



share and move to face nasty bugs

TITLE: POLICY WATCH
SUBTITLE: PANDEMIC PREPAREDNESS AND RESPONSE
BULLETIN REPORT 3

ASSET Project • Grant Agreement N°612236

ASSET

Action plan on SiS related issues in Epidemics And Total Pandemics

7th RTD framework programme

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D6.6 Pandemic Preparedness and Response Bulletin Report 3: Activity Report till to m48

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Table of Contents

EXECUTIVE SUMMARY.....	4
ACKNOWLEDGEMENTS.....	5
CONTRIBUTORS OF AUTHORS	5
BRIEF INTRODUCTION	5
PART I: PLANNING, EDITING, CIRCULATING THE ASSET PPRBs	6
1. METHODS AND MATERIALS	6
1.1 THE EDITORIAL RATIONALE.....	6
1.2 THE COLLABORATIVE WORK.....	6
2. PRODUCTION OF THE THREE PPRB ISSUES IN THE TIMEFRAME 37-48M	6
2.1 THE FIFTH PPRB	7
2.2 THE SIXTH PPRB	7
2.3 THE SEVENTH PPRB.....	8
3. DISSEMINATION OF THE THREE PPRB ISSUES IN THE TIMEFRAME 37-48M	9
3.1 MAILING LIST OF RELEVANT STAKEHOLDERS.....	9
3.1.1 EVALUATING THE APPRECIATION OF THE PPRB AMONG READERS.....	9
3.2 SUBSCRIBING ON THE ASSET WEBSITE	13
PART II: THE THREE ASSET PPRBs PUBLISHED IN THE TIMEFRAME 37-48M.....	14
ANNEX I – The fifth ASSET-PPRB Issue	15
ANNEX II – The sixth ASSET-PPRB Issue	18
ANNEX III – The seventh ASSET-PPRB Issue	23
RELEVANT WEB REFERENCES/RESOURCES.....	29



EXECUTIVE SUMMARY

The ASSET Pandemic Preparedness and Response Bulletin, *Share and move* As done for the first and second reports on the ASSET Pandemic Preparedness and Response Bulletin, even the third one has been divided in two main parts which represent the features characterizing the task 6.2 as per indicated in the Description of Work (DoW), page 28 of 48.

Context and main objectives The ASSET Bulletin as a tool for policy watch *Share and move* (the ASSET Pandemic Preparedness and Response [Bulletin](#)) is a tool for updating on mostly relevant policy initiatives in matter of public health emergencies of international concern (PHEIC) such as epidemics and pandemics at local, national and international levels. The seven Bulletin issues deal with the latest key health data, information and indicators in matter of Public Health Emergency Preparedness (PHEP), Emergent Communicable Diseases, revisions of national pandemic plans and/or strategies, as well as of relevant statements and recommendations in the field.

Share and move wants to address effectively scientific and societal challenges posed by PHEIC management. The ASSET Bulletin mirrors the approach launched by the European Commission in 2001 within its own «Science and Society» Action Plan. The original objective was identified to foster public engagement and a sustained two-way dialogue between science and civil society and to build a framework for Responsible Research and Innovation (RRI). That means the setup of a policy driven by the needs of society and engaging all societal players via inclusive participatory approaches. The RRI framework is made of six main keys: governance, open access, engagement, gender equity, ethics, and science education. In this perspective, the ASSET Pandemic Preparedness and Response Bulletin (PPRB) is a tool that aims at collecting and disseminating information on policy initiatives devoted to pandemics and related crisis management and developments at local, national and European levels. This Bulletin will consider and revise specific issues related to EU strategic priorities in pandemic preparedness, including communication and other responses. The ASSET-PPRB is addressed to international stakeholders who are relevant in the field of pandemic preparedness, including risk communication strategies and other responses.

Key issues The Editorial Committee agreed the editorial format to address contents to be selected. According to a “*What’s new*” perspective, columns to be run are about: pandemic and emergency preparedness and response, public health initiatives developed; highlights from the most used social media as well as from a relevant website in the field; recent update from the ASSET project and a “snapshot”, standing for an innovative concept represented by a graphic item.

Editorial plan After the [first](#) issue, that is generic, each ASSET Pandemic Preparedness and Response Bulletin, *Share and move*, has been based on one of the six SiS topics highlighted during the project “*Study and Analysis*” phase: governance of pandemics and epidemics; unsolved scientific questions; crisis participatory governance; ethical, legal and societal implications; gender pattern – vulnerability; intentionally caused outbreaks. The [second](#) Bulletin focused on governance of pandemics and epidemics, the [third](#) issue concentrated on unsolved scientific questions, the [fourth](#) number deals with intentionally caused outbreaks, the [fifth](#) PPRB is on the participatory governance, the [sixth](#) issue concerns ethics, and the last edition (n. [7](#)) on gender pattern.



ACKNOWLEDGEMENTS

We acknowledge the Editorial Committee members¹ and all ASSET consortium partners² who have been useful in working on the ASSET Pandemic Preparedness and Response Bulletin as well as our colleagues from the Istituto Superiore di Sanità Resource Centre: Caterina Rizzo, Antonella Lattanzi, Lorenzo Fantozzi, Arianna Dittami, Valerio Occhiodoro and Eva C. Appelgren for the valuable support provided, respectively, on editorial, linguistic, graphic, and technical issues.

CONTRIBUTORS OF AUTHORS

Concerning the three Issues of the ASSET Pandemic Preparedness and Response Bulletin that the current Deliverable Report (D6.6) refers to, task contributors have been as it follows:

- ✿ **Istituto Superiore di Sanità, Italy** Valentina Possenti, Barbara De Mei, Paola Scardetta: conception and design, identification of eligibility criteria for contributions, data-checking, writing/editing, working board creation and coordination;
- ✿ **University of Haifa, Israel** Manfred Green, Anat Gesser-Edelsburg: conception and design, identification of eligibility criteria for contributions, data-checking;
- ✿ **National Centre of Infectious and Parasitic Diseases, Bulgaria** Mira Kojouharova, Anna Kurchatova, Veronika Dimitrova: conception and design, identification of eligibility criteria for contributions, data-checking, writing/editing;
- ✿ **Universitatea De Medicina Si Farmacie'carol Davila' Din Bucuresti, Romania** Mircea Ioan Popa, Adriana Pistol: conception and design, identification of eligibility criteria for contributions, data-checking, writing/editing.

BRIEF INTRODUCTION

In ASSET (Action plan in Science in Society in Epidemics and Total pandemics), a four-year, European Commission funded Mobilization and Mutual Learning Action Plan (MMLAP) project, one of the two tasks in the WorkPackage “Policy watch” is about delivering a Pandemic Preparedness and Response Bulletin (T6.2).

Rationale, objectives and methods are widely described in the first Deliverable published on this task, [D6.4 'Pandemic Preparedness and Response Bulletin Report 1'](#), and its evolution from month 19 to 36 is reported in the D6.5 '[Pandemic Preparedness and Response Bulletin Report 2'](#)'.

The present report is about the description of the state-of-the-art from month 37 (January 2017) to the project end, M48 (December 2017).

¹ Names are listed at Table 1 in the [D6.4 'Pandemic Preparedness and Response Bulletin Report 1'](#)

² Partners are retrievable on the ASSET website at URL: <http://www.asset-scienceinsociety.eu/about/partners>



PART I: PLANNING, EDITING, CIRCULATING THE ASSET PPRBs

1. METHODS AND MATERIALS

1.1 THE EDITORIAL RATIONALE

Eligible contents to be published in each Bulletin are relevance- and recency-driven. After the first issue, the “*What’s new...*” formula originally identified has been modulated in the way that follows:

- ✿ **Pandemic and Emergency Preparedness and Response** The core columns are about specific achievements and progresses in the field of pandemics, epidemics or both, intended as public health emergencies of international concern (PHEIC), as per the recent WHO definition.
- ✿ **Public Health Initiatives** In this part, the Bulletin reports major achievements by the most important international public health institutions, i.e., WHO, WHO/EU, ECDC, and others, about the topics of interest.
- ✿ **Social Networks** A slot dedicated to highlights, inputs and insights on preparedness and response circulated by the most used social media.
- ✿ **On the web** One relevant website in the field is put in evidence.
- ✿ **From the ASSET world** Significant news on ASSET achievements and outcomes (WPs, Deliverables, Events).
- ✿ **In a SnapShot!** A “graphic item” with a verbal exploitation provided besides.

