. Collect new information. 6. Describe target populations and the determinants of their behaviours. 7. Complete a problem statement with a behavioural analysis.	2–6 months. A few hours up to 1 week. 1–7 days.
Design evidence-informed interventions.	8. Set the TIP FLU objectives. 9. Use the social marketing framework to design TIP FLU interventions. 10. Develop a TIP FLU communications strategy, messages and materials.	A few hours up to 1 day. One to several months. 1–6 months.
Deliver, monitor and evaluate interventions.	11. Deliver, monitor and evaluate the TIP FLU interventions.	Ongoing, before, throughout and soon after implementation.

Though the steps appear in sequence, in practice, many overlap, which may require going back and forth between steps in order to complete the process.

Planning the timeframe and activities is an action that cuts across all steps.

The estimated time needed to design and implement the TIP FLU approach depends on the scope of the project (Box 3).

Box 3. Duration of the TIP FLU pilot project in Kaunas, Lithuania

In Lithuania, the TIP FLU pilot project took 18 months, beginning in February 2015 and officially closing in June 2016. TIP FLU information, education and communications interventions were implemented during the 2015/2016 influenza season, with highest intensity between October 2015 and January 2016.

TIP FLU begins with effective partnerships. Depending on the scope of the TIP FLU project, main partners may include representatives of the health ministry, national health insurance bodies, public health institutions, health care facilities, professional associations, academia, civil-society organizations, communications agencies, media, families and different sociocultural or ethnic communities.

Engaging main partners right from the beginning helps.

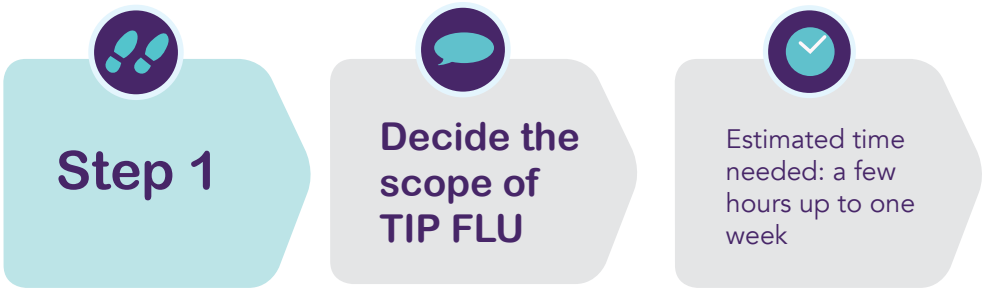
- Create a common understanding of the value and benefits of maternal influenza vaccination.
- Address existing misperceptions or assumptions among decision- and policy-makers and other institutional partners who may influence the project.
- Recognize the unique strengths that each partner brings to the project.
- Foster a common commitment to the interventions and their outcomes.
- Develop knowledgeable advocates who will champion the cause.

Partner involvement is key in certain steps.

- Define the scope of the TIP FLU project (**step 1**).
- Collect existing information on maternal influenza vaccination (**step 2**).
- Determine the strengths, weaknesses, opportunities and threats (SWOT) and perform preliminary behavioural analyses (**step 3**).
- Design the TIP FLU interventions using a situation summary (**step 9**).
- Implement interventions (**step 11**).
- Monitor and adjust interventions (**step 11**).
- Share the results after having implemented and assessed the TIP FLU interventions (**step 11**).

Objective 1: Describe the situation, target groups and partners to involve.

This phase is used to describe the situation and identify target groups and partners to involve.



Use this step to initiate discussions with main partners to decide whether the TIP FLU project will be implemented:

- at a national or subnational level;
- within one or more health care institutions;
- within a subgroup of pregnant women (e.g. pregnant women with chronic diseases);
- as a pilot project to provide a proof of concept; or
- as a phased approach, starting with a small-scale project with a limited geographic scope and subsequently moving towards broader implementation.

Box 4 describes the scope of the TIP FLU project in Lithuania.

Box 4. A TIP FLU pilot project in Kaunas, Lithuania

The TIP FLU approach in Lithuania was implemented as a pilot project in Kaunas city municipality (population of 356 000). The pilot project was viewed as an opportunity to gauge pregnant women's and HCPs' reactions to and acceptance of interventions promoting maternal influenza vaccination. The pilot project also planned to generate important lessons learned regarding the design and implementation of the TIP FLU approach, considered essential for the potential scale-up of interventions and capacity-building of local partner institutions involved in the project.

The municipality of Kaunas was chosen for the pilot for several reasons. First, the departments of Obstetrics-Gynaecology, Infectious Diseases and Family Medicine of the Lithuanian University of Health Sciences (LUHS), based in Kaunas, all expressed strong interest in participating in the TIP FLU pilot.

Second, LUHS had previously implemented maternal influenza vaccination promotional campaigns in Kaunas. Due to the limited success of previous campaigns, the departments expressed a desire to try the new TIP FLU approach.

Third, public health agencies in Kaunas city municipality had a long history of creating and developing multisectoral health promotion programmes, starting with the Kaunas Healthy City project established in 1989 as part of the WHO's Healthy Cities Project *(44)*.

List all relevant partner organizations and their contact information, which will be a useful resource throughout the implementation of the TIP FLU approach.

Step 2

Review the situation

Estimated time needed: up to two weeks

Use this step to examine the available information on maternal influenza vaccination and its place in pregnancy care at different levels of the socioecological framework (Fig. 4).

During this step, work with partners to collect and review information on existing policy, programmes and practices related to both seasonal influenza vaccination and pregnancy/antenatal care in the setting where the TIP FLU approach will be implemented. This will provide a comprehensive picture of the current landscape in which maternal influenza vaccination exists, or will be set.

Relevant information can be found within national health ministries and related programmes and institutions, health insurance funds, professional associations, medical and public health universities and civil-society organizations that work on influenza vaccination and pregnancy-related care.

Sources of this information include:

- official publications (law, policy and guidelines), reviews and reports;
- key informant interviews; and
- workshops or meetings with potential partners.

Meeting with potential partners informs them of the purpose of the programme and serves as a first step towards promoting maternal influenza vaccination.

Table 5 gives guidance on the areas of inquiry, related questions and sources of information to carry out the review of the situation regarding maternal influenza vaccination in a given country or context. Box 5 depicts the situation in Lithuania at the time of the pilot project.

Table 5. Suggested areas of inquiry and questions for the situation review

Area of inquiry	Questions	Information sources
National coverage and trends in maternal influenza vaccination (or other maternal vaccinations) and HCPs influenza vaccination.	What was the influenza vaccination coverage among pregnant women during the most recent influenza season? What was the influenza vaccination coverage among HCPs during the most recent influenza season? How has coverage changed in the last 5 years? Are estimates of the burden of influenza (including hospitalizations and mortality) among pregnant women available?	Key informant interviews. Official reports and data on influenza surveillance and vaccination coverage. (Available with health ministry, national communicable diseases/public health/ infection control centres, national statistical office).
National seasonal influenza vaccination programme, policy and guidelines.	Which institution leads the national seasonal influenza vaccination programme? • Is there a national immunization technical advisory group (NITAG) in existence? • If so, what is their position regarding maternal influenza? • How influential is the NITAG in immunization policy decisions? How is the seasonal influenza vaccination programme organized in terms of: • national policies and guidelines in general and pregnant women in particular; • target group recommendations; • delivery of vaccines (including cost to vaccine recipient, authorized providers of vaccination to pregnant women and payments/incentives to vaccination providers); • vaccine procurement planning and supply (number of doses planned, delivered and left over at the end of the season); • monitoring vaccination coverage; • quality of coverage data; • monitoring of adverse events following immunization; • training/capacity-building of influenza vaccine providers; and • communications and media relations. To what extent is the recommendation of vaccination of pregnant women supported by national decision-makers and implementers? What, if any, interventions are being or have been implemented to increase uptake of maternal influenza vaccination among pregnant women and their HCPs? What influenza vaccination interventions have been implemented among other risk groups? What are the lessons learned from these efforts? What lessons can be learned from other maternal vaccination programmes (pertussis vaccination, for example)?	Key informant interviews. Official publications of laws, policy and guidelines. (Available with health ministry, national vaccination and maternal and child health programmes, and national public health institutes).

Table 5 (contd.)

Area of inquiry	Questions	Information sources
National maternal care programme, policy and guidelines.	What are the national policies and strategies guiding pregnancy-related (obstetric) care? • Which HCPs are authorized to provide pregnancy-related care? • Which vaccinations are recommended during or in preparation for pregnancy? • How many antenatal care (ANC) visits take place during pregnancy? With which types of HCPs do the visits take place? Is seasonal influenza vaccination on the political agenda for maternal and newborn care and what is the current official view regarding maternal influenza vaccination?	Key informant interviews or meetings. Official publications and reports.
Medical (professional) organizations and education.	What professional medical and other health associations that may influence perceptions and practices on maternal influenza vaccination exist in the country for? • Infectious diseases. • General/family medicine. • Obstetrician-gynaecologists. • Neonatal and paediatric specialists. • Midwifery and nursing. • Patient associations. What, if any, role do they play in advising on or delivering maternal influenza vaccination (and other vaccinations)? Is training on the risks of influenza and benefits of maternal influenza vaccination a part of HCPs' formative medical education and/or continuing education in the country? What do HCPs in the medical/health community think and say about adult vaccination, influenza and maternal influenza vaccination (positive and negative)? Who are leading medical figures to whom health professionals look for up-to-date information and advice on new medical initiatives related to maternal care and/or influenza vaccination?	Key informant interviews. Participatory workshops.
Health care systems, facilities and practices.	Where and how is pregnancy-related care provided? What specialized maternal health units or facilities exist? To what extent does health care practice around immunization follow written policies? How does daily practice about influenza and influenza vaccination during pregnancy (positive and negative) diverge? Do perceptions differ depending on the type of HCP, e.g. obstetrician-gynaecologists, family physicians, midwives or nurses? To what extent and for what reasons do HCPs recommend seasonal influenza vaccination to	Key informant interviews.

Table 5 (contd.)

Area of inquiry	Questions	Information sources
	pregnant women? What are the differences between HCPs who recommend maternal influenza vaccination and those who do not? What pathway must a pregnant woman follow to receive vaccination against seasonal influenza once this has been recommended by her HCP?	
Influence of media and communications.	What is the perceived role of media and social media in influencing seasonal influenza vaccination behaviours? What opinions are held in the media and social media regarding seasonal influenza and seasonal influenza vaccination? What, if any, negative press exists? What types of communications channels provide up-to-date information on influenza, seasonal influenza vaccination and pregnancy care: • to pregnant women? • to their HCPs? What, if any, information is there on their reach and effectiveness?	Key informant interviews. Participatory workshops. Social media and other media reviews.
Factors affecting pregnant women's acceptance and uptake.	What is perceived to influence pregnant women's acceptance and uptake of maternal influenza (or other) vaccination? • What differentiates pregnant women who have received maternal influenza vaccination from those who have not? • What facilitates vaccination? • What are the barriers to vaccination? Who influences their pregnancy-related decisions? At what stage of change (**Fig. 2** or **Table 3**) are most pregnant women with regard to accepting maternal influenza vaccination?	Key informant interviews and meetings. Publications and reports.

Box 5. Understanding the current situation regarding maternal influenza vaccination in Lithuania

Orientation and planning meetings took place in February 2015 with the aim to initiate the TIP FLU approach in selected sites in Lithuania. Meetings were held with representatives of the Ministry of Health and stakeholders in two cities – Vilnius and Kaunas – to define the scope of the TIP FLU pilot project.

The meetings had five specific objectives.

- Present the methodology and objectives of the TIP FLU pilot project and assess the level of interest among the Ministry of Health representatives and other stakeholders.
- Understand the current situation regarding acceptance and uptake of maternal influenza vaccination among pregnant women and their HCPs.
- Explore the pathways of care for pregnant women, including the roles of different types of HCPs in pregnancy care and vaccination.
- Discuss the modalities of the implementation and evaluation of the pilot project.
- Identify partners and a site for a pilot project and determine next steps.

Meetings took place with the following stakeholders.

- Ministry of Health: the Vice-Ministerial office, Epidemiological Surveillance Division, Mother and Child Health Division, Prenatal Health Care Division, European Union Affairs and International Relations Division.
- Medicines Safety and Information Unit, State Medicines Control Agency under the Ministry of Health.
- Health Information Centre, the Institute of Hygiene.
- National Health Insurance Fund under the Ministry of Health.
- Centre for Communicable Diseases and AIDS (ULAC).
- Lithuanian University of Health Sciences: departments of Obstetrics-Gynaecology, Infectious Diseases and Family Medicine.
- Vilnius University: Centre of Paediatrics, Institute of Public Health, Department of Infectious, Chest Diseases, Dermato-venereology and Allergology.
- National Public Health Centre, Kaunas department.
- Kaunas Public Health Bureau.
- Lithuanian Society of General Practitioners.
- Lithuanian Midwives Association.

A literature review of evidence on what influences acceptance and uptake of maternal influenza vaccination among pregnant women and HCPs' practices related to maternal influenza vaccination provides an excellent starting point to understand the possible determinants of action in a given setting. Consult the results of a systematic review conducted by Yuen and Tarrant (2014) *(4)* (Table 2).

Use this step to analyse the information gathered to understand the maternal influenza vaccination situation in step 2 and to create:

- a SWOT analysis on maternal influenza vaccination services; and
- a table listing the factors that key informants reported influencing both HCP practices and influenza vaccination uptake among pregnant women.

To conduct a SWOT analysis, information collected on the existing seasonal influenza vaccination services for pregnant women is analysed and filtered according to what may facilitate or impede uptake. Four questions guide this analysis.

The SWOT analysis helps to focus on the existing programme's strengths, take into account any weaknesses and limitations, minimize threats, and take advantage of assets and opportunities available. Below questions 1 and 2 refer to how maternal influenza vaccination is delivered, including stakeholders' perceptions of this, while questions 3 and 4 help to identify social and policy influences, potential resources, and bottlenecks.

1. What **internal strengths** of the programme facilitate uptake of maternal influenza vaccination?
2. What **internal weaknesses** may affect perceptions of maternal influenza vaccination?
3. What **external opportunities**, initiatives, events or factors could serve as resources for the programme?
4. What **external threats**, obstacles or challenges could prevent the programme from running smoothly?

Fig. 5 depicts the results of the SWOT analysis based on the review of the maternal influenza vaccination programme in Lithuania in February 2015. It was presented to the Lithuanian Ministry of Health and participating stakeholders in March 2015.

Fig. 5. SWOT analysis of the national maternal influenza vaccination programme in Lithuania

Internal

Strengths

- National vaccination programme achieves high coverage rates for child vaccination.
- Pregnant women are included in seasonal influenza vaccination policy and guidelines since 2010.
- A well-functioning system ensures timely influenza vaccine procurement and distribution to health care institutions and providers.
- Well respected institutions oversee communicable diseases (ULAC and departments of the National Public Health Centre (NPHC)) and monitor the seasonal influenza vaccination programme nationally and subnationally.
- Seasonal influenza vaccination is free of charge to pregnant women (since the 2011/2012 influenza season) *(45)*.
- Standard guidelines for pregnancy care exist.

Weaknesses

- Low influenza vaccination uptake among HCPs (12.7% in 2014/2015 season).[a]
- Very few pregnant women receive maternal influenza vaccination (estimated at 0.12% in 2014/2015 season).[a]
- No national and subnational promotion of maternal influenza vaccination has been done.
- No special decree for adult vaccination, allowing HCPs to be compensated for adult vaccination exists.[b]
- Maternal influenza vaccination is not part of routine antenatal or pregnancy-related care.
- More clarity regarding authorization of gynaecologists to administer vaccination to pregnant women is needed.
- Concerns exist regarding lack of evidence on maternal influenza vaccination within national institutions.
- Data on influenza burden among pregnant women is lacking.

External

Opportunities

- The Ministry of Health is mandated to establish an independent expert group on immunization.
- High-level support from medical community (universities) for seasonal influenza vaccination of HCPs and pregnant women exists.
- Partner institutions (LUHS) with research experience and expertise regarding maternal influenza vaccination exist.
- WHO support for maternal influenza vaccination is viewed positively by stakeholders.

Threats

- Frequent changes in the Ministry of Health: 18 health ministers since 1990.
- Public scepticism exists regarding the role of medical and pharmaceutical communities in promoting vaccination (conspiracy theory).
- Historical relic of pregnancy as a contraindication for vaccination persists.
- Anecdotal evidence of anti-vaccine voice in media and distrust in seasonal influenza vaccination after the 2009 influenza A(H1N1) pandemic may fuel negative reactions.
- Awareness of recommendation for maternal influenza vaccination among HCPs and the public is low.
- Levels of confidence to recommend maternal influenza vaccination within medical community are low (desire for more evidence from European countries).

[a] ULAC, unpublished data, 2 June 2016.
[b] According to Lithuanian law, family physicians are not entitled to receive financial compensation for providing immunization services to adults.

At this stage, creating a preliminary table listing the factors influencing uptake among pregnant women using the socioecological framework is helpful.

Table 6 shows Lithuania's preliminary list of factors, organized by level of influence in the socioecological framework. These are based on findings from national guidelines, surveys conducted by ULAC and LUHS, and key informant interviews during which stakeholders shared their personal beliefs and experiences regarding what influences maternal influenza vaccination uptake.

Table 6. Preliminary list of factors influencing maternal influenza vaccination uptake in Lithuania, based on information collected in February 2015

Level	Determinants that influence uptake[a]
Policy.	• Pregnant women included as target group in national policy for influenza vaccination. • Seasonal influenza vaccination free of cost for pregnant women. • Little national-level promotion of maternal influenza vaccination. • Absence of maternal influenza vaccination in ANC guidelines.
Institutional.	• Vaccines available at polyclinics. • Vaccination services perceived to be convenient. • Low seasonal influenza vaccination coverage among HCPs. • History of pregnancy being a contraindication for vaccination. • Reported lack of access to clinical evidence on the benefits and safety of maternal influenza vaccination by stakeholders.
Community.	• Vaccine hesitancy within parts of the population. • Media (social media) fuels scepticism regarding vaccines. • Absence of perceived norm to receive maternal influenza vaccination by pregnant women.
Interpersonal.	• Pregnant women who vaccinated reported to have received HCP recommendation. • Absence of clear HCP recommendation to vaccinate. • Concerns regarding vaccine effectiveness and safety among HCPs.
Individual (pregnant women).	• Low levels of awareness of maternal influenza vaccination recommendation and knowledge of its benefits. • Concerns regarding vaccine safety and side effects for fetus and mother. • Influenza vaccine not seen as protective. • Low intention to vaccinate in the future.

[a] Factors that may facilitate maternal influenza vaccination uptake appear in grey and barriers appear in purple.

Share the SWOT analysis and table of factors influencing acceptance and uptake with partners and other stakeholders. These are powerful tools that can generate meaningful discussions that help to build consensus on the main issues to be addressed for optimizing uptake of maternal influenza vaccination.

Use the findings from steps 1–3 to establish a preliminary problem statement.

A problem statement is a clear concise description of the issue(s) that need(s) to be addressed. It may be used to give focus to the TIP FLU project at the beginning, keep partners on track during the effort and help validate that the interventions delivered contributed to solving the problem.

The preliminary problem statement should answer seven main questions (Table 7).

The problem statement should be revised if new insights from quantitative and qualitative studies become available. Complete the problem statement once new information is collected, analysed and discussed (**step 7**). Some programmes may wish to start segmenting the target population at this step (Box 6).

Table 7. TIP FLU preliminary problem statement: improving maternal influenza vaccination coverage in Lithuania

Question	Answer
1. What is the vision?	• HCPs to recommend and offer seasonal influenza vaccination to pregnant women as a routine part of ANC. • Pregnant women to accept maternal influenza vaccination to protect themselves and their newborns from influenza infection.
2. What is (are) the main issue(s) to be addressed?	Despite having officially included pregnant women as a risk group for seasonal influenza vaccination in 2010, uptake of maternal influenza vaccination in Lithuania has been low. According to ULAC, these figures were 0.07% in 2013/2014 and 0.12% in 2014/2015. No current estimation of influenza burden among pregnant women and newborns exists. However, between 2010 and 2013, 66 pregnant women were officially reported to have been hospitalized due to influenza (not all were laboratory confirmed); 38 hospitalizations were in Kaunas.[a]
3. Where and when does maternal influenza vaccination usually take place?	In general, a family physician prescribes all vaccinations, including for seasonal influenza, at the primary health clinic or within a private medical practice. While family physicians recommend and discuss vaccinations, the vaccinations are mostly administered by nurses. According to the Lithuanian norms for pregnancy care, family physicians and midwives provide ANC to women with low-risk pregnancies. Gynaecologists provide specialized ANC to pregnant women at specific times during the pregnancy, and care for women with high-risk pregnancies. In practice, in rural areas where there are few gynaecologists, midwives may also deliver ANC to women with high-risk pregnancies. In cities, pregnant women have more choice regarding the type of HCP for ANC and may prefer to receive care from gynaecologists.

Table 7 (contd.)

Question	Answer
	Seasonal influenza vaccination is available every year free of cost to pregnant women at the start of the influenza season.
4. What are the possible causes of low influenza vaccination uptake among pregnant women?	• Most pregnant women are not aware of the availability and benefits of maternal influenza vaccination (pre-awareness stage of change). • Despite the relatively recent addition of pregnant women as a target group in seasonal influenza vaccination policy guidelines, national and subnational institutions have not promoted maternal influenza vaccination. • Family physicians do not routinely recommend maternal influenza vaccination during ANC visits. Only some obstetrician-gynaecologists and midwives do. • HCPs lack confidence in the benefits of maternal influenza vaccination for pregnant women. • Institutions, HCPs and pregnant women report a lack of data on the influenza burden among pregnant women in Lithuania and comparable (European) countries. • Health policy-makers, programme managers, HCPs and pregnant women report wanting more clinical evidence on the benefits and safety of maternal influenza vaccination. • HCPs report feeling threatened by anti-vaccination opinions expressed in traditional and social media. • Low uptake indicates an absence of community and professional norms for maternal influenza vaccination.
5. What is the scope of the TIP FLU pilot project?	Kaunas municipality, with the LUHS Obstetrics-Gynaecology Outpatient Unit, was the principal site for the pilot project. This unit is the largest obstetrics and gynaecology centre in Lithuania providing both outpatient and inpatient care in perinatology and gynaecology. A university medical centre, it is also involved in academic research. It has an excellent reputation and serves a large proportion of pregnant women in Kaunas county. In addition, the TIP FLU pilot project included four of the largest primary health care clinics in Kaunas municipality, because: • maternal influenza vaccination is traditionally prescribed by pregnant women's family physicians who practice outside of the LUHS Obstetrics-Gynaecology Outpatient Unit; and • women having normal pregnancies consult the LUHS Obstetrics-Gynaecology Outpatient Unit only a few times during their pregnancies.
6. Who are the main target groups for the TIP FLU pilot project?	The TIP FLU pilot project to increase maternal influenza vaccination uptake should promote awareness, capacity and confidence in maternal influenza vaccination among three main target groups: • **national and institutional policy-makers and programme managers** to optimize normative, policy- and institutional-level support for maternal influenza vaccination and to facilitate convenience of influenza vaccination administration for pregnant women; • **HCPs – family physicians, obstetrician-gynaecologists, midwives and nurses** – to develop their capacity and confidence in recommending seasonal influenza vaccination to pregnant women; and • **pregnant women, their families and the public** to raise awareness of maternal influenza vaccination and to make it a routine preventive practice for pregnant women.

Table 7 (contd.)

Question	Answer
7. Who are the main partners to involve in the TIP FLU pilot project?	National-level partners were: • the Ministry of Health Epidemiological Surveillance Division and Mother and Child Health Division; and • the Centre for Communicable Diseases and AIDS (ULAC). Partners in Kaunas and their respective roles: • NPHC, Kaunas Department (NPHC-KD): will develop, organize and monitor TIP FLU communications and educational interventions in the primary health care clinics in Kaunas city and county, and provide feedback on the process and results; • the Kaunas Public Health Bureau (KPHB) will develop, organize and monitor TIP FLU communication materials and other interventions among pregnant women and the public in Kaunas city, and provide feedback on the process and results; • the LUHS Department of Obstetrics and Gynaecology will conduct and provide a site for qualitative and quantitative studies; • the LUHS Department of Infectious Diseases will participate in qualitative and quantitative studies, and support the LUHS Department of Obstetrics and Gynaecology and NPHC-KD when implementing TIP FLU communications interventions; and • four of the largest primary health care clinics in Kaunas city[b] will promote and provide seasonal influenza vaccination among pregnant women in collaboration with NPHC-KD and KPHB. Information will be placed on a social media website dedicated to mothers *(46)*.
Additional partners to keep informed.	• Lithuanian National Parliament. • National Health Insurance Fund under the Ministry of Health. • Vilnius University: Centre of Paediatrics, Institute of Public Health, Department of Infectious, Chest Diseases, Dermato-venereology and Allergology. • Lithuanian Society of General Practitioners. • Lithuania Midwives Association. • Council of Representatives of Patient Organisations.

[a] These figures are likely to underestimate the true number of influenza cases. Many cases go unreported for a variety of reasons, including absence of laboratory testing and the fact that influenza viruses may not be detectable at the time of hospitalization.
[b] The four focus primary health care clinics in Kaunas were Šilainių polyclinic, Dainavos polyclinic, Kalniečių polyclinic and the LUHS Family Health Unit.

Use the problem statement to formulate the main issue(s) to be addressed with partners and begin planning next steps with them. The problem statement can also help guide new studies to fill gaps in information.

Box 6. When should I start to segment the target populations?

Segmentation is an iterative process that may take place at different times during the implementation of the TIP FLU approach and with varying levels of detail.

Segmenting the priority target populations may start at this step of the TIP FLU approach if this is relevant. Begin by using the data gathered from the situation analysis, existing coverage information and surveys to help identify the broad characteristics that differentiate one target group segment from another.

See **step 6** and **Box 9** for more information on segmentation.

Objective 2: Diagnose the demand- and supply-side facilitators and barriers.

This phase is used to diagnose the demand- and supply-side facilitators and barriers to acceptance of maternal influenza vaccination among pregnant women and their HCPs.

Use this step to gather new information on pregnant women's and HCPs' knowledge, attitudes, perceptions and practices that facilitate or prevent acceptance and uptake of maternal influenza vaccination.

Collecting new information at this stage of the TIP FLU approach may be helpful for a number of reasons. First, new information can be used to gain a deeper understanding of the factors that are believed to influence HCP practices and pregnant women's acceptance and uptake of influenza vaccination. It can also elucidate the reasons and the reasoning behind attitudes towards acceptance of maternal influenza vaccination, and related beliefs, emotions and potential dilemmas among both pregnant women and their HCPs.

Second, studies may be crafted to identify the behavioural determinants that most significantly differentiate pregnant women who accept vaccination from those who do not (based on a doer/non-doer analysis *(47)*. This helps to segment pregnant women into distinct target groups and to identify the most important determinants to influence in order to increase acceptance and uptake of seasonal influenza vaccination among them. The doer/non-doer analysis contributes to a more informed, and therefore improved, design of TIP FLU interventions.

Finally, it can be used to obtain recent estimates of maternal influenza vaccination coverage in the country, health care institution or network of health care institutions (depending on the scope of the project).

New information can be collected by either quantitative or qualitative study methods. The choice between these methods depends on the type of information needed, the availability of information on the topic and the resources available to carry out studies.

Qualitative methods use in-depth interviews, focus group discussions and direct observations to explore the reasons why people make certain choices and adopt specific behaviours. They allow representatives from the target group to explain their knowledge, thoughts, rationale and feelings related to influenza and vaccination against influenza in their own words. Qualitative methods are rich in information, and effective in disclosing the motivators and barriers associated with behaviours to explore what drives acceptance and uptake (or not) of influenza vaccination among pregnant women. They also help to describe different profiles of pregnant women who share similar conceptual and behavioural patterns. Qualitative data collection is essential to the process of targeting and developing effective communications

content. These methods are also employed to pretest communications materials in terms of clarity, comprehension and overall appeal.

Box 7 offers suggestions on when collecting new information is necessary.

Box 7. When is collecting new information necessary?

Collecting new information is not always necessary in the TIP FLU approach. In some cases, the situation analysis conducted in steps 2–4 will suffice to give a good understanding of the situation regarding maternal influenza vaccination.

The decision to collect new information and the type of studies (qualitative or quantitative) to conduct will depend on a variety of factors. One factor is the **types and quality of information** collected during the desk review, key informant interviews and/or participatory workshops conducted for the situation assessment. Spending time and resources to collect new information is worthwhile when data are scarce, or important gaps in information or in understanding the problem exist.

Another factor is the **stage of change** – pre-awareness, awareness, preparation, action or maintenance – of pregnant women and providers of the maternal influenza vaccination programme. When maternal influenza vaccination is new, a rapid qualitative assessment among pregnant women and their HCPs may be enough to initiate a programme.

The available **budget** is usually a consideration.

However, because qualitative methods collect the views of a small number of individuals, they are not suitable to establish statistically-based conclusions for the target group as a whole.

Quantitative methods are based on structured data collection of quantifiable variables typically through survey questionnaires. By careful training and supervision of interviewers and use of standard questionnaires where questions are the same for all respondents, survey methods minimize the influence of interviewer bias while increasing comparability of individual responses across the sample. One of the great advantages of quantitative data collection approaches is the ability to apply statistical methods to analyse and summarize resulting data. Another is the ability to generalize the results to a larger population. These approaches are appropriate when the nature of barriers or enablers to vaccination uptake are clearly defined and measurable in categories or numbers, when ability to quantify and generalize results is important for convincing intended scientific or policy audiences, and when results need to be compared to other populations or the same population at a later time as in the case of programme evaluation.

The TIP FLU pilot project in Lithuania implemented both qualitative and quantitative studies (Box 8).

Box 8. TIP FLU formative studies performed as part of the pilot project in Lithuania

The situation analysis of maternal influenza vaccination uptake in Lithuania helped to understand the reasons behind low uptake of maternal influenza vaccination from the perspectives of HCPs and pregnant women. It also exposed a lack of information on pregnant women's and HCPs' knowledge, attitudes, beliefs and practices with regard to influenza and maternal influenza vaccination.

A **qualitative exploration of the reasons for low acceptance and uptake of maternal influenza vaccination** was conducted among both pregnant women and their HCPs. (Though husbands were considered an important influencing group, interviews with husbands were not possible due to lack of time and resources.)

The data collected were used for several purposes.

- Generate an in-depth understanding of the knowledge, attitudes, beliefs and practices that influence acceptance and uptake of maternal influenza vaccination, from the perspectives of both pregnant women and their HCPs.
- Assess their information needs and preferred communication channels to guide the creation of a communications strategy in the TIP FLU pilot project sites.
- Inform the development of a survey questionnaire to be used to quantitatively measure outcomes of the TIP FLU pilot project.
- Enrich the understanding of the findings from the quantitative survey.

Quantitative studies were also implemented to **help evaluate the impact of the TIP FLU pilot project** and to generate a broader understanding of the prevalence of pregnant women's attitudes, perceptions and practices around seasonal influenza vaccination. (More information in **step 11.**)

The study proposal "Tailoring Influenza Immunization Programme (TIP FLU) in Pregnant Women in Lithuania" received clearance from the Kaunas Regional Biomedical Research Ethics Committee and State Data Protection Agency in June and August 2015 respectively.

Uncovering pregnant women's and their HCPs' thinking using their own words is particularly useful for the development of meaningful communication messages and products. Furthermore, formative data collection provides an opportunity for both target groups to be involved in the design of TIP FLU interventions.

Use the adapted socioecological model (Fig. 4) to help identify what questions to ask to explore what motivates HCPs to recommend or discourage influenza vaccination to pregnant women, and what motivates pregnant women to accept or reject influenza vaccination.

More information on how to conduct **qualitative research** is available at the Health Communication Capacity Collaborative's HealthCOMpass website *(48)*. Information on conducting a **doer/non doer study** is also available *(47)*.

Annex 1 and 2 show the sample **qualitative research instruments** used in the TIP FLU pilot project in Lithuania, and **Annex 3** shows the sample **survey questionnaire**.

Step 6

Describe the main target populations and the determinants of their behaviours

Estimated time needed: a few hours up to a week

Use this step to describe your main target groups, and to identify target group segments and the most important behavioural determinants to prioritize for your TIP FLU interventions.

Start by using the data gathered from the situation analysis and existing coverage information and surveys to help identify the broad characteristics that differentiate one target group segment from another. These characteristics may be sociodemographic, geographic, behavioural or psychosocial (Box 9).

Box 9. What is segmentation and why and when should the main target groups be segmented?

Segmentation divides what is initially a large, heterogeneous population into smaller groups of people who are alike in specific ways. The process of segmentation encourages one to consider the main target population as a diverse group of individuals who may share common characteristics but who have different needs, beliefs, values and practices.