1.2 THE COLLABORATIVE WORK

Given the same participatory methods and approach which have been implemented since the very beginning of the project and of the Bulletin-related task as well, the PPRB revealed to be based on a collaborative work among all Consortium Partners. This information is proved also on the specific discussion thread dedicated per Bulletin issue started on the WP6 Forum of the internal Community of Practice platform. In each issue, depending on the thematic area covered, a WP or task leader is identified as the main reference Partner, that in the time interval 37-48 are respectively participatory governance, ethics and gender.

2. PRODUCTION OF THE THREE PPRB ISSUES IN THE TIMEFRAME 37-48M

Since the second issue, editing the ASSET Pandemic Preparedness and Response Bulletins, “*Share and move*”, has been developed according to what is indicated in detail in the [Strategic Plan \(D3.1\)](#), that is focusing each Bulletin on one of the six SiS topics highlighted within the project “*Study and Analysis*” phase: governance of pandemics and epidemics; unsolved scientific questions; crisis participatory governance; ethical, legal and societal implications; gender pattern – vulnerability; intentionally caused outbreaks.

As already indicated above, issues covered in the three bulletins encompassed in the time interval 37-48 are respectively: participatory governance (5th), ethics (6th) and gender (7th).



2.1 THE FIFTH PPRB

Participatory governance consists of state-sanctioned institutional processes that allow citizens to exercise voice and vote, which then results in the implementation of public policies that produce some sort of changes in citizens' lives.

In the ASSET frame, this concept has been exploited throughout different steps: firstly, models and experiences of participatory governance in crisis management were collected and analysed at various levels, from local and national to international; then, a great work of Citizen consultation has been carried out in eight different countries.

The conclusions and discussion of results were presented in the Policy Report and associated Policy Seminar that was held at the European Parliament in April 2016. Thus, the fifth 'Share and move' issue highlights participatory governance pattern in the field of preparedness and response, as well as how relevant information is shared on the web and by the most used social media.

Furthermore, beside the participatory governance that in the ASSET Strategic Plan is associated to science education, other concepts are included such as 'Internet of things', 'big data' and 'digital epidemiology'.

These terms, in fact, are strictly linked to the mechanism of data availability according a free sharing by people on the web. Then, a logical connection that follows is about public participation in light of a perspective leading to the 'continuously learning health system', as Harlan Krumholz theorised in his contribution on JAMA 2016.

In this way, the thematic links among different strategic lines adopted in the ASSET project overall, as well as in its plan, have been also proposed in the issues of the Pandemic Preparedness and Response Bulletin, *Share and move*.

The fifth Bulletin introduces even a more interesting aspect because, beside exploiting a specific matter as it has been done since its second issue, it acts as a bridge between the 'unsolved scientific questions and open access to scientific outcome' which were covered in the third publishing and ethical reflection that is the main subject for the sixth *Share and move*.

Lastly, as a '*bridge on the bridge*', n. 5 starts with a special column that has been not run before: a section including either pandemic or emergency (even called 'panepidemic') preparedness and response.

2.2 THE SIXTH PPRB

Ethics according to an ASSET perspective In the sixth ASSET Pandemic Preparedness and Response Bulletin, it is highlighted how ethical issues impact on preparedness and response toward public health emergencies.

But in doing this, a pure ASSET perspective is developed: in other words, the ritual section called 'From the ASSET world' is missing because it is the basic and transversal approach followed overall.

In this way, it has been matched the editorial approach that offers a common structure with innovative elements which are also entered. Furthermore, the bridging column that includes either pandemic or emergency (even called 'panepidemic') preparedness and response is run again.



2.3 THE SEVENTH PPRB

A focus on gender Proposing the same structure as the others, the last ASSET Pandemic Preparedness and Response Bulletin, *Share and move*, gives readers an overview on gender issues both affecting preparedness and response in general as well as in particular in association with the vaccination pattern.

Starting from the main results coming out from the initial project “Study and Analysis” phase, relevant studies in the field such as I-MOVE, SVEVA and PASSI are reported, and a specific PHEIC considered is Zika virus because of its high interconnection with the female health and pregnancy.



3. DISSEMINATION OF THE THREE PPRB ISSUES IN THE TIMEFRAME 37-48M

As previously indicated at paragraph 2.3 of the first Deliverable published on task 6.2, [D6.4 'Pandemic Preparedness and Response Bulletin Report 1'](#), a double spreading mode has been identified. The PPRBs are both circulated among a wide mailing list of relevant targets and by being made available on the ASSET website.

3.1 MAILING LIST OF RELEVANT STAKEHOLDERS

ZADIG is provided by ISS with a cover letter for sending each Bulletin issue and then spread it out to identified recipients. Since early 2016, the overall ASSET mailing list of addressees initially assembled has been pretty improved both for quality and quantity. More than 7,000 stakeholders have been identified and divided in categories as country, affiliating institution, professional role, etc. The PPRB *Share and move* is sent to 4,437 email addresses, that are selected and extracted from the broader mailing list.

3.1.1 EVALUATING THE APPRECIATION OF THE PPRB AMONG READERS


To better understand the level of appreciation among Bulletin readers, ISS implemented a very brief online evaluation questionnaire. It looks like as depicted in the Figure 1.

Opinion survey on the ASSET
Pandemic Preparedness and
Response Bulletin, Share and move

Dear Reader,
we would appreciate to have your feedback on structure and contents of the ASSET Pandemic Preparedness and Response Bulletin issues.
Let's share ideas on it! The brief survey that follows will take a few instants to be filled in and sent out.

*Campo obbligatorio

Share and move: the ASSET Pandemic Preparedness and Response Bulletin



Do you find the Bulletin relevant to your work? *

No, at all
 Interesting
 Useful
 Essential

If not, please add spare comments.
La tua risposta

Do you agree with the editorial layout chosen for the Bulletin? *

No, at all
 Somehow
 Quite
 Yes, totally

If not, please add spare comments.
La tua risposta

In line with the objectives of the Bulletin, how could it be further improved?
La tua risposta

Thanks for your feedback! Please, use the space below for additional suggestions or eventual recommendations.
La tua risposta

Non inviare mai le password tramite iModul/Google

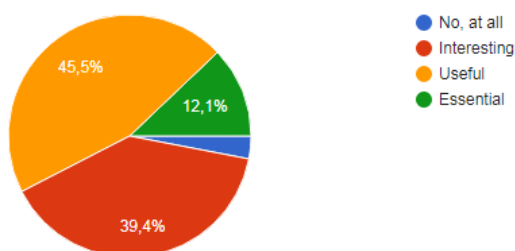
Figure 1. The questionnaire developed for evaluating appreciation of the ASSET Bulletin



A total of 33 people submitted the online questionnaire: 45% and 39% find the Bulletin, respectively, useful and interesting to their work, and it is recalled even as essential by 12% of respondents (Figure 2). 73% of people filling in the questionnaire are quite or fully in favour of the editorial layout chosen for the Bulletin (Figure 3).

Do you find the Bulletin relevant to your work?

33 risposte



If not, please add spare comments.