Segmentation allows one to focus on the segments of the target population that are the most critical to reach. It helps to tailor relevant and effective interventions to them, to increase their likelihood of adopting a specific health behaviour or practice.

Box 9 (contd.)

A number of characteristics can be taken into consideration in the segmentation process. These may be sociodemographic (such as age, income, profession, educational level, family size), geographic (place of residence, for example), behavioural (pregnancy care- and vaccination-related practices, stage of readiness to change, likelihood to follow HCP recommendations) and psychosocial (attitudes, beliefs, values, norms, support, etc.).

Before beginning, first decide whether segmenting the main target populations is necessary. Segmentation is recommended when:

- the target population cannot be reached with the same interventions, messages or channels of communication;
- as coverage grows, more detailed analysis of reasons why certain pockets of the population are not adopting the practice or behaviour is needed; and
- the programme budget is insufficient to implement multiple approaches.

With data in hand, segmentation can be done in a relatively short amount of time. This process is worth doing, particularly as the programme expands and there is a need for a finer understanding of which segments of pregnant women, HCPs and other influencing groups – such as husbands – to target to further stimulate acceptance and uptake of maternal influenza vaccination.

Consult Yuen & Tarrant *(4)* for an inventory of psychosocial factors found to influence acceptance and uptake of maternal influenza vaccination. These are presented in **Table 2**, pages 9-10 of this document.

One way to segment the main target population is to perform a doer/non-doer analysis to determine what differentiates people who display a specific behaviour from those who do not. Look for what distinguishes pregnant women who received influenza vaccination from those who did not, and HCPs who recommend influenza vaccination to pregnant women from those who do not.

Segmentation of a target population using a doer/non-doer analysis requires that there is sufficient number of people in both groups. This type of analysis is challenging in situations where maternal influenza vaccination coverage rates are very low, as was the case in Lithuania (Box 10).

When conducting a doer/non-doer analysis is not possible, use findings from the situation analysis, qualitative studies and/or quantitative surveys to list the characteristics that influence uptake of maternal influenza vaccination and, if possible, assess the significance of each characteristic to prioritize the behavioural determinants to act upon.

Box 10. Listing characteristics related to maternal influenza vaccination for the TIP FLU pilot project in Kaunas, Lithuania

In Kaunas, carrying out a segmentation of pregnant women and their HCPs was not necessary for two reasons. First, maternal influenza vaccination coverage rates were very low. Second, the analysis of a survey conducted by LUHS on pregnant women's acceptance and uptake of maternal influenza vaccination during the 2014/2015 influenza season showed that the low coverage was principally due to their lack of awareness and knowledge of its availability and benefits. Pregnant women were at the **pre-awareness stage of change** (Fig. 2/Table 3).

The qualitative studies conducted with pregnant women and their HCPs in Kaunas helped to uncover a number of psychosocial factors related to influenza vaccination awareness, acceptance and uptake and communications needs among both target groups. These findings are presented in step 7 as part of behavioural analyses conducted for each target group.

After defining the target group segments, identify which segments and/or behavioural determinants to prioritize for the TIP FLU interventions.

The following criteria may help the prioritization:

- size of each target group segment;
- readiness of the target group segment to receive or recommend maternal influenza vaccination, or stage of change;
- relative importance of each determinant within each target group segment or population;
- types and intensity of effort required to influence each determinant;
- ability and/or ease with which the programme can reach each target group segment; and
- resources available to build and implement tailored interventions.

→ Consider which segment is the "target of opportunity", meaning the individuals who are initially most prone to change. These are people with the greatest desire to accept maternal influenza vaccination due to perceived or real vulnerability – pregnant women with chronic diseases, for example.

→ For information and tools on audience segmentation, visit the Health Communication Capacity Collaborative's HealthCOMpass website *(49)*.

→ Guidance on identifying the determinants of behaviour change is also available *(50)*.

Use this step to build on the work from the previous steps to perform a thorough behavioural analysis by target group using the socioecological framework, and complete the problem statement.

It moves one step closer to transforming the information collected into practical programmatic interventions.

This step builds on the initial problem statement by adding an analysis of each prioritized target population or target group segment. Target groups at each level of the socioecological framework are described in terms of their current and desired behaviours or practices, and challenges and opportunities for change. Finally, the circumstances or conditions that may influence their behaviours but are unchangeable are also taken into account. Consider modifying the initial problem statement based on this analysis (see **step 4**).

Complete the behavioural analysis by answering the following questions for each target group considered at the different levels of the socioecological framework.

- Who is the target group? (Is it the main target population or an influencer?)
- What are the current relevant behaviours of the target group?
- What are the desired behaviours that improve health outcomes?
- What factors prevent each desired behaviour, or justify the current behaviour?
- What are the determinants that may help the desired behaviour?
- What circumstances are unchangeable, but may influence the desired behaviour?

Table 8 provides examples of the behavioural analyses developed in the context of the TIP FLU pilot project implemented in Kaunas, Lithuania.

Table 8. Summary of the behavioural analyses regarding acceptance and uptake of maternal influenza vaccination in Kaunas, Lithuania based on formative studies conducted in 2015

Level	Target group	Current behaviour or practice	Desired behaviour or practice	Barriers to adopting desired behaviour	Facilitators to adopting desired behaviour	Circumstances to consider
Individual.	**Pregnant women** (main target group).	Use alternative or non-pharmaceutical methods to prevent influenza infection. or Do nothing to prevent influenza.	Discuss, accept and receive maternal influenza vaccination.	• Lack of awareness/ knowledge (Do not know that influenza vaccination is recommended during pregnancy). • Lack of HCP recommendation. • Low perceived vulnerability to influenza. • Concerns and misconceptions regarding vaccine safety, reliability and effectiveness. • Lack of interpersonal support for maternal influenza vaccination. • Absence of a community norm for maternal influenza vaccination. • Refusal of any medicine during pregnancy.	• Having a healthy baby is the priority concern. • Perceive influenza to be a serious disease. • Close experiences with severe effects of influenza. • Place high degree of trust in and follow recommendations from their HCP. • Actively seek information on pregnancy care. • Distrust in opinion-based information offered via media. • Desire evidence-based information on influenza risks and benefits, safety and effectiveness of maternal influenza vaccination. • Generally have favourable attitudes towards child vaccination.	Vaccination is a matter of personal choice.
Individual.	**HCPs** (obstetrician-gynaecologists, family physicians, midwives, nurses) (main target group).	Recommend alternative or non-pharmaceutical methods to prevent influenza infection.	Recommend and offer influenza vaccination during pregnancy.	• Do not routinely recommend maternal influenza vaccination • Low self-efficacy: concerns about vaccine effectiveness, reliability and side effects	• Healthy baby and mother is their priority concern. • Are aware of national influenza vaccination recommendations for pregnant women.	

Table 8 (contd.)

Level	Target group	Current behaviour or practice	Desired behaviour or practice	Barriers to adopting desired behaviour	Facilitators to adopting desired behaviour	Circumstances to consider
Individual *contd.*				• Absence of a perceived norm for maternal influenza vaccination. • Low perceived burden of influenza during pregnancy. • Avoid maternal influenza vaccination during first trimester. • Lack of discussion regarding maternal influenza vaccination among peers. • Feel threatened by anti-vaccination voice in media. • Absence of compensation for adult vaccination. • Vaccination traditionally provided by family physicians. • Obstetrician-gynaecologists and midwives do not vaccinate. • Midwives lack confidence in providing information on maternal influenza vaccination.	• Desire for evidence-based information on influenza risks and benefits, safety and effectiveness of influenza vaccination during pregnancy. • Favourable attitudes towards vaccination.	

Table 8 (contd.)

Level	Target group	Current behaviour or practice	Desired behaviour or practice	Barriers to adopting desired behaviour	Facilitators to adopting desired behaviour	Circumstances to consider
Interpersonal.	**Spouse, family** (influencers). **Friends/peers** (influencers).	Provide emotional and physical support to pregnant women.	Positive support for maternal influenza vaccination.	May not know that maternal influenza vaccination is recommended.	• A healthy mother and having a healthy baby is their priority concern. • Pregnant women seek information and advice from friends and family.	Personal attitudes and beliefs will influence the degree and type of support provided.
Community (Kaunas municipality).	Pregnancy care/ birth preparation networks or associations (influencers).	Provide pregnancy- and delivery-related guidance to pregnant women.	Integrate evidence-based influenza vaccination information into existing guidance/ material on ANC.	May not know or communicate that maternal influenza vaccination is recommended.	Pregnant women seek information and advice from these sources.	Not all clinics provide and not all pregnant women attend birth preparedness classes.
Community.	Media (social media/Internet) (influencers).	Discuss pregnancy care and vaccination in open forums: both positive and negative information is shared.	Communicate balanced, evidence-based information on maternal influenza vaccination.	• Pregnant women actively seek information from Internet; • HCPs feel threatened by opinion-based and negative information from media, and believe that women are influenced by them.	Pregnant women question trustworthiness of Internet- and other media-based information on vaccination and pregnancy care when based on opinion rather than evidence.	Presence of a strong anti-vaccine voice in media, and distrust after the 2009 influenza A(H1N1) pandemic.
Community.	Professional associations (influencers).	Provide guidance to HCPs in their field.	Integrate evidence-based influenza vaccination information into existing guidance/ material on ANC.	Some professional associations may not know or communicate that maternal influenza vaccination is recommended.	Association of obstetrician-gynaecologists communicate and provide information on maternal influenza vaccination.	NA

Table 8 (contd.)

Level	Target group	Current behaviour or practice	Desired behaviour or practice	Barriers to adopting desired behaviour	Facilitators to adopting desired behaviour	Circumstances to consider
Institutional (Kaunas municipality).	Hospital clinics/ polyclinics (influencers).	Access to influenza vaccination follows standard practice for all risk groups: family physicians are gatekeepers to vaccination.	• Integrate maternal influenza vaccination as part of routine ANC care provided by physicians. • Enable obstetrician-gynaecologists or midwives to vaccinate pregnant women at the time of consultations (convenience).	• Absence of policy promotion or clinical guidelines for integration of influenza vaccination during routine ANC. • Lack of clarity regarding vaccination guidelines for obstetrician-gynaecologists and midwives. • Absence of education regarding maternal influenza vaccination.	Desire of clinics and polyclinics to provide high-quality care to pregnant women.	Influenza vaccination recommendation is the choice of the consulting physician.
	NPHC-KD (influencers).	Implement influenza vaccination campaign annually.	Integrate evidence-based information to support routine maternal influenza vaccination into campaign.	• Absence of institution-based educational initiatives regarding maternal influenza vaccination. • Lack of clarity regarding influenza vaccination guidelines for obstetrician-gynaecologists.	Desire of public health centre to provide high-quality guidance for and monitoring of seasonal influenza vaccination during pregnancy.	Absence of clinical guidelines for integration of seasonal influenza vaccination during routine ANC.
	Public Health Bureau Kaunas (influencers).	Launch seasonal influenza vaccination promotional campaign annually.	Integrate evidence-based information to support routine maternal influenza vaccination in campaign.	• Absence of national-level promotion of influenza vaccination during routine ANC. • Absence of educational initiatives regarding maternal influenza vaccination.	Desire of public health bureau to provide high-quality promotional materials to pregnant women.	NA

Table 8 (contd.)

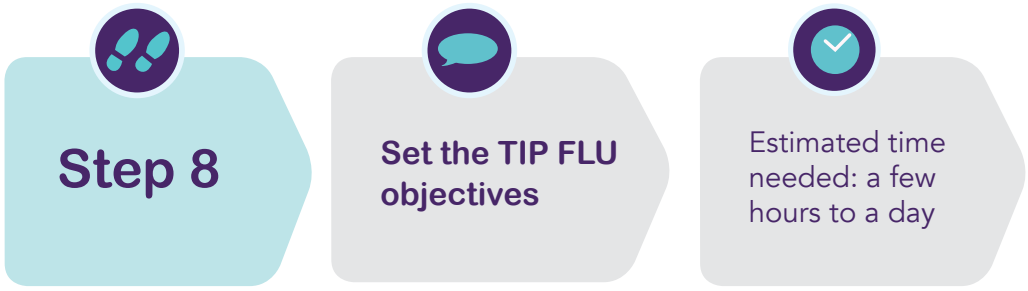
Level	Target group	Current behaviour or practice	Desired behaviour or practice	Barriers to adopting desired behaviour	Facilitators to adopting desired behaviour	Circumstances to consider
Policy (national).	Ministry of Health policy-influencers and programme managers (main target group).	Absence of national-level promotion of maternal influenza vaccination.	Take measures to facilitate promotion of maternal influenza vaccination.	• Influenza vaccination not included in pregnancy care/ANC guidelines. • No compensation for HCP for providing vaccinations in adults[a] .	• Pregnant women included as risk group for seasonal influenza vaccination. • Maternal influenza vaccination free of cost.	Frequent changes in health ministers provoke changes in the leadership and organization of the Ministry of Health.
	Independent expert groups (influencers).	NA	NA	NA	NA	Independent expert group in immunization is in the process of being established.

NA: not applicable.
[a] A special decree allowing HCPs to be compensated for adult vaccination was implemented in January 2016.

Source: Structure adapted from *Immunization essentials. A practical field guide (51).*

Objective 3: Design evidence informed interventions to promote maternal influenza vaccination

This phase is used to design evidence-based interventions to promote maternal influenza vaccination uptake.



Use this step to define the main objective and sub-objectives of your TIP FLU project.

Box 11. TIP FLU main objective for the pilot project in Lithuania

To increase the proportion* of pregnant women receiving influenza vaccination at any stage of pregnancy at the LUHS obstetrics-gynaecology outpatient clinic from **1.1% in the 2013/2014 influenza season to 10% in the 2015 /2016 influenza season.**

*The proportion of pregnant women receiving influenza vaccination is measured using data from a survey conducted among pregnant women attending the LUHS clinic in November and December 2015.

Setting the TIP FLU main objective and sub-objectives is a critical part of the TIP FLU approach. The TIP FLU main objective defines what to do to attain the public health goal: to reduce the burden of influenza among pregnant women and young infants.

The TIP FLU main objective is to increase maternal influenza vaccination uptake. The statement of the main objective should include three main features (Box 11).

- One or more clearly defined target groups.
- A detailed description of the behaviours to be promoted.
- A measure of the impact to be achieved over a particular period of time.

The TIP FLU sub-objectives are those that are most likely to contribute to achieving the main objective. They are closely related to the prioritized determinants and the chosen interventions to be implemented. They may be revisited when required, particularly in light of new information or when monitoring data are collected.

The problem statement and the behavioural analysis should be reviewed to identify the sub-objectives.

The TIP FLU main objective and sub-objectives should be specific, measurable, achievable, relevant and time-bound (SMART).

When defining sub-objectives, assess the factors that influence maternal influenza vaccination in light of the target groups, and their decision-making patterns, degree of influence and stage of change. Consider the context in which the interventions take place, including the extent to which maternal influenza vaccination is a new practice.

Table 9 can be used to help transform the prioritized determinants into TIP FLU sub-objectives.

Table 9. Sub-objectives for the TIP FLU pilot project in Kaunas, Lithuania

Main target group	Desired behaviour	Determinants	Evidence	TIP FLU sub-objective
Ministry of Health policy influencers and programme managers.	Take measures to facilitate promotion of maternal influenza vaccination.	Weak promotion of maternal influenza vaccination. Lack of information on evidence of benefits and safety of maternal influenza vaccination.	Seasonal influenza vaccination not included in pregnancy care guidelines, despite national policy. Reported desire for more clinical evidence on benefits and safety of maternal influenza vaccination.	Create a more enabling (a) normative and (b) institutional environment for maternal influenza vaccination by: • advocating for the inclusion of influenza vaccination in ANC guidelines; and • presenting clinical evidence on maternal influenza vaccination by reputable professors in medicine at the time of TIP FLU stakeholder workshops and at national conferences and other events.
HCPs.	Recommend and offer maternal influenza vaccination.	Low confidence in benefits and safety of maternal influenza vaccination. Absence of perceived norm for maternal influenza vaccination.	Do not routinely recommend maternal influenza vaccination to pregnant patients. Burden of influenza perceived to be low. Report wanting more clinical evidence on benefits and safety of maternal influenza vaccination. Do not discuss maternal influenza vaccination among peers.	Increase HCPs' confidence and ability to recommend maternal influenza vaccination by: • educating HCPs on the risks of influenza during pregnancy and benefits of maternal influenza vaccination during seminars and lectures by reputable professors in medicine and public health institutions; and • reminding HCPs to discuss and recommend maternal influenza vaccination to their pregnant patients.

Table 9 (contd.)

Main target group	Desired behaviour	Determinants	Evidence	TIP FLU sub-objective
Pregnant women.	Discuss, accept and receive maternal influenza vaccination during pregnancy.	Lack of awareness of seasonal influenza vaccination recommendation during pregnancy. Low perceived vulnerability to influenza. Absence of HCP, interpersonal and social support for maternal influenza vaccination. Concerns regarding benefits and safety of maternal influenza vaccination.	Absence of HCP recommendations and reported absence of knowledge of recommendation. Use of alternative, non-pharmaceutical preventive measures. Absence of discussions with peers, family and in media. Reported information needs.	Improve pregnant women's awareness and understanding of the protective benefits of maternal influenza vaccination for both mother and child by implementing a multicomponent information, education, communications (IEC) campaign on maternal influenza vaccination using multiple communications channels and sources of information (HCPs, social media, reputable websites, print materials, etc.).

The CORE Group's website has resources on designing for behaviour change with practical tips and tools for defining sub-objectives *(52)*. See in particular *Designing for behavior change for agriculture, natural resource management, health and nutrition (53).*

Step 9

Use the social marketing framework to design TIP FLU interventions

Estimated time needed: one to several months, depending on the types of interventions

Use steps 9 and 10 to design the TIP FLU interventions that will contribute to achieving the TIP FLU objectives.

This step answers two main questions.

- How will maternal influenza vaccination be proposed to the target groups? This refers to the **value proposition.**
- What mix of programmatic interventions will you implement to achieve the TIP FLU main objective and sub-objectives? This relates to the **mix of interventions.**

Engaging TIP FLU stakeholders when designing the TIP FLU interventions is particularly important. Organize a participatory workshop with the main partners to discuss collaboratively the proposed objectives and strategies.

Use the social marketing framework and principles to help elaborate answers to these questions.

Social marketing pays special attention to the perceived *value* of a health behaviour from the perspective of its target audiences. The underlying belief is that the greater a behaviour is valued, the more likely it is to be adopted. This means formulating the *value proposition* associated with the specific behaviour and promoting the behaviour in a way that responds to the needs of its target audiences.

Nowak et al. *(54)* suggest that:

> *(…) marketing and social marketing frameworks highlight the important and central role of "value" in the context of behaviour or behaviour change.*
>
> *People are motivated to act – whether it is purchasing a product or service, or adopting an advocated behaviour when doing so provides them with, or helps them achieve, something that they value.*

The **value proposition** (question 1) offers a big picture proposition of the value of maternal influenza vaccination, and what it promises to achieve. The value comprises both the *functional* benefits and the *emotional* benefits of influenza vaccination during pregnancy. Functional benefits are tied to the specific features of the vaccine, service or behaviour. Emotional benefits refer to the positive feelings associated with the behaviour or practice.

Defining a value proposition for maternal influenza vaccination is helpful because it consciously places maternal influenza vaccination as an important public health action, and describes its value for pregnant women in comparison with other practices that HCPs may recommend or pregnant women may choose to adopt. Box 12 presents the value proposition statement written for the TIP FLU pilot project in Kaunas, Lithuania, and Table 10 lists the benefits of the vaccination.

Box 12. Value proposition for the TIP FLU pilot project in Kaunas, Lithuania

Maternal influenza vaccination is recommended by the Ministry of Health as the most effective method to protect both expectant mothers and their newborns from influenza illness. It is safe and free for pregnant women during the influenza season.

Table 10. Functional and emotional benefits of maternal influenza vaccination in Lithuania

Functional benefits	Emotional benefits
• Recommended by WHO and Lithuanian Ministry of Health based on clinical evidence. • Safe. • Effective. • Free. • Easy to access during routine ANC visit.	Best choice to protect both mother and newborn from influenza because it: • meets the mother's need to stay well and healthy during her pregnancy; • fulfils the mother's desire to ensure the health of her baby during pregnancy and after birth; and • shows that the mother is committed to her baby's health and well-being.

Evidence from evaluative research shows that the most effective maternal influenza vaccination programmes include multiple components to positively affect: how people value seasonal influenza vaccination, their motivation to be vaccinated (demand) and how influenza vaccination services are provided (supply) *(55)*.

Social marketing considers and acts upon both demand- and supply-side factors that influence the adoption of a specific health behaviour. To do this, it employs the traditional 4 Ps of commercial marketing – product, price, place and promotion – to design a comprehensive strategy or *marketing mix* to promote the adoption of positive health behaviours. In social marketing, three additional Ps – partnerships, policy and purse strings –are often added to this mix to reflect the specific needs of public health programming *(37)* (Table 11).

Table 11. The Ps of social marketing including definitions and examples of positive factors

The Ps of social marketing	Questions to ask	Definition in social marketing terms	Examples of positive factors[a]
The product or solution proposed to the target group(s).	–	The proposed solution and its related benefits for vaccine recipients in response to what they may need or want (consciously or unconsciously). It includes features related to: • the influenza vaccine and related services; and • the quality of services.	Targeted at HCPs: • electronic reminders to recommend maternal influenza vaccination. Targeted at pregnant women: • provider recommendations/ verbal benefit statements regarding influenza vaccination; and • reminders about influenza vaccination during pregnancy via mobile phones.

Table 11 (contd.)

The Ps of social marketing	Questions to ask	Definition in social marketing terms	Examples of positive factors[a]
The price or cost associated with maternal influenza vaccination.	What are the real and perceived costs associated with maternal influenza vaccination? How do these relate to the perceived value of receiving the vaccination?	All costs associated with the proposed product or solution: • monetary costs; • non-monetary costs (time, physical, psychological costs); and • the inherent value of the product or solution.	Pregnant women receive influenza vaccination free of charge, or vaccine is covered by insurance.
The place, which is intended to ensure convenience of receiving maternal influenza vaccination.	Where, when and how is influenza vaccination during pregnancy most convenient (and least disruptive) for pregnant women?	This refers to **how** pregnant women can most conveniently receive influenza vaccination. It requires an analysis of opportunities for receiving vaccination: • preferences; • predictability (planned vs spontaneous); • availability; and • timing.	Ensure that pregnant women • have easy access to vaccination; • provide vaccination at antenatal care clinics; and • are offered vaccination at same place and time as recommendations.
The promotion of maternal influenza vaccination.	How is seasonal influenza communicated to the main target groups and their influencers?	How maternal influenza vaccination is framed and communicated about in practical and emotional terms, including the what, how, when, where and how often it is said.	Interventions aiming at increasing vaccination coverage among pregnant women. Targeted at pregnant women: • education on influenza and influenza vaccination during pregnancy via mobile phones; • pre-vaccination support from spouses, family members and peers; • pamphlets on influenza and maternal influenza vaccination; and • provider recommendation. Targeted at HCPs: • pamphlets and other materials on influenza and maternal influenza vaccination. Increasing influenza vaccination uptake among *HCPs* can also help increase the likelihood that they will recommend influenza vaccination to pregnant women. Successful intervention to increase uptake among HCPs has included:

Table 11 (contd.)

The Ps of social marketing	Questions to ask	Definition in social marketing terms	Examples of positive factors[a]
			• friendly competitions on seasonal vaccination uptake; • immunization champions; and • strong departmental leadership promoting vaccination.
Partnership.	-	The institutional and other partners that are engaged, because their participation brings needed skills, resources, credibility and sustainability to the programme.	Multi-stakeholder collaboration in order to increase influenza vaccine accessibility and demand.
Policy.		The legislative and policy decisions necessary to create a favourable environment for the sustainability of the programme and the targeted behaviours.	Targeted at HCPs: • national policy on influenza vaccine recommendations for pregnant women; and • attaching notifications regarding influenza vaccination to antenatal records. Targeted at pregnant women: • recommendations from government health authorities or official websites; and • inclusion of question on influenza vaccination in pregnancy card[b].
Purse strings.		Financial resources and other assets that are available or could be solicited for the programme that decrease direct costs (e.g. integration into current ANC programmes).	Inclusion of seasonal vaccination messages in ANC communications (e.g. pregnancy card, birth preparation classes).

[a] Examples of factors found to have a positive impact are based on findings from two systematic reviews on interventions to increase uptake and determinants of influenza vaccination among pregnant women *(4,56)*.

[b] A pregnancy card is used by HCPs and pregnant women to monitor care, including diagnostic tests and other interventions, provided throughout a woman's pregnancy.

G. Kok has developed a practical guide to effective behaviour change that offers insights and examples for linking behaviour change objectives (based on prioritized determinants) to theory-based methods and practical applications *(57)*. This resource is helpful for selecting appropriate theory-based methods to use when designing interventions. More information, including a classification of behaviour change methods, is also available *(58)*.

Step 10

Develop the TIP FLU communications strategy, messages and materials

Estimated time needed: 1–6 months, depending on the communications products

Step 10 elaborates on the promotion component of the social marketing framework. Use the selected resources it provides to develop communications interventions, which may be needed to:

- Inform and educate pregnant women and their HCPs.
- Build interpersonal and community-level support.
- Advocate for policy- and institutional-level changes.
- Respond to negative information about influenza vaccines.
- Generate genuine demand and trust in maternal influenza vaccination.

This information is intended to help answer certain questions.

- How do I develop a communications strategy?
- How do I decide which communications messages to develop and types of communications channels to use?
- How do I ensure that the communications materials I create are understood and well received by my main target audiences?

The development of a communication strategy, messages and materials involves a number of activities. Three are described below.

The first activity is to define the communications objectives by referring to the TIP FLU objectives and the behavioural determinants that should be changed (steps 6 and 8). The communications objectives will vary depending on the targeted audience.

An example of a communications objective could be to encourage national and institutional stakeholders to improve the normative, policy and institutional environment in favour of maternal influenza vaccination.

Table 12 below links examples of barriers that were identified with possible communications interventions.

Table 12. Example of barriers and communications interventions for the TIP FLU pilot project in Kaunas, Lithuania

Barrier	Interventions
Absence of guidelines recommending the implementation of influenza vaccination as part of routine ANC.	Advocate for the inclusion of influenza vaccination as a routine part of ANC. Engage national policy-makers and programme managers as partners in the implementation of TIP FLU.
Low confidence in and concerns regarding maternal influenza vaccination due to lack of relevant evidence.	Communicate relevant evidence on the benefits and safety of maternal influenza vaccination.

The second activity involves deciding the main communications messages and the most appropriate channels to use to disseminate them. The communications objectives, along with an in-depth review of the formative findings and behavioural analysis, will help to identify the messages. There is also a creative element to crafting their content and tone, and in choosing the best channels through which to deliver them.

A diverse array of information, education and communications methods – printed information materials, HCP-to-patient communications techniques, peer-based education, community mobilization and sensitization, mass media communications campaigns, social and web-based media, training/capacity-building and advocacy – are available **(See below)**.

Ready-to-adapt communications resources for maternal influenza vaccination

A number of communications resources are freely available for inspiration and adaptation. Ready-to-use communications materials should always be pretested to ensure they are relevant, easy to understand and appealing to targeted pregnant women and their HCPs in the unique context in which they will be used.

The **United States Department of Health and Human Services and the CDC** websites offer a comprehensive set of resources on influenza, and on pregnant women and influenza, including materials targeted at both pregnant women and HCPs *(59,60)*.

Public Health England and the **United Kingdom Department of Health** offer resources in preparation for each influenza season, including a website with information on influenza vaccination for pregnant women *(61)*, advice for HCPs *(62)*, a leaflet for pregnant women *(63)* and documentation of the current season's flu plan *(64)*.

The **National Immunisation Office of Ireland** hosts webpages on vaccination and pregnancy, including dedicated information on influenza vaccination for pregnant women *(65,66)*.

The third activity is to make sure that both the project partners and audiences are involved in the design and review of the information, education and communications materials. Involving partner and target groups helps ensure that the materials are easy to understand, relevant and appealing (Box 13).

Box 13. Communications strategy, messages and materials pilot project in Kaunas, Lithuania

TIP FLU pilot project interventions in Kaunas, Lithuania mainly focused on information, education and communications interventions.[2] The main challenge was to build awareness and acceptance of and confidence in maternal influenza vaccination among HCPs and the pregnant women they care for. Over time, the objective was to establish maternal influenza vaccination as a routine and best practice to protect expecting mothers and their babies from influenza infection.

No changes were perceived to be needed in the way in which the influenza vaccination was delivered or its cost to pregnant women (which was free). Though the issue of convenience was raised as a potential barrier to influenza vaccination, it was not possible to take any action at the time of implementing the pilot project.

TIP FLU information, education and communications interventions in Kaunas for HCPs included:

- educational seminars on the benefits of maternal influenza vaccination in polyclinics of Kaunas city, organized by the NPHC-KD;
- informational leaflets and a frequently-asked-questions booklet in both print and electronic formats;
- training in motivational interviewing techniques for midwives administering the baseline survey questionnaire in the LUHS obstetrics-gynaecology outpatient clinic; and
- provision of a badge stating "Ask me about influenza vaccination" to be pinned to HCPs' laboratory coats to prompt a conversation with their pregnant (and other) patients.

The communication materials for pregnant women (and the general public) included:

- a leaflet communicating the risks of influenza infection for mother and child, and benefits of maternal influenza vaccination;
- a poster encouraging pregnant women to ask their HCPs about the benefits of maternal influenza vaccination;
- an article interviewing a leading obstetrician-gynaecologist from LUHS obstetrics-gynaecology department, published in popular online Kaunas journals;
- a billboard and video presentation of target groups for influenza vaccination, including pregnant women, viewable in public buses around Kaunas city; and
- a banner and a link to communications materials on influenza vaccination available on the ULAC website, hosted on a major social media portal for Lithuanian mothers *(46)*.

Furthermore, at the time of the implementation of the TIP FLU approach, partners also advocated for institutional and policy-level changes by the Ministry of Health during national seminars and working group meetings. These included:

- the inclusion of maternal influenza vaccination as a part of standard pregnancy and antenatal care; and
- clarification of norms designating HCPs authorized to administer vaccination to pregnant women.

[2] Other behaviour change strategies may have required actions outside of communications, such as vaccination service delivery improvements, policy change, change in cost, etc. This was not the case in Lithuania.

Box 13 (contd.)

Partners and target audiences were involved in reviewing the communications materials designed in the context of the TIP FLU pilot project. The first drafts of communications materials designed by ULAC were tested in two phases.

In the first phase, at the time of a participatory workshop held in Kaunas in September 2015, representatives of TIP FLU partners and other stakeholders made recommendations for improving each material, taking into account findings from the qualitative studies. They were asked to carefully review each material using a checklist adapted from the CDC Clear Communication Index Guide and Score Sheet *(67)*.

Communications materials were improved using the recommendations made by both technical and communications professionals who participated in the TIP FLU workshop.

In the second phase, TIP FLU communications materials were pretested with their intended target audiences. Individual interviews were conducted with pregnant women and their HCPs to assess each communication material using a structured interview guide.

Pretesting focused on assessing the following aspects of each material:
- spontaneous reactions of target audience representatives
- identification of any gross negatives
- ease in comprehension
- attractiveness
- acceptability
- relevance
- persuasion

Sample pretest questions to test each aspect are provided in **Annex 4**.

Box 14 shows examples of some of the final communication materials developed after pretesting.

Box 14. Influenza vaccination communication materials targeting pregnant women and their HCPs in Kaunas, Lithuania

Leaflets for pregnant women

Posters for pregnant women

Frequently asked questions for HCPs

Source: Centre for Communicable Diseases and AIDS (ULAC) and Kaunas City Municipality Public Health Bureau

Websites that offer resources to develop social and behavioural change communications include:

- a series of "how to" guides from the Health Communication Capacity Collaborative's HealthCOMpass website *(68)*;
- a learning package for social and behavioural change communications, including a practitioner's handbook from C-Change (Communication for Change) *(69)*; and
- the CDC Clear Communications Index and checklist *(67)*.

Objective 4: Deliver, monitor and evaluate TIP FLU interventions.

Step 11

Deliver, monitor and evaluate the TIP FLU interventions

Estimated time needed: ongoing, before, throughout and soon after implementation

Use this step to document how you will monitor and evaluate the implementation of your TIP FLU project.

Monitoring and evaluation (Box 15) are necessary parts of good health promotion programme design. Though presented as the final step of the TIP FLU approach, many of the components required for monitoring and evaluation will have been thought out as the TIP FLU approach is carried out, step by step.

Use a logical framework approach[3] to describe the reasoning of the TIP FLU project and to present the key indicators for monitoring and evaluating its performance. The logical framework combines TIP FLU's main objective and sub-objectives (step 8), principal monitoring and evaluation indicators, and methods of measurement to track the programme's success. A logical framework can also include information on the frequency of measurement, as well as estimated costs.