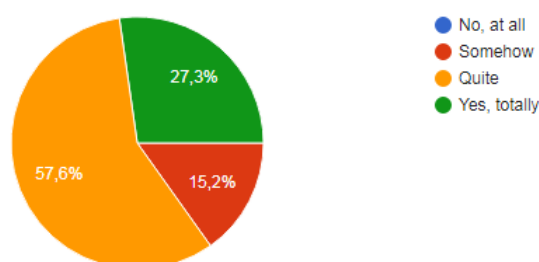
1 risposta

This is not my field of activities - we are dealing with infertility.

Figure 2. Response rate – first question for evaluating appreciation of the ASSET Bulletin

Do you agree with the editorial layout chosen for the Bulletin?

33 risposte



If not, please add spare comments.

0 risposte

Ancora nessuna risposta a questa domanda.

Figure 3. Response rate – second question for evaluating appreciation of the ASSET Bulletin



The last two questions (n.3 and 4) ask respondents eventual suggestions for further improvement (Figure 4).

In line with the objectives of the Bulletin, how could it be further improved?

7 risposte

a short record of the performance of ASSET where it was implemented, even if it was a small outbreak, and what was the outcome.

As I know there are different approaches for modeling past (and of course coming) epidemics and pandemics. I think it would be interesting for readers of your bulletin to compare information that can be got with the help of these different approaches.

It is not my field but I do find your e-mails interesting

The Bulletin is great but maybe it would be nice to have some information about updated guidelines in different subjects regarding pandemic.

More case-studies, outcomes specific to countries (as examples, best practice)

I have no comments or suggestion about it

Should discuss about measles outbreak in Romania and its extension to Europe.

Thanks for your feedback! Please, use the space below for additional suggestions or eventual recommendations.

2 risposte

Congratulation! It is a great initiative. Not easy, but necessary to be applied in a very short time all around the world
Herdea Valeria
President of the Romanian Association for Pediatric Education in Family Medicine (AREPMF)
Romania, Bucharest

Keep in touch primary care providers (Family doctors) all over Europe.

Figure 4. Answers to open questions for evaluating appreciation of the ASSET Bulletin

As shown in the figure 4, four positive feedbacks (*interesting; great; no comments or suggestion; Congratulations!*) as well as six practical suggestions are retrieved.

Given that the Bulletin itself cannot offer all answers standing alone, the action implementation according to each suggestion collected is reported in the table that follow (Table 1).

**Table 1. Action implementation of suggestions collected**

Suggestion	Action implementation in ASSET
1. a short record of the performance of ASSET where it was implemented, even if it was a small outbreak, and what was the outcome.	Insights like this are encompassed in the results of the eight citizen consultations developed in just as many countries (WP4; T4.1-4.3)
2. [...] different approaches for modeling past (and of course coming) epidemics and pandemics [...] to compare information that can be got with the help of these different approaches.	Models to study epi- and pan-demic curves are presented and analysed in several tasks and activities: on unsolved questions (T2.2, T3.2, T5.2) as well as in the associated learning unit within the Summer School program (three editions; T7.6) or in the related session at the Final Conference (T7.13)
3. [...] some information about updated guidelines in different subjects regarding pandemic.	It has been encompassed in the Bulletin as well but mostly through the articles and updates on the website (T7.3)
4. More case-studies, outcomes specific to countries (as examples, best practice).	A best practice portal is explicitly dedicated (T5.2)
5. Should discuss about measles outbreak in Romania and its extension to Europe.	Meales outbreak has been one of the most covered topic in ASSET, in the Bulletin as well but mostly through the articles and updates on the website (T7.3). It relates not only to high incidence rates but also to the vaccination hesitancy occurring in Europe
6. Keep in touch primary care providers (Family doctors) all over Europe.	It is a very good point that ASSET has – hopefully– addressed over the years, mainly through its Summer School (three editions; T7.6) and the Best Practice Award for General Practitioners (T7.7)

With concern to the fifth suggestion reported at the Table 1 and the fourth qualitative comment highlighted at the Figure 4, a high level involvement of health care workers and scientific community can be observed in Romania.

This element occurred because of the support provided by the ASSET Partner UMFC, in the reference person of Mircea I. Popa, at country level.

An example of such this advocacy developed is the dissemination on a Romanian scientific journal (Figure 5).



SEMNAL

Comunicare mai bună în pandemii

La nivel internațional, se pot face eforturi mai mari pentru a preveni o amenințare pandemică viitoare. Ultimele epidemii globale: cea de gripă H1N1 din 2009, urmata de Ebola și, cel mai recent, de Zika, au evidențiat lipsuri majore în ceea ce privește pregătirea și prevenirea epidemiilor. Insa în situația în care o nouă pandemie se declanșează, este nevoie în primul rând de o mai bună colaborare internațională pentru a limita răspândirea ei. Acestea sunt concluziile principale ale noii rubrici de tip semnal din numărul 5/februarie 2017, al *Buletinului ASSET (Action plan on Science in Society related issues in Epidemics and Total pandemics)*.

Majoritatea articolelor se concentrează în jurul tematicii managementului participativ al situațiilor de criză. Este știut faptul că, în cazul unei epidemii sau pandemii, zvonurile și informațiile obținute din surse paralele pot împiedica sau stânjeni diseminarea informațiilor din surse oficiale. Cercetările au indicat că zvonurile se răspândesc în special în situațiile în care există o asimetrie de putere – când informațiile din surse oficiale

sunt contestate. Se oferă exemplul miturilor și zvonurilor legate de siguranța vaccinării, care au contribuit la scăderea dramatică a ratei imunizării în unele zone. Practicile de management participativ al situațiilor de criză pot fi răspunsul la problema zvonurilor și a diseminării informațiilor false. (M. G.)

Două decenii de chirurgie laparoscopică

Prima intervenție chirurgicală laparoscopică în România a avut loc în anul 1957, la Brăila, arată dr. Mihaela Leșe în articolul pe care îl semnează în numărul din martie al revistei *Maramureșul Medical*. Potrivit autorului, care expune experiența de 20 de ani în chirurgia laparoscopică a chirurgilor de la Spitalul Județean de Urgență „Dr. Constantin Opreș” din Baia Mare (1997–2017), primele colecistectomii laparoscopice au fost efectuate la Constanța (1991), Cluj-Napoca (1992) și București (1993). Această acumulare de experiență a permis medicilor ca în prezent să poată aborda laparoscopic o gamă largă de patologii.



Infecția cu West Nile, o zoonoză din ce în ce mai frecventă, are un tablou clinic reprezentat de apariția unei meningo-encefalite, transmiterea ei realizându-se prin intermediul țânțarului Culex. Virusul are afinitate crescută pentru celula nervoasă. Dr. Ecaterina Pop spune, în articolul pe care îl semnează în acest număr al revistei, că în unele cazuri virusul poate să nu afecteze sistemul nervos central, situații în care simptomatologia este mult estompată, bolnavul prezentând o stare febrilă nespecifică.

În același număr, alte subiecte abordate sunt: importanța consimțământului bolnavului în cadrul actului medical, un studiu cu privire la factorii de risc psihosociali prezenți la angajații ocoalelor silvice din cadrul Direcției Silvice Maramureș, o statistică despre personalul medical din România și o secțiune despre istoria medicinii. (Dr. R. D.)

Sindromul de burnout la medici

Tot mai mulți medici, de pe toate meridianele și din toate nivelurile de asistență medicală, se plâng de lipsa satisfacțiilor profesionale și de lipsa împlinirii scopului visat atunci când și-au ales profesia de medic sau specializarea. Acest dezechilibru între energia și devotamentul investit în profesie și satisfacția personală – morală sau pecuniară –, obținută



grijirilor n *Buletinul* numărul 7 Bela Trif (sau public identifican metodă ef lui de bun buni sunt iar participi avea întot ferind am la distanț fesională. (

Be hid

Persoai pahare de : tiv mai mic coronarian

Figure 5. Dissemination of the ASSET PPRB on a Romanian scientific journal

3.2 SUBSCRIBING ON THE ASSET WEBSITE

As specified in the project DoW (T7.3, point 15; page 30 of 48), the electronic policy bulletins are also included among tools available on the ASSET [website](http://www.asset-scienceinsociety.eu) (Figure 6).