An example of a logical framework with some examples of indicators for monitoring and evaluating activities, outputs, and objectives developed in the context of TIP FLU pilot project in the city of Kaunas, Lithuania are shown in **Fig.6.**

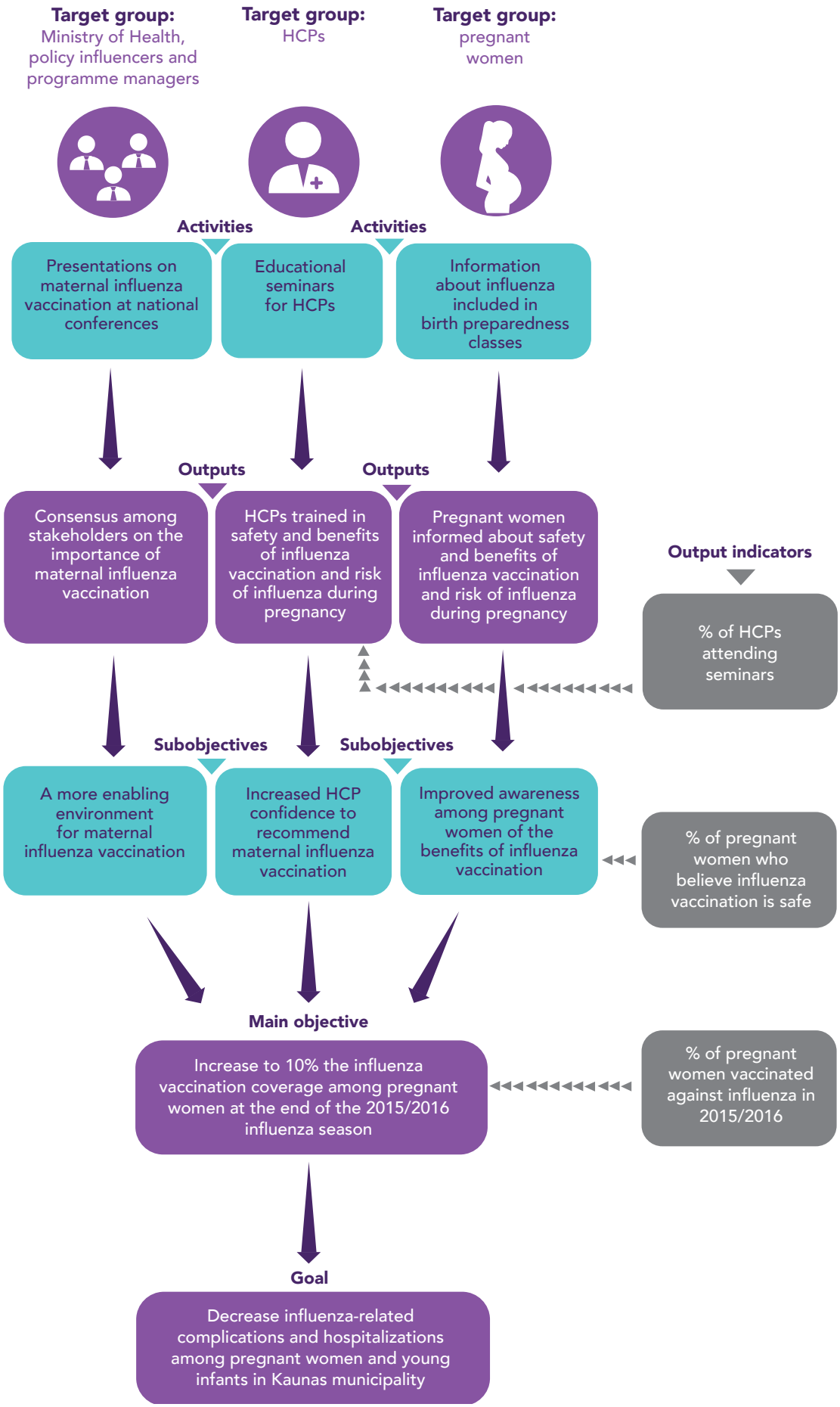
Box 15. Definitions of monitoring and evaluation

Monitoring refers to the ongoing collection of information to track the implementation (progress, quality, activities) of the programme, **and to guide adjustments in strategy and communication approaches/materials if needed.**

Evaluation refers to the systematic assessment of the overall delivery and progress towards the defined outcomes (objectives and sub-objectives). Evaluation often takes place at the end of project or mid-term.

[3]Jensen provides more information on how to use this logical framework approach (70).

Fig. 6. Examples of indicators for monitoring and evaluating the TIP FLU pilot in Kaunas, Lithuania



When considering monitoring and evaluating the programme, choose the indicators that help the most to assess both whether the activities to achieve the programme's objective have been carried out and whether the TIP FLU main objective and sub-objectives have been reached. To do this, consult the findings from the situation analysis and behavioural analyses (steps 3 and 7) to select the most appropriate indicators. Selecting indicators for which data can realistically be collected is important.

Table 13 shows examples of the monitoring and evaluation indicators used in Lithuania and Box 16 shows the results of the TIP FLU pilot project.

Table 13. Examples of monitoring and evaluation indicators for the TIP FLU pilot in Kaunas, Lithuania

Sub-objective	Activities	Output indicators	Source
Create a more enabling (a) normative and (b) institutional environment for maternal influenza vaccination.	• Facilitate collaboration with all partner institutions. • Advocate for inclusion of maternal influenza vaccination in national ANC guidelines. • Disseminate **clinical evidence on maternal influenza vaccination at TIP FLU stakeholder workshops, national conferences and other events.**	• # meetings organized with all stakeholders. • # presentations on maternal influenza vaccination delivered in national seminars, workshops, conferences. • Question on seasonal influenza vaccination included in new pregnancy card. • # of presentations delivered on clinical evidence for maternal influenza vaccination at high-level meetings.	WHO reports from country visits and workshops. Ministry of Health records, website.
Increase HCPs' confidence and ability to recommend influenza vaccination to pregnant women.	• Raise awareness of influenza during pregnancy and maternal influenza vaccination among HCPs. • Facilitate access to resources on maternal influenza vaccination.	• # workshops delivered in project polyclinics. • % of HCPs in project polyclinics attending workshops. • # posters distributed to polyclinics. • # leaflets about maternal influenza vaccination distributed to HCPs. • # polyclinics receiving open letter to HCPs on importance of seasonal influenza vaccination for pregnant women.	Reports from NPHC-KD.
Improve pregnant women's awareness and understanding of the protective benefits of maternal influenza vaccination for both mother and child.	• Raise awareness about influenza during pregnancy and maternal influenza vaccination. • Facilitate access to resources on maternal influenza vaccination.	% of pregnant women who: • received information on influenza-related risks and benefits of influenza vaccination; • are aware that vaccination against influenza is recommended during pregnancy; and • were encouraged to vaccinate against seasonal influenza during their pregnancy by their HCP.	Quantitative survey conducted among pregnant women attending the LUHS outpatient clinic before and after the 2015/2016 influenza season.

Annex 5 has a list of possible outcome indicators and sample questions.

Box 16. Increase in influenza vaccination among pregnant women in Kaunas following the TIP FLU pilot

The TIP FLU pilot project yielded positive results in Kaunas during the 2015/2016 influenza season.

Influenza vaccination coverage among pregnant women attending the LUHS Obstetrics-Gynaecology Outpatient Clinic during November–December 2015 was 14.3%[a] compared to 1.1% *(71)* in the 2013/2014 influenza season.

The positive effect of the TIP FLU interventions was also reflected in data collected by the NPHC-KD: in Kaunas city, 107 pregnant women were vaccinated against influenza in 2015/2016 compared with 6 in 2014/2015. Almost all pregnant women vaccinated in Kaunas municipality during the 2015/2016 season received the vaccine at the polyclinics participating in the TIP FLU pilot project, indicating a change in practices among pregnant women's HCPs.

Pregnant women who reported having had a conversation with a midwife regarding influenza and maternal influenza vaccination were more likely to get vaccinated against influenza.[a] The three main reasons for having received maternal influenza vaccination were:

- perception of being at risk of getting influenza during pregnancy;
- perceived positive consequences of influenza vaccination for the baby; and
- information material found at the health care institution.

Pregnant women who did not vaccinate stated that vaccine safety concerns for the baby and themselves, and absence of a HCP recommendation were the main reasons for not having received maternal influenza vaccination.

Furthermore, the active engagement of national policy- and decision-makers resulted in the inclusion of maternal influenza vaccination into two important resources for routine ANC: the newly published national recommendations for ANC;[b] and the standard pregnancy card, used by both pregnant women and their HCPs, which was implemented in all health care institutions throughout the country from the 1st January 2017. It is anticipated that these initiatives will contribute to building a positive environment for maternal influenza vaccination.

[a] Survey among 172 pregnant women between March and May 2016 conducted as part of the TIP FLU project.

[b] In 2015, a national working group of obstetrician-gynaecologists developed a total of 40 national guidelines, including one on ANC. These guidelines were published as recommendations on the website of the Ministry of Health in 2016 *(72)*.

References[4]

1. Vaccines against influenza WHO position paper – November 2012. Wkly Epidemiol Rec. 2012;87:461–76 (http://www.who.int/wer/2012/wer8747.pdf?ua=1).
2. O'Flanagan D, Cotter S, Mereckiene J. Seasonal influenza vaccination in EU/EEA, influenza season 2011–2012. Dublin: Vaccine European New Integrated Collaboration Effort; 2013 (http://venice.cineca.org/VENICE_Seasonal_Influenza_2011-12_1.2v.pdf).
3. Lambach P, Hombach J, Ortiz JR. A global perspective of maternal influenza immunization. Vaccine. 2015;33:6376–9. doi.org/10.1016/j.vaccine.2015.08.036.
4. Yuen CYS, Tarrant M. Determinants of uptake of influenza vaccination among pregnant women – A systematic review. Vaccine. 2014;32:4602–4613. doi.org/10.1016/j.vaccine.2014.06.067.
5. 12th meeting of the European Technical Advisory Group of Experts on Immunization (ETAGE). Copenhagen: WHO Regional Office for Europe; 2013 (http://www.euro.who.int/__data/assets/pdf_file/0011/183953/12th-meeting-of-the-European-Technical-Advisory-Group-of-Experts-on-Immunization-ETAGE.pdf).
6. Guide to tailoring immunization programmes (TIP). Copenhagen: WHO Regional Office for Europe; 2013 (http://www.euro.who.int/en/health-topics/communicable-diseases/poliomyelitis/publications/2013/guide-to-tailoring-immunization-programmes).
7. Tailoring immunization programmes for seasonal influenza (TIP FLU). A guide for increasing health care workers' uptake of seasonal influenza vaccination. Copenhagen: WHO Regional Office for Europe; 2015 (http://www.euro.who.int/en/health-topics/communicable-diseases/influenza/publications/2015/tailoring-immunization-programmes-for-seasonal-influenza-tip-flu.-a-guide-for-increasing-health-care-workers-uptake-of-seasonal-influenza-vaccination-2015).
8. Butler R, MacDonald NE, SAGE Working Group on Vaccine Hesitancy. Diagnosing the determinants of vaccine hesitancy in specific subgroups: the guide to tailoring immunization programmes (TIP). Vaccine. 2015;14:4176–9. doi: 10.1016/j.vaccine.2015.04.038.
9. European Vaccine Action Plan 2015–2020. Copenhagen: WHO Regional Office for Europe; 2014 (http://www.euro.who.int/en/health-topics/communicable-diseases/hepatitis/publications/2014/european-vaccine-action-plan-20152020).
10. Video – European Vaccine Action Plan 2015–2020. In: WHO Regional Office for Europe [website]. Copenhagen: WHO Regional Office for Europe; 2016 (http://www.euro.who.int/en/health-topics/disease-prevention/vaccines-and-immunization/publications/2014/european-vaccine-action-plan-20152020/video-european-vaccine-action-plan-2015-2021).
11. Information sheet – European Vaccine Action Plan 2015–2020. In: WHO Regional Office for Europe [website]. Copenhagen: WHO Regional Office for Europe; 2016 (http://www.euro.who.int/__data/assets/pdf_file/0008/276659/EVAP-factsheet.pdf).
12. Rasmussen SA, Jamieson DJ, Uyeki TM. Effects of influenza on pregnant women and infants. Am J Obstet Gynecol. 2012;207:S3–S8. doi:org/10.1016/j.ajog.2012.06.068.
13. Jamieson DJ, Theiler RN, Rasmussen SA. Emerging infections and pregnancy.

[4] References accessed 6 March 2017.

Emerg Infect Dis. 2006;12:1638–43. doi:10.3201/eid1211.060152.

14. Neuzil KM, Reed GW, Mitchel EF, Simonsen L, Griffin MR. Impact of influenza on acute cardiopulmonary hospitalizations in pregnant women. Am J Epidemiol. 1998;148:1094–102.

15. Cox S, Posner SF, McPheeters M, Jamieson DJ, Kourtis AP, Meikle S. Hospitalizations with respiratory illness among pregnant women during influenza season. Obstet Gynecol. 2006;107:1315–22. doi:10.1097/01.AOG.0000218702.92005.bb.

16. Munoz FM. Influenza virus infection in infancy and early childhood. Paediatr Respir Rev. 2003; 4:99–104.

17. Newland JG, Laurich VM, Rosenquist AW, Heydon K, Licht DJ, Keren R, et al. Neurologic complications in children hospitalized with influenza: characteristics, incidence, and risk factors. J Pediatr. 2007;150:306–10. doi:10.1016/j.jpeds.2006.11.054.

18. Mosby LG, Rasmussen SA, Jamieson DJ. 2009 pandemic influenza A (H1N1) in pregnancy: a systematic review of the literature. Am J Obstet Gynecol. 2011;205:10–8. doi:10.1016/j.ajog.2010.12.033.

19. McNeil SA, Dodds LA, Fell DB, Allen VM, Halperin BA, Steinhoff MC et al. Effect of respiratory hospitalization during pregnancy on infant outcomes. Am J Obstet Gynecol. 2011;204:S54–7. doi:10.1016/j.ajog.2011.04.031.

20. Steinhoff MC, Omer SB, Roy E, El Arifeen S, Raqib R, Dodd C et al. Neonatal outcomes after influenza immunization during pregnancy: a randomized controlled trial. CMAJ. 2012;184:645–53. doi:10.1503/cmaj.110754.

21. Schlaudecker EP, Steinhoff MC, Omer SB, McNeal MM, Roy E, Arifeen SE, et al. IgA and neutralizing antibodies to influenza a virus in human milk: a randomized trial of antenatal influenza immunization. PLoS One. 2013;8: e70867. doi:10.1371/journal.pone.0070867.

22. Madhi SA, Cutland CL, Kuwanda L, Weinberg A, Hugo A, Jones S, et al. Influenza vaccination of pregnant women and protection of their infants. N Engl J Med. 2014;371:918–31. doi:10.1056/NEJMoa1401480.

23. Zaman K, Roy E, Arifeen SE, Rahman M, Raqib R, Wilson E et al. Effectiveness of maternal influenza immunization in mothers and infants. N Engl J Med. 2008;359:1555–64. doi:10.1056/NEJMoa0708630.

24. Regan AK, Moore HC, de Klerk N, Omer SB3, Shellam G, Mak DB et al. Seasonal trivalent influenza vaccination during pregnancy and the incidence of stillbirth: population-based retrospective cohort study. Clin Infect Dis. 2016;62:1221–7. doi:10.1093/cid/ciw082.

25. Global Advisory Committee on Vaccine Safety. Safety of immunization during pregnancy. A review of the evidence. Geneva: World Health Organization; 2014 (http://www.who.int/vaccine_safety/publications/safety_pregnancy_nov2014.pdf).

26. Keller-Stanislawski B, Englund JA, Kang G, Mangtani P, Neuzil K, Nohynek H, et al. Safety of immunization during pregnancy: a review of the evidence of selected inactivated and live attenuated vaccines. Vaccine. 2014;32:7057–64. doi:10.1016/j.vaccine.2014.09.052.

27. Maternal influenza immunization project: building an immunization platform in conjunction with antenatal care in low and middle-income countries. In: World Health Organization [website]. Geneva: World Health Organization; 2016 (http://www.who.int/immunization/research/development/influenza_maternal_immunization/en/).

28. Maternal influenza immunization: guidance to inform introduction of infuenza vaccine in low and middle-income countries. In: World Health Organization [website]. Geneva: World Health Organization (http://www.who.int/immunization/research/development/influenza_maternal_immunization/en/index1.html).