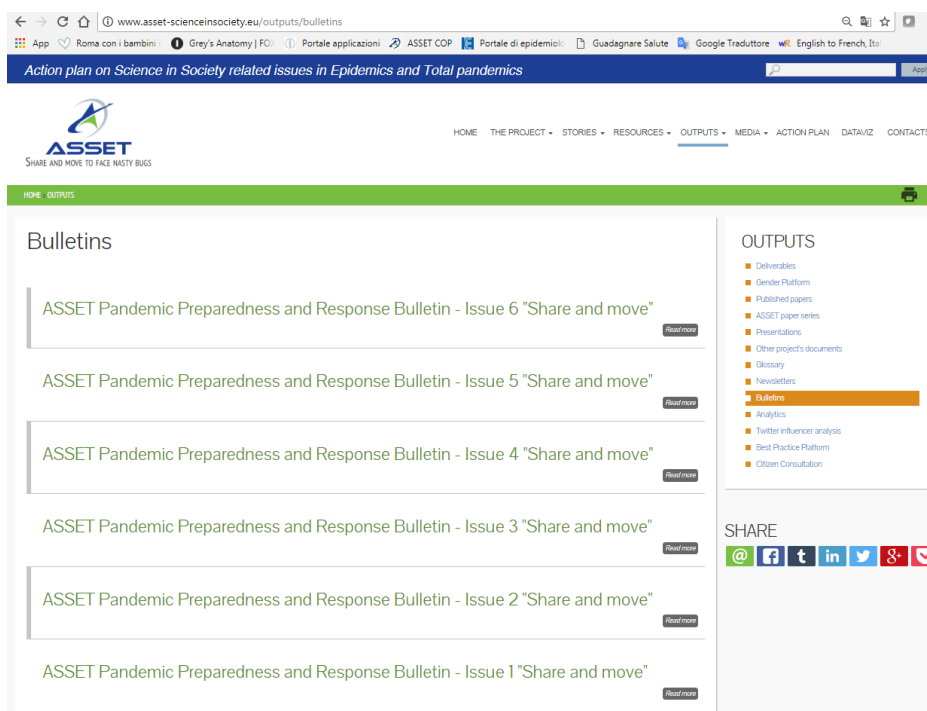


Figure 6. The ASSET webpage where the electronic PPRBs are stored



As described at paragraph 3, beside receiving the ASSET PPRB by email, it is possible to subscribe directly on the website so that each issued Bulletin will be automatically received by registered users in their own personal mailbox.

Even if this specific dissemination mode is very sensitive to the website visibility (an increasing number of subscribers is expected as the total of visits improves), it is probable that the best way to circulate the Bulletin is by mailing list because the website is very crowded of contents in several formats, and pages hosting articles or videos are mostly visited.

The bottom banner available on the ASSET homepage where users can subscribe for the ASSET Bulletin is reported at the figure 7 here below.

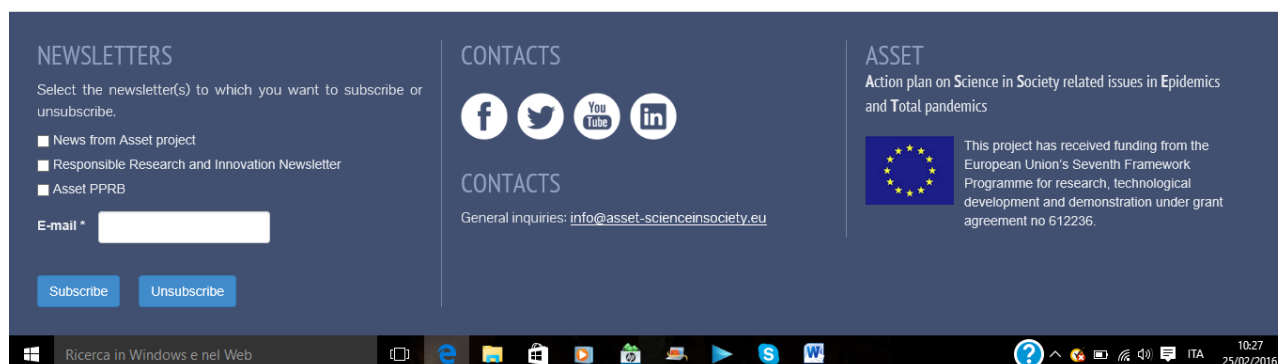


Figure 7. The box on the ASSET webpage where users can subscribe for receiving the electronic PPRBs

PART II: THE THREE ASSET PPRBs PUBLISHED IN THE TIMEFRAME 37-48M

As specifically required at page 28 of 48 of the ASSET DoW, the present deliverable includes the three ASSET Pandemic Preparedness and Response Bulletins, *Share and move*, which have been effectively delivered from month 37 to month 48 (issues from 5 to 7).



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ANNEX I – The fifth ASSET-PPRB Issue



Pandemic Preparedness and Response Bulletin

Issue 5, February 2017



co-funded by the EU. GA: 612236



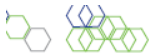
Action plan on Science in Society related issues in Epidemics and Total pandemics



Highlighting strategic priorities and policy-related initiatives on Pandemic Preparedness and Response, the "Share and Move" ASSET Bulletin intends to be essential to a wide-ranged target: competent institutional actors and public health authorities, decision-makers, even on social networks.

INDEX

Editorial	p 4
'Bridge' column in this issue: Pandemic Preparedness and Response	p 5
Pandemic Preparedness and Response	p7
Emergency Preparedness and Response	p 9
Public Health Initiatives	p 12
Social networks	p 14
On the web	p 16
From the ASSET world	p 17
In a Snapshot	p 18



Editorial

TRADITION AND INNOVATION IN THE FIFTH ASSET PANDEMIC PREPAREDNESS AND RESPONSE BULLETIN

What about the crisis participatory governance

Combining multidisciplinary expertise, the European cooperative program ASSET aims to address effectively both scientific and societal challenges raised by public health emergencies of international concern, like pandemics. To foster public engagement and a sustained two-way dialogue between science and civil society, in 2011 the European Commission defined the appropriate framework sustained by six Science in Society (SIS) pillars: engagement, gender pattern, vulnerability and intentionally caused outbreaks, ethical, legal, and societal implications, gender pattern, vulnerability and intentionally caused outbreaks.

The editorial line of the ASSET Pandemic Preparedness and Response Bulletin, share and move, has been accordingly focusing each issue on one of the ASSET specific topics: governance of pandemics and epidemics, uninvolved scientific questions, intentionally caused outbreaks, crisis participatory governance, ethical, legal, and societal implications, gender pattern, vulnerability and intentionally caused outbreaks.

After the second 'Share and move' focused on governance of pandemics and epidemics, the third Bulletin concentrated on uninvolved scientific questions and the fourth issue associated to intentionally caused outbreaks, the present number deals with crisis participatory governance.

Participatory governance consists of state sanctioned institutional processes that allow citizens to exercise voice and vote, which then results in the implementation of public policies that produce some sort of changes in citizens' lives. In the ASSET frame, this concept has been exploited throughout different steps: firstly, models and experiences of participatory governance in crisis management were collected and analysed at various levels, from local and national to international; then, a great work of citizen consultation has been carried out in eight different countries; the conclusions and discussion of results will be presented in the forthcoming Policy Report and associated Policy Seminar that will be held at the European Parliament in April 2016. Thus, the fifth 'Share and move' issue highlights participatory governance patterns in the field of preparedness and response, as well as how relevant information is shared on the web and by the most used social media.

Furthermore, beside the participatory governance that in the ASSET Strategy Plan is associated to science education, other concepts are here included such as 'minimised of things', 'big data' and 'digital epidemiology'. These terms, in fact, are strictly linked to the mechanism of data availability according a free sharing by people on the web. Then, a logical connection that follows is about public participation in light of a perspective leading to the continuously learning health system, as Harald Krumholz theorised in his contribution on JAMA 2016.

In this way, we hope readers would appreciate the thematic links among different strategic lines which have been adopted in the ASSET project overall, as well as in its plan and in the issues of the Pandemic Preparedness and Response Bulletin, share and move which have been either published or planned. The fifth edition introduces even a more interesting aspect: beside exploiting a specific matter, as it has been done since the second issue, the present bulletin acts as a bridge between the uninvolved scientific questions and open access to scientific outcomes which were covered in the third publication and ethical reflection that is programmed to be dealt in the next share and move.

Lastly, as a 'bridge on the bridge', we start with a special column, that has been not run before: a section including either pandemic or emergency (even called 'pandemic') preparedness and response.

'Bridge' column in this issue: Pandemic & Emergency Preparedness and Response

As stated in the last sentence of the Editorial, we propose here a bridge column including either pandemic or emergency preparedness and response. The two contributions are recently appeared: the first is a perspective by 'The Lancet' on pandemics and the second comment comes from 'The Economist' dealing with the anticipation of epidemics.



The Editorial in the *Lancet*, 386, Issue 10063, 17 December 2016-6 January 2017, of 'The Lancet' is entitled 'Preventing pandemics'. It takes off by the conclusion of an investigation into WHO's response to the 2009 H1N1 pandemic that is: 'the world is ill prepared to respond to a severe influenza pandemic or to any similarly global, sustained and threatening public-health emergency'. Then, the Ebola and the Zika virus epidemics highlighted such this unpreparedness showing that, unfortunately, lessons still need to be learned. The article explains that not all are transmissible between humans and reports results coming out from a *Lancet* published in *Emerging Infectious Diseases* on Dec. 7.

'Mark Woolhouse and colleagues used virus genome sequencing and mathematical modelling to identify 37 viruses that have already shown some ability to spread between people but have not yet been the cause of an epidemic. Of greatest concern, the researchers suggest, are Middle East respiratory syndrome coronavirus (MERS-CoV), Bundibugyo Ebola and Sudan Ebola viruses, and several mosquito-borne viruses. Woolhouse and colleagues' shortlist of viruses to watch has also included chikungunya, Zika, and Ebola in recent years, showing the potential of this approach. Although identification of viruses with human transmissibility adds to knowledge of which types

of viruses and which circumstances are most likely to cause a pandemic, several emerging pathogens had not previously been seen in humans at all—severe acute respiratory syndrome, for example.

More can be done to predict the next pandemic threat, but when new outbreaks do occur, there remains a need for a better international response. Promisingly, WHO has launched the R&D Blueprint, which aims for rapid activation of research and development activities during epidemics. To be maximally effective, this strategy will need to work within low resource settings, which will require substantial investment and an understanding of the culture of the setting in which it will be implemented. [...] the first line of defence against emerging viruses is effective surveillance. But the international community must be prepared to take rapid and effective action if surveillance is to have value—the question remains, have the recent lessons of the Ebola and Zika viruses been learned?

A yellow fever epidemic: a new global health emergency? This is the main concern expressed in the *perspective* published on JAMA in June 2016. It ends with the conclusion that the UN's high-level panel on the global health crises called Ebola a preventable tragedy, and if the ongoing pandemics of Zika-caused neurological syndromes or yellow fever eventually lead to catastrophic consequences, then where the WHO does not successfully reform, the next major pandemic will cause thousands of otherwise preventable deaths. This may be the last opportunity to ensure that the WHO is empowered to build an effective emergency preparedness and response capacity with the necessary political leadership. Another failure to perform may necessitate consideration of alternate UN institutional response mechanisms.

Putting shots in the locker: How to anticipate epidemics is an article appeared in the Science and technology section of the Economist print edition in September 2016. It does start with an amendment and then a question: 'FORWARDED, the proverb has it, is forearmed. But

what happens when there is no warning?

The outstanding case is the outbreak of Ebola haemorrhagic fever that began in Guinea in December 2013 and, spreading rapidly to Liberia and Sierra Leone, raged on for over a year, ending with around 29,000 people infected and more than 11,000 of them dead. Even if the world



responded to that crisis, it missed the thing that would most quickly have stopped the epidemic: a vaccine. Such a vaccine was created eventually, but by the time it was ready, the outbreak was all but over. Had it been available from the beginning, things could have been different.

Next time, though, they might be, for on August 31st a new organisation came into being: CEPI, the Coalition for Epidemic Preparedness Innovations, was founded in London with the purpose to forearm the world against future outbreaks of disease, without foreknowledge of what those outbreaks will be. Part of the inspiration for CEPI's creation was how close the project to deliver an Ebola vaccine in time came to success.

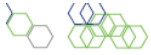
CEPI's plan is to build up a bank of candidate vaccines for as many as possible of the viral diseases that lurk menacingly on the edges of human society, but in which there is insufficient commercial interest for pharmaceutical firms to do the development work. These include Lassa fever, Marburg fever, MERS, SARS, Nipah and Rift Valley fever, but not dengue or influenza. Those two are already well served by drug-company researchers—as is Zika virus, for which a vaccine may be ready for testing in the field next year.

The aim is 'not to guess exactly which illness will become epidemic next, as this is a difficult thing to do, but CEPI will work through the list in a systematic way. Scientifically, this means identifying

several possible vaccines for each disease, putting these through animal trials, and then carrying out small safety trials on human beings. Those candidates deemed safe will be stored for a future outbreak. This approach maximises the saving of time while minimising cost. If a disease for which there are candidate vaccines does become threatening, larger and more expensive human-efficacy trials can be organised quickly in response. If not, no money is wasted doing so.

The main idea is about organising efficacy trials quickly though so that CEPI may even invest in its own surge capacity for the manufacturing of vaccines, rather than forcing drug companies to divert resources from existing vaccine production (with potential consequences for public health). That is full of thorny issues, not least legal risks because of an amount of mistakes and thus law suits.

In CEPI it is argued that 'paying to prepare for future epidemics is like buying a form of global health insurance' but, differently, it is not a premium to be paid for ever. The list of targets will grow as time goes by but it is not infinite. Should the world wish to address the top 20 threats over the course of the next decade the total cost would be estimated at \$1 billion-2 billion. The next stage is to start raising that money and the organisation is striving to succeed, that is making the threat from epidemic viruses diminish year by year thereafter.



for crisis in general, and also relating to epidemics and pandemics. The study focused on examining aspects of governance at the local, national and international levels for crisis in general, and relates to infectious disease crisis such as epidemics and pandemics. Crisis participatory governance is discussed in different contexts such as the South Sudan Secession Crisis, the recent Ebola epidemic, the 2009 H1N1 pandemic, and 2015 H1N1 outbreak in India.

The Crisis Participatory Governance concept has been dissected into four overlapping phases of Resilience and Sustainability, Pre-Crisis, Crisis, and Post-Crisis. For each phase, both different crisis participatory governance challenges and associated tools and models and experiences in the context of recent epidemics and pandemics have been addressed as well.

Findings reveal the importance of flexibility in adapting participatory governance activities to different epidemics and to the targeted community. For crisis during the 2009 H1N1 pandemic, standardized public communications, while factual and useful in some contexts, failed to adequately create understanding of lethality and spread in some areas. A lack of trust in authorities led to rumours, hindering vaccination programs and other health care initiatives.