29. Osterholm MT, Kelley NS, Sommer A, Belongia EA. Efficacy and effectiveness of influenza vaccines: a systematic review and meta-analysis. Lancet Infect Dis. 2012;12:36–44. doi:10.1016/S1473-3099(11)70295-X.

30. Bonville CA, Cibula DA, Domachowske JB, Suryadevara M. Vaccine attitudes and practices among obstetric providers in New York state following the recommendation for pertussis vaccination during pregnancy. Hum Vaccin Immunother. 2015;11:713–8. doi: 10.1080/21645515.2015.1011999.

31. Moniz MH, Beigi RH. Maternal immunization. Hum Vaccin Immunother. 2014;10:2562–70. doi:10.4161/21645515.2014.970901.

32. Health promotion. In: World Health Organization [website]. Geneva: World Health Organization; 2016 (http://www.who.int/topics/health_promotion/en/).

33. Prochaska JO, DiClemente CC. Stages and processes of self-change of smoking: toward an integrative model of change. J Consult Clin Psychol. 1983;51:390–5.

34. MacDonald NE, the SAGE Working Group on Vaccine Hesitancy. Vaccine hesitancy: definition, scope and determinants. Vaccine. 2015;33:4161–4. doi:10.1016/j.vaccine.2015.04.036.

35. US Department of Health and Human Services, National Institutes of Health, National Cancer Institute. Theory at a glance – A guide for health promotion practice, second edition. Washington (DC): US Department of Health and Human Services; 2005 (http://sbccimplementationkits.org/demandrmnch/ikitresources/theory-at-a-glance-a-guide-for-health-promotion-practice-second-edition/).

36. Behaviour change: general approaches. London: National Institute for Health and Care Excellence. 2007; (https://www.nice.org.uk/guidance/ph6).

37. Weinrich NK. Hands on social marketing. A step by step guide for designing change for good, second edition. Thousand Oaks (CA): Sage Publications; 2010 (https://uk.sagepub.com/en-gb/eur/hands-on-social-marketing/book231627).

38. Gateway to health communication and social marketing practice. In: Centers for Disease Control and Prevention [website]. Atlanta: Centers for Disease Control and Prevention; 2016 (http://www.cdc.gov/healthcommunication/).

39. Turning Point Social Marketing National Excellence Collaborative [website]. Wayzata: Turning Point Social Marketing National Excellence Collaborative; 2016 (http://socialmarketingcollaborative.org/smc/).

40. National Social Marketing Centre [website]. Dorking: National Social Marketing Centre; 2016 (http://www.thensmc.com/).

41. Video – What is social marketing?. In: National Social Marketing Centre; 2016 (http://www.thensmc.com/what-social-marketing).

42. An ecological framework. Seattle: Program for Appropriate Technology for Health; 2012 (http://www.who.int/immunization/hpv/target/ecological_framework_path_2009.pdf?ua=1).

43. Vaccine hesitancy: a growing challenge for immunization programmes. In: World Health Organization [website]. Geneva: World Health Organization; 2015 (http://www.who.int/mediacentre/news/releases/2015).

44. Urban environmental management. Reports from the Superbs project. Uppsala: Baltic University Press; 2003 (Sustainable urban patterns around the Baltic Sea case studies, Vol. IV; https://www.diva-portal.org/smash/get/diva2:611976/FULLTEXT01.pdf).

45. Įsakymu Nr. V-1487 patvirtinta nauja Skatinamųjų pirminės ambulatorinės asmens sveikatos priežiūros paslaugų teikimo organizavimo ir šių paslaugų išlaidų apmokėjimo privalomojo sveikatos draudimo fondo biudžeto lėšomis tvarka [Order No. V-1487 of the Minister of Health on incentives for primary health care institutions for seasonal influenza vaccination of risk groups]. Vilnius: Ministry of Health of Lithuania; 2015 (https://www.e-tar.lt/acc/

legalAct.html?documentId=1d87b3b0aee311e5b12fbb7dc920ee2c&lang=lt).

46. Supermama [website]. Vilnius: Adnet Media; 2015 (http://www.supermama.lt/portal/).
47. Kittle B. A practical guide to conducting a barrier analysis. New York: Helen Keller International; 2013 (http://www.coregroup.org/storage/barrier/Practical_Guide_to_Conducting_a_Barrier_Analysis_Oct_2013.pdf).
48. How to conduct qualitative formative research. In: Health COMpass [website]. Baltimore: Health COMpass, United States Agency for International Development-funded Health Communication Capacity Collaborative, based at the Johns Hopkins Center for Communication Programs (http://www.thehealthcompass.org/how-to-guides/how-conduct-qualitative-formative-research).
49. How to do audience segmentation. In: Health COMpass [website]. Baltimore: Health COMpass, United States Agency for International Development-funded Health Communication Capacity Collaborative, based at the Johns Hopkins Center for Communication Programs; 2016 (http://www.thehealthcompass.org/how-to-guides/how-do-audience-segmentation).
50. Peters GY. A practical guide to effective behaviour change: how to identify what to change in the first place. The European Health Psychologist. 2014:16;142–55 (http://ehps.net/ehp/index.php/contents/article/view/ehp.v16.i5.p142/7).
51. Immunization essentials. A practical field guide. Washington (DC): United States Agency for International Development; 2003 (http://pdf.usaid.gov/pdf_docs/Pnacu960.pdf).
52. Social and behavior change. In: CORE Group [website]. Washington (DC): CORE Group; 2016 (http://www.coregroup.org/our-technical-work/working-groups/social-and-behavior-change).
53. Food Security and Nutrition Network Social and Behavioral Change Task Force. Designing for behavior change for agriculture, natural resource management, health and nutrition. Washington (DC): Technical and Operational Performance Support (TOPS) Program; 2013 (http://www.coregroup.org/storage/documents/Resources/Tools/DBC_English.pdf).
54. Nowak GJ, Gellin BG, MacDonald NE, Butler R, SAGE Working Group on Vaccine Hesitancy. Addressing vaccine hesitancy: the potential value of commercial and social marketing principles and practices. Vaccine. 2015:33;4204–11. doi:10.1016/j.vaccine.2015.04.039.
55. Briss PA, Rodewald LE, Hinman AR, Shefer AM, Strikas RA, Bernier RR et al. Reviews of evidence regarding interventions to improve vaccination coverage in children, adolescents and adults. Am J Prev Med. 2000:18;97–140.
56. Wong VW, Lok KY, Tarrant M. Interventions to increase the uptake of seasonal influenza vaccination among pregnant women: a systematic review. Vaccine. 2016:34;20–32. doi: 10.1016/j.vaccine.2015.11.020.
57. Kok G. A practical guide to effective behaviour change: how to apply theory- and evidence-based behaviour change methods in an intervention. European Health Psychologist. 2014: 16;156–70.
58. G-JY Peters. Effectivebehaviorchange.com [website]. Maastricht: Greater Good; 2016 (http://effectivebehaviorchange.com).
59. FLU.gov [website]. Washington (DC): United States Department of Health and Human Services; 2016 (www.flu.gov).
60. Pregnant women and influenza (flu). In: Centers for Disease Control and Prevention [website]. Atlanta: Centers for Disease Control and Prevention; 2016 (www.cdc.gov/flu/protect/vaccine/pregnant.htm).
61. The flu jab in pregnancy. In: NHS Choices [website]. London: National Health Services; 2014 (http://www.nhs.uk/conditions/pregnancy-and-baby/pages/flu-jab-vaccine-pregnant.aspx).

62. Influenza vaccination in pregnancy: information for healthcare professionals. London: Public Health England; 2015(https://www.gov.uk/government/publications/influenza-vaccination-in-pregnancy-advice-for-healthcare-professionals).

63. Flu, your pregnancy and you: what you need to know and do to protect yourself and your baby. London: Public Health England; 2015 (https://www.gov.uk/government/publications/flu-vaccination-leaflet-for-pregnant-women).

64. Flu plan winter 2015/16. London: Public Health England; 2015 (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/526143/Flu_Plan_Winter_2015_to_2016superseded.pdf).

65. Vaccines & pregnancy. In: Health Service Executive [website]. Dublin: Health Service Executive; 2016 (http://www.hse.ie/eng/health/immunisation/pubinfo/pregvaccs/).

66. Information for Pregnant women 2015/2016. In: Health Service Executive [website]. Dublin: Health Service Executive; 2016 (http://www.hse.ie/eng/health/immunisation/pubinfo/pregvaccs/Flu/).

67. The CDC Clear Communication Index. In: Centers for Disease Prevention and Control. Atlanta: Centers for Disease Prevention and Control; 2016(http://www.cdc.gov/ccindex/).

68. How to guides. In: Health COMpass [website]. Baltimore: Health COMpass, United States Agency for International Development-funded Health Communication Capacity Collaborative, based at the Johns Hopkins Center for Communication Programs; 2016 (http://www.thehealthcompass.org/how-guides).

69. C modules: a learning package for social and behavior change communication (SBCC). Washington (DC): C-Change; 2012 (https://www.fhi360.org/sites/default/files/media/documents/Preparation-Facilitator.pdf).

70. Jensen G. The logical framework approach. How to guide. London: Bond for International Development. 2010 (http://www.dochas.ie/Shared/Files/4/BOND_logframe_Guide.pdf).

71. Griska V, Plotnikova Z, Minkauskiene M, Mickiene A. Pregnancy, influenza and vaccination: what do pregnant women know and think? Lithuanian journal of obstetrics and gynaecology. 2014;17:254–8.

72. Akušerijos diagnostikos ir gydymo metodikos [Obstetrics diagnostic and treatment methods]. In: Ministry of Health [website]. Vilniaus: Ministry of Health; 2016 (https://sam.lrv.lt/lt/veiklos-sritys/programos-ir-projektai/sveicarijos-paramos-programa/akuserijos-ir-neonatologijos-diagnostikos-ir-gydymo-metodikos/akuserijos-diagnostikos-ir-gydymo-metodikos).

Annex 1.

Semi-structured interview guide to gather information on health care providers

The semi-structured interview guide can be used for exploring HCPs' knowledge, perceptions, intentions and practices regarding maternal influenza vaccination.

It was used as part of a qualitative study conducted among HCPs in Kaunas, Lithuania. It was first translated from English into Lithuanian and pretested with HCPs during mock interviews. The recommended changes were subsequently made to the Lithuanian version and translated back into English. This is the final version of the guide, which should be adapted to the unique context and needs of other TIP FLU programmes.

Introduction

Good day,
I am (insert name) and my team and I are very happy that you have agreed to participate in this project regarding influenza vaccination. Your opinion and practical experience are of great importance and will help us understand what issues concern Lithuanian physicians and other specialists who take care of and vaccinate pregnant women against seasonal influenza. We ask you to not be hesitant, but to talk freely. There are no right or wrong answers, just your very important and valuable opinion.
This conversation will remain anonymous; your first and family names will not be mentioned in either of the outcome documents from this interview. All that you are going to say will be recorded, translated and analysed together with the opinions of other specialists. This will help to identify certain problems and come up with practical recommendations for Lithuanian doctors and other European specialists.
Our conversation will be recorded so I could catch everything you say more easily and communicate more freely. This record will be protected and distributed nowhere. Our conversation is going to take approximately 30 minutes.
Do you have any questions before starting to talk?

Interview questions

INTRODUCTION

1. **Please introduce yourself: state your first name, occupation, the number of years you have worked in this area as a specialist and the number of years you have worked in this health institution.**

VACCINATION OF CHILDREN AND ADULTS IN GENERAL.

2. **What is your overall opinion about vaccination?**

- What do you think about children's vaccination?
- What do you think about adults' vaccination?

SEASONAL INFLUENZA VACCINATION IN GENERAL

3. Talking specifically about seasonal influenza vaccines, to whom do health care providers usually recommend this vaccine?

- For what reasons do physicians recommend this vaccination to the groups you have indicated?
- In your opinion, how easy is it for these groups to get vaccinated?

VACCINES AND THE RESPONDENT

4. To whom do you personally offer seasonal influenza vaccination?

- Why do you offer the vaccine to this group in particular? (for each group individually)
- Please tell us what reactions you usually get from your patients after recommending the vaccination.
- Are you familiar with the national recommendations regarding this vaccine?
- What personal concerns or questions do you have about the seasonal influenza vaccine?

HEALTH CARE PROVIDERS' ATTITUDE TOWARDS SEASONAL INFLUENZA VACCINATION

5. In your opinion, do physicians get vaccinated against seasonal influenza themselves?

- In your opinion, what percentage of physicians get vaccinated?
- Do your colleagues often discuss the topic of seasonal vaccination? If yes, what do they say; if no, why?

VACCINATION AND THE RESPONDENT

6. Did you get vaccinated with the last influenza vaccine of 2014/2015?

- If yes, what were the reasons for that?
- If no, what were the reasons for your refusal?

PREGNANCY CARE

7. Now I would like to talk about the care you provide to pregnant women. Please describe your role as a family physician or as an obstetrician-gynaecologist in taking care of a pregnant woman.

- What do you usually advise a pregnant woman? What do you recommend avoiding?
- During a pregnancy, what issues usually concern you the most?

SEASONAL INFLUENZA VACCINE DURING PREGNANCY

8. To what extent is influenza dangerous for a pregnant woman?

- In what ways is influenza dangerous to the newborn child?
- In your opinion, how often do pregnant women get ill with influenza? Why?
- What would you advise for pregnant women to avoid getting influenza?
- What are the benefits of vaccinating against influenza during pregnancy? For the mother? And for the newborn child? (call his/her attention to describing the risk for the mother and the baby)

VACCINATION DURING PREGNANCY

9. Do you personally recommend seasonal influenza vaccination during pregnancy to pregnant women?

IF YES:
- For what reasons do you recommend it?
- What are the reactions of pregnant women after offering the vaccine?

IF NO:
- For what reasons do you not recommend this vaccine?

10. Where did you get information on seasonal influenza vaccination during pregnancy?

- Do physicians discuss seasonal influenza vaccination during pregnancy among themselves?

- If yes, for what reasons is it usually discussed?

11. What would it take for physicians to feel more confident in offering the seasonal influenza vaccines to pregnant women?

FUTURE INTENTIONS OF RECOMMENDING THE INFLUENZA VACCINE TO PREGNANT WOMEN

12. In your opinion, in what ways would pregnant women like to receive these recommendations? (from HCP, media, Internet, etc.) Whom would they trust most?

DECISION OF PREGNANT WOMEN TO RECEIVE VACCINATION AGAINST SEASONAL INFLUENZA.

13. What would help pregnant women decide to receive vaccination against seasonal influenza and make it a routine during pregnancy?

14. In your opinion, from which type of health care provider would pregnant women like to get these recommendations?

FOR CLOSING THE INTERVIEW

15. Our conversation is coming to an end; do you have anything else you would like to add?

16. Do you have any questions?

AT THE END OT THE CONVERSATION

I would like to thank you for your valuable time and for sharing your point of view. As I have mentioned at the start of the interview, your opinions will remain anonymous. All the information from the interviews will be analysed together and reported back in the form of a presentation and a short report, no personal information will be published. Results will be accessible to everybody. If you wish, I can give you the contact information of our researchers, whom you can contact later on.

Annex 2.

Focus group discussion guide to gather information on pregnant women

This focus group discussion guide can be used to explore pregnant women's knowledge, perceptions, beliefs, intentions and practices regarding maternal influenza vaccination.

It was used as part of a qualitative study conducted among pregnant women in Kaunas, Lithuania. The guide was first translated from English into Lithuanian and pretested with pregnant women during a mock focus group discussion. The recommended changes were subsequently made to the Lithuanian version and translated back into English. This is the final version of the guide, which should be adapted to the unique context and needs of other TIP FLU programmes.

Introduction

Moderator:

- Plan enough time to prepare for the meeting with participants and for the start of discussion.
- Make sure to create a welcoming environment for participants.
- Provide participants with consent forms for them to sign (2 copies).
- Place mobile phone on silent mode in order not to disturb the discussion.
- Prepare the device to record the discussion.

At the start of a focus group discussion:

- Introduce yourself, your role and the organization you represent.

  Explain: the purpose of this group discussion is to explore your perceptions and experiences related to care during pregnancy, influenza (generally referred to as "the cold" in Lithuania) and seasonal influenza vaccination during pregnancy. I would like to hear about your thoughts on this subject and related experiences.

- Encourage all participants to speak freely.
    - Please speak freely, in your own words.
    - There are no right or wrong answers.
    - The discussion will be recorded to make sure we catch what you will be sharing with us as accurately as possible.
    - You will remain anonymous.
    - The information will be transcribed and combined with the information from other people. It will be used to write a report on perceptions, beliefs and practices regarding influenza vaccination during pregnancy.
    - This discussion will take approximately 1 hour.
    - Ask: Do you have any questions before we start our discussion?