A good tool to use is definitively the model that can guide Crisis Participatory Governance within the four phases of epidemics and pandemics. However, it is shown how the crucial factor to be put in action is the adaptation of plans to local conditions through continuous feedback, engaging the public on a day-to-day basis.

About people engagement This may seem like a world of huge organisations and institutions to



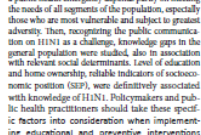
which individual people have no part to play. But in fact, individuals play many important roles. For

one thing, the first two groups to be involved in an outbreak are actually the victims themselves and the medical personnel who treat them. How victims are connected to each other in social networks. Who they contact and who well they are contagious. And whether they seek medical treatment, all affect how a disease has the opportunity to spread. Then, whether medical personnel recognize the nature of the disease, what treatments they provide, whether they take precautions like wearing gloves or masks. And whether they report the disease to public health authorities. All these things matter as well.



In addition, individuals and the grassroots organisations they create have had fundamental impacts on our long-term strategies for combating infectious diseases. As an example in the field, it is noteworthy that in the 1980s and 1990s, the organisation ACT UP reshaped the US government's approach to HIV funding, research, drug approval, and treatment through political protest. And these changes have resonated permanently through the system as a whole.

Specifically on pandemic occurrence, Savata et al reported a study on BMC Public Health in 2012 that explained how the strength of a society's response to public health emergency depends partly on meeting the needs of all segments of the population, especially those who are most vulnerable and subject to greatest adversity. Then, recognizing the public communication on H1N1 as a challenge, knowledge gaps in the general population were studied, also in association with relevant social determinants. Level of education and home ownership, reliable indicators of socioeconomic position (SEP), were definitively associated with knowledge of H1N1. Policymakers and public health practitioners should take these specific factors into consideration when implementing educational and preventive interventions.



ed pairing down complex concepts and theories into simple rules that are continually introduced and reinforced to the company's leadership. After years of effort, employees from the well head to the corporate boardroom are aligned and aware of everyone's roles when an incident occurs. In short, because each person can count on the others, the company quickly adapts and overcomes

Ten experiences of resilience around the world

In dealing with 'crisis participatory governance' resilience has been highlighted to be the crucial element. Thus, we propose here a global shot of ten practices on resilience all over the world: it is about scientific papers, operational reports, guidelines or helpful materials [they have been



numbered in the map since the more recent initiatives).

1. Designing and implementing an interdependent resilience [culture](#) Once an emergency occurs, companies find themselves competing for diminishing resources. Companies mire in confusion and debate often fail to obtain the resources necessary for a speedy recovery and fail to meet the expectations of their various interested parties. Unfortunately, it is during these emergencies that the firm is judged. Unfavourable evaluations of a company by customers, the government and/or the general public result in lost future revenue through contracts that are either not renewed or cancelled, as well as disqualification from tenders and lost bids. This paper discusses how an oil field services company implemented an interdependent resilience culture. Development of this culture included

ed pairing down complex concepts and theories into simple rules that are continually introduced and reinforced to the company's leadership. After years of effort, employees from the well head to the corporate boardroom are aligned and aware of everyone's roles when an incident occurs. In short, because each person can count on the others, the company quickly adapts and overcomes



2. African Drought [Conference 2016](#) Drought Risk Management and Enhancing Resilience in Africa Country Club and Resort, Windhoek, Namibia August, 15-19 2016
3. 2016 National Hurricane [conference](#) Orlando March 21-24, 2016 & inaugural Security Summit March 25, 2016

promoting the health and preparedness of the population, and when designing communication campaigns during a public health emergency.

A step beyond Good governance is the backbone for equitable and sustained development in our global community. Effective participation by all people has come to be viewed as a necessary requirement for promoting good governance. Participatory governance means including citizens in decision making that has implications for their wellbeing, and transparency in the decision making and implementation processes. This is particularly important during the time of crisis, as people become the centre of both providing aid and receiving it.

EMERGENCY PREPAREDNESS AND RESPONSE

Examples of participatory governance experiences in crisis management

In the present column four case studies are reported in matter of participatory governance associated to relevant public health emergencies and their related management.

Manfredonia, Italy; 1976 An Italian study, 'Environmental epidemiology and population engagement', the Manfredonia environment and health project reports an outstanding case of epidemiological research associated to public engagement. On the 26th of September 1976 an accident in a petrochemical plant in Manfredonia (Province of Foggia, Apulia Region, Southern Italy) resulted in a release of several tons of arsenic compounds. A population of about 57,000 inhabitants was exposed. The accident followed by two months that of Seveso and both contributed to the European Directive on major accident hazards. Several other accidents occurred since that date and the plant was closed in 1994.

The quoted paper describes the scientific ap-

proach used to design an epidemiological investigation in the face of lack of trust and outrage by the exposed population. An innovative approach was followed, grounded in the insights of Post-normal Science. A formal infrastructure was built to allow population engagement, the epidemiological questions, the data gathering and the methodology were openly discussed with all interested parties. So were the potential scenarios resulting for the study and their implications in terms of public health actions. All phases were documented in the official journal of the Italian Epidemiological Association (i.e. 'Epidemiologia and Prevenzione'). Seven public events took place in the first year of the study. Public engagement grew and a local Citizens Committee were in charge. The conflicts were not resolved but they were at least more clearly stated. After initial scepticism, the epidemiological investigation received a broad consensus.

Epidemiology is not neutral and many dynamics underwent engagements' efforts in the Manfredonia project. The choice of adopting a participatory approach to both innovative and challenging. All participants accepted to be part of an 'extended peer community' where outcomes, methods, procedures, inputs, data, and results have been collectively discussed. The process ran can be defined permanently 'under construction', resulting in a continuous learning.

Haiti, Nepal 2010 After the earthquake that struck down Nepal in October 2010, cholera appeared in Haiti for the first time in recorded history. Within the article 'Nepalese origin of cholera epidemic in Haiti', it is reported that the causative agent was quickly identified by the Haitian National Public Health Laboratory and the United States Centers for Disease Control and Prevention as Vibrio cholerae serogroup O1, serotype Ogawa, biotype El Tor. Since then, >5000 government-acknowledged cholera cases and >7000 deaths have occurred, the largest cholera epidemic in the world, with the real death toll probably much higher.

Questions of origin have been widely debated with some attributing the onset of the epidemic to climatic factors and others to human transmission. None of the evidence on origin supports climatic factors. Instead, recent epidemiological and molecular genetic evidence point to the United Nations peacekeeping troops from Nepal as the source of cholera to Haiti, following their troop rotation in early October 2010. Such findings have important policy implications for shaping future international relief efforts.



about the contamination that occurred on January 9th 2014, when a faulty storage tank leaked 10,000 gal of an industrial cool processing liquid into the Elk River in West Virginia (WV), polluting the drinking water of the nine counties collectively known as the Kanawha Valley.

findings from this study show that, during the 2014 West Virginia water crisis, information about water contamination spread quickly as 72% of survey respondents across the state and 89% within the affected counties reported they heard about the incident the same day it occurred. Prompt information was released mostly people understood both what happened and how to behave in order to prevent exposure to the contaminant. Most people received the information from local television news (73%) social media users had 13% increase odds of knowing about the recommended behaviours. The majority of respondents living in affected counties followed the recommended behaviours and it was shown that people who had a favourable opinion of the source of information demonstrated better knowledge of recommended behaviours.

Data from this study highlight the association between a higher perception of risk and timely receipt of information with compliance with recommended behaviours, underlying the importance of releasing information to the public as quickly as possible during a crisis. This study also outlines the importance of coordinating risk communication activities beyond the area of the incident to assure public understanding of what measures are recommended, which are not and where. Additionally, the use of local television news during a crisis revealed to be important for timely dissemination of information and information exposure across segments of the population differed according to population's background characteristics.



critical, but getting these many children tested in such a short time represented a huge challenge. To help get people tested quickly, the Genesee County Health Department has set up several sites throughout the city where people could go to get their blood lead levels checked.