INTRODUCING INTERVIEW PARTICIPANTS

1. **Roundtable: Please say your first name, the week of pregnancy you are in and how many children you already have.**

   Also please share at least one thing you are excited about regarding this pregnancy.

CARE DURING PREGNANCY

2. **What kind of care do women receive during pregnancy?**

   (If no answer, the moderator can explain what is meant by care. This can be any type of care from massages to physician consultations, etc.)

Explore in detail.

INFLUENCERS AND ACCESS TO INFORMATION

3. **By whom is this care provided?**

Explore.

- Please make a list of care providers (e.g. family, friends, health care professionals, mommy groups, etc.).
- Ask participants about how each of the aforementioned persons provides them with care during pregnancy. Please describe the care you receive from, e.g. your husband. What topics do you discuss?
- Which group of people providing you with care do you trust the most? Why?

ROLE OF HEALTH CARE PROVIDERS

4. **For what reasons does a pregnant woman consult health care providers?**

Explore.

- What health care providers do you consult? (Gynaecologist, general physician, midwife, nurse, etc.).
- What advice and recommendations do they give pregnant women?
- What do pregnant women think about such recommendations? Do pregnant women follow these recommendations?

CONCERNS AND RISKS DURING PREGNANCY – INCLUDING SEASONAL INFLUENZA

5. **What concerns do women have during pregnancy?**

6. If a respondent does not mention this naturally, ask: **Are you concerned about getting influenza?**

   If participants naturally mention influenza, return to the topic: **I would like to talk about influenza a bit more…**

Explore.

- What are the symptoms of influenza?
- How serious is the disease? For pregnant women? For the fetus? For the baby?
- How is it transmitted?
- How likely do you think it is to catch influenza during the influenza season?

Please explain your answer.

- What does a pregnant woman usually do to prevent catching influenza?

SEASONAL INFLUENZA VACCINATION DURING PREGNANCY

7. **Do you know any women who were vaccinated against seasonal influenza during pregnancy?**

Explore.
- If yes, what did they tell you about it?

8. **Have you ever discussed vaccination against seasonal influenza during pregnancy with anyone?**

Explore.
If yes,
- With whom have you discussed seasonal influenza vaccination?
- What did you discuss?
- What are the benefits of seasonal influenza vaccination during pregnancy?
- What concerns might pregnant women have about influenza vaccination during pregnancy?

If no,
- Would you like to discuss this topic?
- If yes, what would you like to discuss in particular?
- If no, then why?

9. Moderator says: **seasonal vaccination against influenza is recommended during pregnancy and during the influenza season because it protects the mother and the baby from potential dangerous influenza complications during pregnancy. It also helps protect the baby from catching influenza during the first few months of life.** (The following questions help the moderator explore perceptions; enough time for such exploration should be given.)

- **What do you think about these recommendations? (Spontaneous reactions)**
- **What is your opinion about seasonal influenza vaccination of pregnant women?**
- **What do you think are the benefits of vaccination during pregnancy?**
- **What concerns could pregnant women have regarding this vaccine?**

INFORMATION REGARDING MATERNAL INFLUENZA VACCINATION

10. **What information would a pregnant woman need to decide whether or not to vaccinate against seasonal influenza?**
From whom would she like to receive this information?

What is the best point in time for her to receive the information about seasonal influenza vaccination during pregnancy?

CLOSING

11. **We are coming to an end of this discussion.**
Would you like to add anything?
Would you like to ask anything?

The moderator closes.

I would like to thank you for your time and for sharing your point of view. As I mentioned at the start of the discussion, your opinions will remain anonymous. All of the information from the interviews will be analysed together and presented with no names attached. You may have access to the results of this research by contacting (insert contact information). I have brought some material about seasonal influenza vaccination during pregnancy in case you would like to learn more about it.

Annex 3.

Sample survey questionnaire on influenza vaccination during pregnancy

This information can be used to facilitate step 5 by collecting new information using a sample survey questionnaire on knowledge, attitudes, practices and behaviour regarding influenza and influenza vaccination during pregnancy.

The questionnaire was used as part of a quantitative study conducted among pregnant women attending the Lithuanian University of Health Sciences (LUHS) obstetrics- gynaecology (OB/GYN) outpatient clinic in Kaunas, Lithuania between November and December 2015, and again during a follow-up survey in March 2016. It was first translated from English into Lithuanian and pretested with pregnant women. The recommended changes were subsequently made to the Lithuanian version and translated back into English. This is the final version of the questionnaire, which should be adapted to the unique context and needs of other TIP FLU programmes.

ID _ _ _ Today's date:_ _ _ _/_ _/_ _ (year/month/day)

Questionnaire on your views and use of influenza vaccination
This questionnaire aims to collect information on your views of influenza and influenza vaccination, particularly during pregnancy. It will take approximately 20 minutes to complete the questionnaire.

1. General questions

1.1. Date of birth ____
1.2. Week of pregnancy? __
1.3. Is this your first delivery?

☐Yes ☐ No If no " please go to question 1.4

How many deliveries have you had? ___
What was your age at your first delivery? ___

1.4. What is (are) the reason(s) for your visit to the clinic today? (Select all that apply)

☐ Routine antenatal care
☐ High-risk pregnancy
☐ Prenatal testing (i.e. genetic testing)
☐ Other, please specify: _____

1.5. What is your civil status?

☐ Married
☐ Cohabitating
☐ Single mother
☐ Widow
☐ Divorced
☐ Other, please specify: _____

1.6. Where do you live?

☐ Kauno miestas
☐ Kauno rajonas
☐ Other: _____

1.7. What is the highest degree or level of school you have completed?

☐ Unfinished primary school
☐ Primary school
☐ Secondary school
☐ Vocational training (technical schools, apprenticeship or other equivalent)
☐ Higher education (university, college or other equivalent)
☐ Other, please specify: _____

1.8. What is your occupation?

Please indicate:_____

1.9. Do you work as a health care worker at a health care institution?

☐ Yes ☐ No

1.10. Do you have any current health problems for which you are receiving, or have received, treatment in the last 12 months?

☐ Yes (if yes, please indicate which one(s) below)
☐ No (go to question 1.11)
☐ Don't know (go to question 1.11)

(Select all that apply)
☐ Respiratory disease (e.g. asthma, bronchitis)
☐ Diabetes
☐ Cardiovascular and heart diseases
☐ Kidney or liver diseases
☐ Cancer
☐ Immunodeficiency disorders
☐ Other, please specify: _____

1.11. Have you ever received any vaccination while you were pregnant?

☐ Yes - If yes, please indicate which one: _____
☐ No
☐ Don't know

2. Questions about childhood vaccination

2.1. I believe that receiving a vaccination is the best way to prevent infectious diseases in childhood.

☐ Agree ☐ Disagree ☐ Don't know

2.2. I believe that getting immunity by contracting the disease is better than getting vaccinated.

☐ Agree ☐ Disagree ☐ Don't know

2.3. I believe vaccinations do more harm than good.

☐ Agree ☐ Disagree ☐ Don't know

3. Questions about influenza and influenza prevention during pregnancy

3.1. Do you think the below measures can help prevent catching influenza?

Having a healthy lifestyle (healthy food and exercise)
☐Yes ☐ No ☐ Don't know

Taking vitamin supplements
☐ Yes ☐ No ☐ Don't know

Eating ginger and/or garlic
☐ Yes ☐ No ☐ Don't know

Getting influenza vaccination
☐ Yes ☐ No ☐ Don't know

Handwashing/hand hygiene
☐ Yes ☐ No ☐ Don't know

Nothing can prevent influenza
☐ Yes ☐ No ☐ Don't know

3.2. When during pregnancy do you think that influenza vaccination is safe for the mother (select only one answer)?

☐ Entire pregnancy (any trimester)
☐ Only certain trimesters, please circle which one(s): 1st 2nd 3rd
☐ It is not safe at any time during pregnancy
☐ I don't know

3.3. When during pregnancy do you think that influenza vaccination is safe for the fetus (select all that apply)?

☐ Entire pregnancy (any trimester)
☐ Only certain trimesters, please circle which one(s): 1st 2nd 3rd
☐ It is not safe at any time during pregnancy
☐ I don't know

3.4. Please indicate whether you agree with the following statements:

a. Influenza vaccination during pregnancy can protect me from influenza infection.
☐ Agree ☐ Disagree ☐ Don't know

b. Influenza vaccination during pregnancy can protect my newborn baby against influenza infection during his or her first months of life.
☐ Agree ☐ Disagree ☐ Don't know

c. Influenza during pregnancy is a serious disease.
☐ Agree ☐ Disagree ☐ Don't know

d. I don't want to use any medication during pregnancy.
☐ Agree ☐ Disagree ☐ Don't know

e. I know someone who had influenza-related complications during her pregnancy.
☐ Yes ☐ No ☐ Don't know

f. Are pregnant women recommended to receive seasonal influenza vaccination in Lithuania?

☐ Yes ☐ No ☐ Don't know

g. Is influenza vaccination free for pregnant women in Lithuania?

☐ Yes ☐ No ☐ Don't know

3.5. From whom would you prefer to receive information regarding the influenza vaccination during pregnancy? Please select only one answer.

☐ Family physician
☐ Obstetrician-gynaecologist
☐ Midwife
☐ Nurse
☐ Pharmacist
☐ Official health institution or organization, please specify:
- ❍ Ministry of Health
- ❍ Communicable diseases and AIDS centre (ULAC)
- ❍ World Health Organization (WHO)
- ❍ European Centre for Disease Prevention and Control (ECDC)
- ❍ Other, please specify: _____

☐ Other, please specify: _____

3.6. In which format would you prefer to receive information regarding the influenza vaccination? Please select only one answer.

☐ Leaflet
☐ Poster
☐ Lecture or presentation
☐ Internet
☐ Newspaper
☐ Magazine
☐ Social media (Facebook, discussion forums etc.)
- ☐ Video in clinic waiting room
- ☐ Video in public transport
- ☐ Television
- ☐ Radio
- ☐ SMS (short message service)
- ☐ Email
- ☐ Other, please specify: _____

4. Questions about influenza vaccination during your pregnancy

4.1. Was influenza vaccination recommended to you after 1 September 2015 while you were pregnant?

☐ Yes

☐ No (go to question 4.3)

☐ I don't know (go to question 4.3)

4.2. Who recommended you to get vaccinated against influenza? Please select all answers that apply (can be more than one).

Family physician
☐ Yes ☐ No
Was the vaccination offered to be administered to you on the same day? ☐ Yes ☐ No

Obstetrician-gynaecologist
☐ Yes ☐ No
Was the vaccination offered to be administered to you on the same day? ☐ Yes ☐ No

Midwife
☐ Yes ☐ No
Was the vaccination offered to be administered to you on the same day? ☐ Yes ☐ No

Nurse
☐ Yes ☐ No
Was the vaccination offered to be administered to you on the same day? ☐ Yes ☐ No

Husband/partner
☐ Yes ☐ No

Parents
☐ Yes ☐ No

Friends
☐ Yes ☐ No

Other, please specify: _____

4.3. Have you been vaccinated against influenza during this influenza season (at any time after 1 September 2015)?

☐ Yes
☐ No (please complete question 4.7)
☐ Don't know (please go to question 4.8)

4.4. When were you vaccinated against influenza during this influenza season (after 1 September 2015)?
Please specify when (year/month/day): _ _ _ _/_ _/ _ _ _ _
☐ I don't remember

4.5. Where did you get vaccinated against influenza?

☐ At a polyclinic, please specify: _____
☐ At a private clinic, please specify:_____
☐ Other, please specify: _____

4.6. If you were vaccinated against influenza during this influenza season (between 1 September 2015 and now), please indicate how important the following reasons were for your decision to get vaccinated:

a. I was afraid of getting influenza while I am pregnant
☐ Very important ☐ Important ☐ Not important ☐ Don't know

b. I have an underlying health problem (e.g. diabetes, asthma, bronchitis, cardiovascular and heart diseases , kidney or liver diseases, cancer, immunodeficiency disorders or others)
☐ Very important ☐ Important ☐ Not important ☐ Don't know

c. My vaccination would protect my new-born child against influenza
☐ Very important ☐ Important ☐ Not important ☐ Don't know

d. I was recommended to get vaccinated by a general practitioner (GP)
☐ Very important ☐ Important ☐ Not important ☐ Don't know

e. I was recommended to get vaccinated by an obstetrician-gynaecologist
☐ Very important ☐ Important ☐ Not important ☐ Don't know

f. I was recommended to get vaccinated by a midwife
☐ Very important ☐ Important ☐ Not important ☐ Don't know

g. I was recommended to get vaccinated by a nurse
☐ Very important ☐ Important ☐ Not important ☐ Don't know

h. I received information on influenza vaccination during a birth preparation class
☐ Very important ☐ Important ☐ Not important ☐ Don't know

i. I was encouraged to get vaccinated by my husband
☐ Very important ☐ Important ☐ Not important ☐ Don't know

j. I was encouraged to get vaccinated by my parents
☐ Very important ☐ Important ☐ Not important ☐ Don't know

k. I was encouraged to get vaccinated by information I read at the health clinic
☐ Very important ☐ Important ☐ Not important ☐ Don't know

l. I was encouraged to get vaccinated by information I saw/heard in the media
☐ Very important ☐ Important ☐ Not important ☐ Don't know

m. I know someone who had influenza-related complications during her pregnancy
☐ Very important ☐ Important ☐ Not important ☐ Don't know

n. Other reason:_____

If you have been vaccinated, please go to question 4.8.

4.7. Please indicate to what extent you agree that the following statements describe the reasons why you did not get vaccinated.

a. Influenza isn't a serious disease during pregnancy
☐ Agree ☐ Neither agree, nor disagree ☐ Disagree ☐ Don't know

b. I am concerned about vaccine side effects for myself
☐ Agree ☐ Neither agree, nor disagree ☐ Disagree ☐ Don't know

c. I am concerned about vaccine side effects for my baby
☐ Agree ☐ Neither agree, nor disagree ☐ Disagree ☐ Don't know

d. The vaccine isn't effective in protecting against influenza
☐ Agree ☐ Neither agree, nor disagree ☐ Disagree ☐ Don't know

e. My immunity is strong during pregnancy and this protects me from influenza
☐ Agree ☐ Neither agree, nor disagree ☐ Disagree ☐ Don't know

f. Natural remedies were enough to protect myself against influenza disease
☐ Agree ☐ Neither agree, nor disagree ☐ Disagree ☐ Don't know

g. I didn't want to take any type of medication or drug during pregnancy
☐ Agree ☐ Neither agree, nor disagree ☐ Disagree ☐ Don't know

h. The vaccine wasn't offered to me by my health care provider
☐ True ☐ Not true ☐ Don't know

i. I didn't know where to get the vaccination
☐ True ☐ Not true ☐ Don't know

j. I didn't know that during pregnancy influenza vaccination is free of charge
☐ True ☐ Not true ☐ Don't know

k. I was advised against getting influenza vaccination while pregnant by my health care provider
☐ True ☐ Not true ☐ Don't know

l. Other reason:_____

4.8. What would persuade you to get vaccinated during a future pregnancy? For each of the below statements, please indicate how important they would be for your decision to get vaccinated.

a. My gynaecologist advises me to get vaccinated
☐ Very important ☐ Important ☐ Not important ☐ Don't know

b. My family doctor advises me to get vaccinated
☐ Very important ☐ Important ☐ Not important ☐ Don't know

c. My midwife advises me to get vaccinated
☐ Very important ☐ Important ☐ Not important ☐ Don't know

d. A nurse advises me to get vaccinated
☐ Very important ☐ Important ☐ Not important ☐ Don't know

e. I get information on the safety of influenza vaccination during pregnancy
☐ Very important ☐ Important ☐ Not important ☐ Don't know

f. I get information about the seriousness of influenza for pregnant women and young babies
☐ Very important ☐ Important ☐ Not important ☐ Don't know

g. Someone in my family advises me to get vaccinated
☐ Very important ☐ Important ☐ Not important ☐ Don't know

h. Other pregnant women I know get vaccinated against influenza
☐ Very important ☐ Important ☐ Not important ☐ Don't know

i. Please list in your own words anything else that might motivate you to receive influenza vaccination: _____

4.9. Would you get vaccinated against influenza during a future pregnancy?

☐ Yes ☐ No ☐ Don't know

5. Questions about your experience with influenza

5.1. Did you have (or do you think you had) influenza during pregnancy since the time you filled out the first questionnaire and now? You filled out the questionnaire about influenza vaccination during pregnancy between 1 November 1–25 December 2015.