During spring 2016, while appointments from the Genesee County Health Department soared the site at Cottage Towers Ministries and blood testing was constantly supported, a broad engagement of public health networks was observed going on the social networks through #ElkRiverWaterCrisis.

4. 6th Annual Conference of the International Society for Integrated Disaster Risk Management, THAC-IRIM 2015; New Delhi, October 28-30, 2015. Technology Innovation, Forecasting and Assessment Council (THAC) is an autonomous organization set up in 1988 under the Department of Science & Technology, Government of India to look ahead technologies, assess the technology trajectories to address the prerogatives that an Indian must identify as citizens of a developed economy by 2035. It also identifies 10 grand challenges the country must confront to develop technological muscles and move up in its socio-economic indices. The vision would be presented as a document backed-up by 12 technological roadmaps.

5. ASPR Strategic [Plan 2014](#) The Department of Health and Human Services (HHS) Office of the Assistant Secretary for Preparedness and Response (ASPR) is a leader in preparing the nation and its communities to respond to and recover from public health and medical disasters and emergencies. The 2008 Pandemic and All-Hazards Preparedness Act (PAHPA), reaffirmed by the 2013 Pandemic and All-Hazards Preparedness Reauthorization Act (PAHPRA), established the ASPR as the principal adviser to the HHS Secretary responsible for providing integrated policy coordination and strategic direction with respect to all matters related to public health, medical preparedness, and deployment of the federal response for public health emergencies and incidents.

6. [EPWIG Strategic Plan 2013-2016](#) The 5th APEC Emergency Preparedness Working Group Meeting EPWIG was held in Medan, Indonesia, on 2-3 July, 2013. Co-Chairs were Ph.D. Li Wei-Sen (Chinese Taipei) and Dr. Nguyen Hieu Phuc (Viet Nam). The two days meeting was attended by 15 of the 21 APEC member economies. Members welcomed invited participants from: Ministry of Health

Indonesia; APEC-TATF team; APEC-NTF Consumer Representative of Samoa; Russia; APEC Climate Center (APCC), and from World Bank -Indonesia. The 5th EPWIG Meeting followed the APEC Workshop on Applying Geospatial Hazard and Risk Information, led by the United States on 30 June 1 July, in Medan, Indonesia.

7. Australian [Strategy](#) for Disaster Resilience: building nation's resilience to disasters and implementation [review](#) The starting consideration is that each year, Australia communities face devastating losses caused by disasters. Businesses, foods, storms, other hazards and their associated consequences have significant impacts on communities, the economy, infrastructure and the environment. Then, over the past decade, governments have collaborated on reforming and further strengthening disaster management approaches.

8. Wellington Region Emergency [Management and its recent culture](#). The basic concept is as follows: 'resilient communities are well prepared and have high levels of social capital to address the challenges of an emergency event'. The purpose of this Community Resilience Strategy is to define the philosophy and framework for community engagement, to develop a strategic set of objectives to enhance resilience build capacity, increase connectedness and foster cooperation; and outline the guiding principles and tools that enable to operationalize the abstract concept of resilience.

9. Australian community engagement [frame](#). [link](#). The declared aim is to 'facilitate the development of approaches that foster community involvement and participation in achieving the goal of community safety'. Additionally, their vision is for 'resilient Western Australian communities that work together to build capacity and capability to prevent, prepare for, respond to and recover from emergencies.'

10. Collaborative emergency [management](#): better community organising, better public preparedness and response Community coordination requires communication and planning of precautions to take when faced with a

severe threat of disaster. The unique case of the four Florida hurricanes of 2004 - Charley, Frances, Ivan, and Jeanne - is used here to assess community responses to repeated disasters. The US Department of Health and Human Services Office of the Assistant Secretary for Preparedness and Response (ASPR) worked closely with CMS in the development of the rule that was published on 16th of September 2016. This rule applies to 17 provider and supplier types as a condition of participation for CMS. The providers/suppliers are required to meet four core elements (with specific requirements adjusted based on the individual characteristics of each provider and supplier):

1. Emergency plan - Develop an emergency plan based on a risk assessment and using an "all-hazards" approach, which will provide an integrated system for emergency planning that focuses on capacities and capabilities.

2. Policies and procedures - Develop and implement policies and procedures based on the emergency plan and risk assessment that are reviewed and updated at least annually. For hospitals, Critical Access Hospitals (CAHs), and Long-Term Care (LTC) facilities, the policies and procedures must address the provision of substance needs, such as food, water, and medical supplies, for staff and residents, whether they evacuate or shelter in place.

3. Communication plan - Develop and maintain an emergency preparedness communication plan that complies with federal, state and local laws. Patient care must be coordinated within the facility, across healthcare providers, and with state and local public health departments and emergency management systems to protect patient health and safety in the event of a disaster.

4. Training and testing program - Develop and maintain training and testing programs, including initial training in policies and procedures. Facility staff will have to demonstrate knowledge of emergency procedures and provide training at least annually. Facilities must conduct drills and exercises to test the emergency plan or participate in an actual incident that tests the plan.

PUBLIC HEALTH INITIATIVES

A step forward on vaccination policy in Italy

On 19 January 2017, the Italian State-Regions Conference approved also the new National Vaccination Prevention Plan 2017-2019 (PNVP), that is encompassed among the Essential Healthcare Levels. The newly offered vaccination supply represents a valid policy instrument in order to reduce inequality in the country and to improve health status of the population.

The key aspect of this National Plan is a reference calendar that has been shared with Regions both from the technical and the political point of view and aims at providing all citizens with vaccination benefits, guaranteeing equal access to high quality vaccines which are available over the time.

CMS Emergency Preparedness Rule: Resources of Your Fingertips
The US Centers for Medicare & Medicaid Services (CMS) issued the Emergency Preparedness Requirements for Medicare and Medicaid Participating Providers and Suppliers Final Rule to establish consistent emergency preparedness re-



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other threats, involving the public is a key feature of the portal, either by social media profiles or by constant information and news updating. An outstanding example is about the fervid activity

ON THE WEB The 2017 National Seasonal Preparedness Messaging Calendar provides US readers (who are citizens, by publics or whoever) with key messages to promote preparedness all over the year.



16

In terms of general preparedness...

- Make a family emergency communication plan and include your pets.
Identify an out of town emergency contact to coordinate information with family/friends.
Check on neighbours.
Keep an emergency kit wherever you spend time: home, car, work etc.
Download the FEMA App and set up local alerts.
Listen to local officials by radio, TV, or social media and take action.
Practice your preparedness plans with a drill or exercise.
Take a first aid class so you can help until first responders arrive.

Table with 4 columns: Winter, Spring, Summer, Fall. Each column lists seasonal preparedness tips and links to resources.

FROM THE ASSET WORLD

Within the work on Citizen consultation, a long propagandistic work has been run in ASSET since the fall 2015. The real action of public consultation was carried out on September 2016, 24th. More than 500 citizens living in eight countries were consulted on relevant issues related to global public health emergencies. Results coming from this exercise will be also considered in debriefing local initiatives in 12 cities, that are encompassed within the work on mobilization and mutual learning.

In terms of Policy watch, after a feedback on the ASSET public consultations that will be given at the European Parliament in Brussels on 26th April 2017, participatory governance will be one of the 'hot topics' to be dealt at the third physical meeting of the ASSET High Level Policy Forum that will be held in Brussels on April 2017, 24th. The issue on participatory governance is put down in the key question 'Can citizens be included in epidemic preparedness and response?' The answer is yes, furthermore they demand to participate actively.