☐ Yes
☐ No (please go to question 6.1)
☐ Don't know (please go to question 6.1)

5.2. Which symptoms did you have? Please select as many as apply.

☐ Fever (38°C or more)
☐ Cough
☐ Runny nose
☐ Sore throat
☐ Muscle or body ache
☐ Other, please specify: _____

5.3. Did you experience any of the below complications from influenza?

Pneumonia and/or bronchitis	☐ Yes	☐ No	☐ Don't know
Difficult breathing	☐ Yes	☐ No	☐ Don't know
Existing disease[5] got worse (please see the list below)	☐ Yes	☐ No	☐ Don't know
I was hospitalized	☐ Yes	☐ No	

If you were hospitalized with influenza, how many days did you spend in hospital: _____

If you were hospitalized with influenza, were you admitted to the intensive care unit?

☐ Yes ☐ No ☐ Don't know

6. Information about influenza and influenza vaccination

6.1. Have you received (read, heard or seen) any information about influenza vaccination for pregnant women since 1 September 2015?

☐ Yes
☐ No (please go to question 7)
☐ Don't know (please go to question 7)

6.2. Where/from whom did you receive this information? (Please select all that apply.)

☐ During a consultation with family physician
☐ During a consultation with obstetrician-gynaecologist
☐ During a consultation with midwife
☐ During a consultation with nurse
☐ During a birth preparation class

[5] Respiratory disease (e.g. asthma, bronchitis), diabetes, cardiovascular and heart diseases, kidney or liver diseases, cancer, immunodeficiency disorders.

☐ In the waiting room of the polyclinic
☐ From my husband/partner
☐ From friends
☐ At home
☐ From my parents
☐ In the public space or transportation
☐ Other, please specify: _____

6.3. Did a midwife at the Lithuanian University of Health Sciences' obstetrics gynaecology (LSMU OB/GYN) outpatient clinic talk to you about influenza vaccination during pregnancy when you received the first questionnaire between November 1 and 25 December 2015?

☐ Yes
☐ No (please go to question 6.5)
☐ Don't know (please go to question 6.5)

6.4. How did the talk with the midwife at LSMU OB/GYN influence your decision to get vaccinated against influenza?

☐ It encouraged me to get influenza vaccination
☐ It did not have any influence on my decision
☐ It discouraged me from getting influenza vaccination
☐ I don't know

6.5. Have you seen a health care worker wearing this badge? (*place image*)

☐ Yes
☐ No (please go to question 6.8)
☐ Don't know (please go to question 6.8)

6.6. If you saw the badge, did it encourage you to discuss influenza vaccination?

☐ Yes, please go to question 6.7
☐ No, please go to question 6.8
☐ Don't know, please go to question 6.8

6.7. How did this discussion influence your decision to get vaccinated against influenza?

☐ It encouraged me to get influenza vaccination
☐ It did not have any influence on my decision
☐ It discouraged me to get influenza vaccination
☐ I don't know

6.8. Below is a list of information material about influenza vaccination. For each of the items listed, please indicate if you have seen or read it after 1 September 2015. For each of the items that you have seen or read, please indicate where you read it or saw it, and whether it influenced your decision to seek more information about influenza vaccination during pregnancy.

Have you seen or read this information material? Please check the box if you have seen or read it and answer the other questions about this material.	Where did you see or read it? Please select all answers that apply (can be more than one).	Did this convince you to search for more information about seasonal influenza vaccination during pregnancy? Please select only one answer.
☐ Leaflet (*place image*) 	☐ Gynaecology and obstetrics clinic (LSMU) ☐ Polyclinic (please write which one): _____ ☐ Private GP clinic (please write which one): _____ ☐ Internet (please specify where): _____ ☐ Don't remember ☐ Other: _____	☐ Yes ☐ No ☐ I don't know ☐ I don't remember
☐ Poster(s) (*place image*) 	☐ Gynaecology and obstetrics clinic (LSMU) ☐ Polyclinic (please write which one): _____ ☐ Private GP clinic (please write which one): _____ ☐ On the exterior of a bus ☐ Internet (please specify where): _____ ☐ Don't remember ☐ Other: _____	☐ Yes ☐ No ☐ I don't know ☐ I don't remember
☐ Frequently asked questions (*place image*) 	☐ Gynaecology and obstetrics clinic (LSMU) ☐ Polyclinic (please write which one): _____ ☐ Private GP clinic (please write which one): _____ ☐ Internet (please specify where): _____ ☐ Don't remember ☐ Other: _____	☐ Yes ☐ No ☐ I don't know ☐ I don't remember

☐ Slide show presentation on a video screen (place image)	☐ At the gynaecology and obstetrics clinic (LSMU) ☐ Polyclinic (please write which one): _____ ☐ Private GP clinic (please write which one): _____ ☐ In a bus ☐ Don't remember ☐ Other: _____	☐ Yes ☐ No ☐ I don't know ☐ I don't remember

Have you seen or read this information material? Please check the box if you have seen or read it and answer the other questions about this material.	Where did you see or read it? Please select all answers that apply (can be more than one).	Did you click on it to see more information? Please select only one answer.	Did this convince you to search for more information about seasonal influenza vaccination during pregnancy? Please select only one answer.
☐ Logo/banner on the internet (*place image*)	☐ At www.ULAC.lt ☐ www. Supermama.lt ☐ Kaunas Public Health Center ☐ Kaunas Public Health Bureau ☐ Do not remember ☐ Other: _____	☐ Yes ☐ No ☐ I don't know	☐ Yes ☐ No ☐ I don't know ☐ I don't remember

Have you seen or read any information about influenza vaccination during pregnancy on any of the media outlets below? Please check the box if you have seen or read any information in the media below and answer the other question about this material.	Did this convince you to search for more information about seasonal influenza vaccination during pregnancy? Please select only one answer.
☐ Internet If possible, please list one website:	☐ Yes ☐ No ☐ I don't know ☐ I don't remember

☐ Social media If possible, please list one website:	☐ Yes ☐ No ☐ I don't know ☐ I don't remember
☐ Newspaper If possible, please list one article:	☐ Yes ☐ No ☐ I don't know ☐ I don't remember
☐ Magazine If possible, please list one article:	☐ Yes ☐ No ☐ I don't know ☐ I don't remember
☐ Television If possible, please list one programme:	☐ Yes ☐ No ☐ I don't know ☐ I don't remember
☐ Radio If possible, please list one programme:	☐ Yes ☐ No ☐ I don't know ☐ I don't remember
☐ SMS from my health care provider about influenza vaccination If possible, please list which provider:	☐ Yes ☐ No ☐ I don't know ☐ I don't remember
☐ Email from my health care provider about influenza vaccination If possible, please list which provider:	☐ Yes ☐ No ☐ I don't know ☐ I don't remember

7. Do you have any other questions or comments to share regarding your vaccinations during pregnancy?

_____

_____

_____

Thank you very much for taking the time to fill out this questionnaire.

Annex 4.

Sample pretest questions for communications materials

This Information can be used to facilitate step 10: develop the communications strategy, messages and materials.

Table A4.1 has some sample questions used to pretest the TIP FLU communications materials with pregnant women and their health care providers in Kaunas, Lithuania.

Table A4.1 Themes and sample questions to pretest communications material

Theme	Questions
Spontaneous reactions.	What comes to mind when you look at this (e.g. leaflet)? • What is it about? • Who is it for? • In which place (where) would most expect to find this (leaflet)? • Is this something you would want to read? (Probe for reasons)
Comprehension.	Please have a closer look at this (e.g. leaflet). • What comes to mind now? (Spontaneous reactions) • What is/are the key message/s in this leaflet? • What is the (e.g. leaflet) asking you to do? • How clearly are the messages conveyed? • Is there anything confusing? • What could be improved to make the message clearer?
Attractiveness.	• What do you think about the way the material (e.g. leaflet) looks? • What do the images convey to the reader? • How well do the images fit with the messages that are shared? (Probe for reasons) • What would you want to change in the presentation of the (e.g. leaflet)?
Relevance, Identification.	• What do you like most about the (e.g. leaflet)? • What do you dislike? • For what type of person do you think this material is for? • How important do you feel that the information in the material is? Please explain. • Is the information in the material new to you?

Table A4.1 (contd.)

Theme	Questions
Acceptability.	• Is there anything in the (e.g. leaflet) that bothers you? (Probe for reasons) • What would need to be changed to make you feel more comfortable with it?
Persuasion.	• Does reading this (e.g. leaflet) make you want to take some actions? If so, what actions? (I.e. seek information, talk with family, see a health care provider, get the vaccination) • What more would you need to make a decision about vaccinating against influenza this season?

Annex 5.

List of possible outcome indicators

This information can be used in step 11 to help monitor and evaluate a TIP FLU programme.

Table A5.1 provides a detailed list of possible outcome indicators for the main determinants of maternal influenza vaccination acceptance and uptake, and which can be used to quantitatively evaluate the impact of a programme. These indicators should be evaluated by means of a survey questionnaire or through interviews ideally before the intervention and at the end of the implementation. An example of a survey questionnaire that was implemented in the TIP FLU project in Lithuania is in **Annex 3**.

Most of the indicators can be translated into questions asking the respondent to either agree or disagree with statements (e.g. "% of pregnant women who consider that the location of influenza vaccination services was convenient" can be phrased as: "Do you think the location of influenza vaccination services is convenient?"). For more precision, the respondent can answer on a scale from 1 to 4, with 1 indicating disagree completely and 4 agree completely.

Table A5.1 Examples of indicators related to knowledge, perceptions beliefs and practices related to influenza and maternal influenza vaccination among pregnant women

Major category	Subcategory	Possible determinants to address	Possible indicators
Environmental factors affecting access.	Perception of access to and availability of influenza vaccination services.	• Pregnant women's perceptions of convenience of where to get vaccinated. • Pregnant women's perceptions of convenience of the days and hours of service. • Pregnant women's competing responsibilities during vaccination service hours.	• % of pregnant women who consider that the location of influenza vaccination services was convenient. • % of pregnant women who consider the days and hours of influenza vaccination services were convenient. • % of pregnant women who find it difficult or impossible to get vaccinated due to competing responsibilities.
	Perception of cost of influenza vaccination services.	• Pregnant women's concern with the cost of influenza vaccination services.	• % of pregnant women who were concerned with the cost of influenza vaccination services.
Interpersonal and community support factors.	Influence of information on, shared knowledge of and community support for maternal influenza and its vaccination.	• Pregnant women's exposure to information on influenza vaccination during pregnancy through vaccination education, promotion campaigns.	• % of pregnant women who received information on maternal influenza vaccination during the influenza season through vaccination education, promotion campaigns.

Table A5.1 (contd.)

Major category	Subcategory	Possible determinants to address	Possible indicators
		• Pregnant women's exposure to information on maternal influenza vaccination shared by communities that influence pregnant women's beliefs and behaviours. • Extent to which people close to pregnant women (e.g. husbands, family, friends) encourage or discourage maternal influenza vaccination.	• % of pregnant women who received information on maternal influenza vaccination during the influenza season shared by communities that influence pregnant women's beliefs and behaviours. • % of pregnant women who were encouraged or discouraged to vaccinate against influenza during pregnancy by people close to them.
	Media support for influenza vaccination.	• Extent to which media, including the Internet, encourages or discourages maternal influenza vaccination.	• % of pregnant women who heard or read discouraging/encouraging information (by source of media) on maternal influenza vaccination.
	Influence of medical/ social/community norms for maternal influenza vaccination.	• Extent to which pregnant women perceive influenza vaccination as a part of routine antenatal care. • Extent to which pregnant women know other pregnant women who were vaccinated or recommended vaccination against influenza during pregnancy.	• % of pregnant women who consider influenza vaccination as part of routine antenatal care. • % of pregnant women who were encouraged to receive influenza vaccination during pregnancy by their peers (other pregnant women) in the last season. • % of women who know at least (insert number) pregnant women who received influenza vaccination during pregnancy in the last season.
Individual factors.	Knowledge of maternal influenza and influenza vaccination: • factual • practical • experiential	• Pregnant women's knowledge of health regulations, guidelines, and recommendations regarding maternal influenza vaccination. • Pregnant women's awareness that they are a priority target group for influenza vaccination. • Pregnant women's practical knowledge of when and where to get influenza vaccination.	• % of pregnant women who know that maternal influenza vaccination reduces the risk of contracting seasonal influenza during pregnancy. • % of pregnant women who know that current influenza vaccination recommendations are (insert recommendations). • % of pregnant women who know that they are a priority target group for influenza vaccination.

Table A5.1 (contd.)

Major category	Subcategory	Possible determinants to address	Possible indicators
		• Pregnant women's personal experience of (or knowledge of someone) having suffered from influenza. • Pregnant women's past receipt of influenza vaccination.	• % of pregnant women who know where to get vaccinated against influenza. • % of pregnant women who know when to get vaccinated against influenza. • % of pregnant women who were vaccinated against influenza during the last influenza season.
	Pregnant women's risk perceptions of seasonal influenza.	• Pregnant women's perceptions of the personal risk of contracting influenza during pregnancy. • Pregnant women's perceptions of the risk of their catching influenza from other family members. • Pregnant women's perceptions of how serious or life threatening influenza is during pregnancy.	• % of pregnant women who believe that, without being vaccinated, they would be at risk of contracting influenza during pregnancy. • % of pregnant women who believe that, without being vaccinated, their newborn child would be at risk of influenza infection.
	Perceptions of influenza vaccine safety.	• Pregnant women's perceptions regarding the safety of influenza vaccine.	• % of pregnant women who are concerned with the adverse effects of influenza vaccine for themselves and their child.
	Pregnant women's perceived benefits of maternal influenza vaccination.	• Pregnant women's knowledge of the degree to which influenza vaccine reduces the risk of influenza disease. • Strength of pregnant women's belief that vaccination protects them (reduces the risk) from getting influenza.	• % of pregnant women who are convinced that vaccination is very effective in protecting them against influenza. • % of pregnant women who are convinced that being vaccinated against influenza indirectly protects their newborn child from influenza.
	Pregnant women's beliefs.	• Pregnant women's agreement with recommendations on influenza vaccination. • Pregnant women's preference for, and use of, other types of preventive care (naturopathic, homeopathic, other).	• % of pregnant women who have used other types of preventive care (naturopathic, homeopathic, other) in the last 2 months. • % of pregnant women who state a preference for preventing influenza through alternative, non-pharmaceutical types of preventive care.

Table A5.1 (contd.)

Major category	Subcategory	Possible determinants to address	Possible indicators
		• Pregnant women's fundamental beliefs regarding vaccination as a preventive measure.	• % of pregnant women who strongly believe in vaccination as a measure to prevent vaccine-preventable diseases.
	Risk–benefit analysis.	• Extent to which pregnant women perceive that the benefits of maternal influenza vaccination outweigh the risks of adverse effects of the vaccine. • Degree of complacency regarding maternal influenza vaccination during pregnancy (perception of importance).	• % of pregnant women who believe that the benefits of maternal influenza vaccination outweigh any risks of the vaccine. • % of pregnant women who believe that receiving influenza vaccination during pregnancy is important.

Source: Guide to tailoring immunization programmes.[6]

[6] Guide to tailoring immunization programmes (TIP). Copenhagen: WHO Regional Office for Europe; 2013 (http://www.euro.who.int/en/health-topics/communicable-diseases/poliomyelitis/publications/2013/guide-to-tailoring-immunization-programmes, accessed 31 August 2016).

The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

Member States

Albania
Andorra
Armenia
Austria
Azerbaijan
Belarus
Belgium
Bosnia and Herzegovina
Bulgaria
Croatia
Cyprus
Czechia
Denmark
Estonia
Finland
France
Georgia
Germany
Greece
Hungary
Iceland
Ireland
Israel
Italy
Kazakhstan
Kyrgyzstan
Latvia
Lithuania
Luxembourg
Malta
Monaco
Montenegro
Netherlands
Norway
Poland
Portugal
Republic of Moldova
Romania
Russian Federation
San Marino
Serbia
Slovakia
Slovenia
Spain
Sweden
Switzerland
Tajikistan
The former Yugoslav Republic of Macedonia
Turkey
Turkmenistan
Ukraine
United Kingdom
Uzbekistan

World Health Organization
Regional Office for Europe
UN City Marmorvej 51, DK-2100 Copenhagen Ø, Denmark
Tel.: +45 45 33 70 00 Fax: +45 45 33 70 01 E-mail: euwhocontact@who.int
Web site: www.euro.who.int