More than 400 citizens were consulted on epidemic preparedness and response in late September across Europe. The citizens expressed a demand for more transparency and dialogue in both epidemic response and planning, while at the same time they provided policy-makers with thought-provoking insights with the other, on the interest being the least trustworthy source of information yet the first source citizens consult.

Some of the thought-provoking results from the pan-European citizen consultation included vaccination and information channels. While half of the citizens found mandatory vaccination as an appropriate tool for public health authorities during epidemic threats, more than eight-of-ten answered that it should be mandatory for health care workers. This discrepancy is very interesting, and we will in the upcoming policy-workshop go more into detail. As mentioned in the last paragraph, an insight that policy-makers cannot overlook is that the citizen deems the internet as the least trusted information channel, and yet it is the one they consult first. Research has showed that even if this insight, information read online has a subconscious effect on decision-making.

QUESTIONS FOR THE ASSET HIGH LEVEL POLICY FORUM:

- 1. Where will a similar process be relevant in European public health policies?
2. What is the most relevant input from citizens to policy-makers?
3. What is the most interesting finding?

Method

The Danish Board of Technology (DBT) was asked to develop and test a participatory and inclusive method for engaging citizens. The method should convince the EU that citizen participation can be done within a field normally dominated by technical experts. In fact, epidemic response and planning has clear normative components, involving obvious conflicts and dilemmas, combined with a well-documented scientific knowledge base, and a need for political action in the crisis situation and fulfilling all conditions for citizen participation. It was decided to develop a multi-site method, where the citizens received the same information prior and during the consultations at the same time across Europe. Their votes were reported in-real-time into a web tool, where all the results can be seen and analysed.



Increasingly strong, can health experts best exert influence to contain the global spread of infectious diseases? They confirm that digital media sites provide an important source of health information, but also highlight how powerful these platforms are for the public to air personal experiences and concerns. The two authors then explore the different organisational strategies for effectively communicating public health information to fight of a common understanding, basing on an assessment of the complex dynamics at play in managing risk and informing decision-making processes.

At this stage, it is noteworthy that it is not just a shift in the scientific modus operandi paradigm (from deductive to inductive) but, quoting an [interview](#) released by Harlan Krumholz to the New England Journal of Medicine, the real guarantee starts in the participation of people who generate such data and the mutual sharing of them to foster the best benefits to the whole community. According to this idea, everyone should see, understand and use data. A better accountability is also retrievable in the US Health H Strategic Plan 2015-2020, but the issue opens a list of ethical questions. They will be many developed in the sixth ASSET Pandemic Preparedness and Response Bulletin. Share and move.

20



Disclaimer

The ASSET project was designed to accomplish a European Commission Call (DG Research and Innovation - HEALTH) for developing a Mobilization and Mutual Learning Action Plan in response to epidemics and pandemics with regard to Science in Society related issues. The European grant agreement ensures scientific and editorial freedom to the ASSET consortium partners. The views expressed in the ASSET Pandemic Preparedness and response Bulletin 'Share and move' are those of the authors and may not necessarily comply with European policy. Statements in the Bulletin are the responsibility of their authors and not author's institutions.

In case of conflict of interest, it is declared. Readers are advised to verify any information they choose to rely on. Suggestions and/or questions are welcomed at asset@scienceinsociety.eu

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21

Every second on the net...





ANNEX II – The sixth ASSET-PPRB Issue



Pandemic Preparedness and Response Bulletin
Issue 6, July 2017

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share and move

ASSET

Action plan on Science in Society related issues in Epidemic and Total pandemics

ASSET on social networks

"Share and Move" is the ASSET Bulletin that intends to highlight strategic priorities and policy-related initiatives on Pandemic Preparedness and Response, and to be essential to a wide-ranged target, from competent institutional actors and public health authorities to decision-makers and influencers, even on social networks.

INDEX

- Editorial
- Pandemic & Emergency Preparedness and Response
- Pandemic Preparedness and Response
- Public Health Initiatives
- Social networks
- On the web
- In a Snapshot!

Editorial

THE SIXTH SHARE AND MOVE PANDEMIC PREPAREDNESS AND RESPONSE BULLETIN DEALS WITH ETHICS ACCORDING TO AN ASSET PERSPECTIVE

The European cooperative program ASSET aims to address effectively both scientific and societal challenges raised by public health emergencies of international concern (PHEIC), i.e. pandemics, by combining multidisciplinary expertise. ASSET exists in the Science in Society (SIS) framework that was defined by the European Commission in 2001 to foster public engagement and a sustained two-way dialogue between science and civil society. SIS are the fundamental pillars: governance, open access, science education, public engagement, ethics and gender equity.

In line with these general SIS key issues for a Responsible Research and Innovation (RRI), the editorial line of the ASSET Pandemic Preparedness and Response Bulletin, Share and Move, has been set accordingly. Each issue is concentrated mainly on one specific topic: governance of pandemics and epidemics; unsolved scientific questions; intentionally caused outbreaks; crisis participatory governance; ethical, legal, and societal implications; gender pattern - vulnerability.

The second 'Share and Move' focused in fact on governance of pandemics and epidemics, the third Bulletin concentrated on unsolved scientific questions, the fourth issue was associated to intentionally caused outbreaks, the fifth number dealt with crisis participatory governance. Here we come to highlight how ethical issues impact on preparedness and response toward public health emergencies. But in doing this, a pure ASSET perspective is developed: in other words, in the present Share and Move the ritual section called 'From the ASSET world' is missing because it is the basic and transversal approach followed overall.

In this way, we hope our readers would appreciate the editorial approach that offers a common structure but at the same time innovative elements are also entered. As already done in the previous issue [1,5], beside exploring a specific matter, even 'involved scientific questions and open access to scientific outcomes' or brief ethical reflections were presented even if the former were covered in the third publishing and the latter were instead programmed to be presented in the current Share and Move. Furthermore, the bridging column that includes either pandemic or emergency (even called 'pandemic') preparedness and response is run again.



Pandemic & Emergency Preparedness and Response

VIEWPOINTS AND PERSPECTIVES OF THE ASSET HIGH LEVEL POLICY FORUM ON ETHICAL ISSUES RELATED TO EPIDEMIC AND PANDEMIC OCCURRENCES

As stated in the last sentence of the Editorial, a column including either pandemic or emergency preparedness and response is here proposed. Given the outcomes from the ASSET research in the context of policy watch that are recalled above, the main perspective from the High Level Policy Forum (HLPF) on ethical issues are here reported in addition to focusing on vaccination and vaccine hesitancy which are catalysing the attention at international level. The most attention paid by the third and last HLPF meeting in Brussels on 28th April 2017 was in fact on significant challenges in epidemic/pandemic preparedness and response, including communication and other matters as well as several ISG related aspects. The HLPF members were indeed asked which are the most relevant scenarios affecting public health crisis management in Europe, and two out of the three themes selected were ethical issues in pandemic preparedness planning and vaccination hesitancy. Both topics are introduced by a brief text for background and then answers to the questions posed to the HLPF members are reported.



Ethical issues in pandemic preparedness planning

As influenza pandemics are unpredictable but recurring events that can greatly impact human health and socio-economic life on a global level, the World Health Organization (WHO) recommends all countries prepare a pandemic influenza plan following its own guideline. The WHO guideline (2009 revision) highlights ethical principles such as equity, liberty, and solidarity, and states that any measure limiting individual rights and civil liberties (such as isolation and quarantine) must be necessary, reasonable, proportional, equitable, not discriminatory, and not in violation of national or international law. WHO also developed a framework of detailed ethical considerations to ensure that certain fundamental concerns (such as protecting human rights and the special needs of vulnerable and minority groups) are addressed in pandemic influenza planning and response. Experts from the ASSET project conducted a study to assess the extent to which ethical issues are addressed in the national pandemic plans developed by ten European Union/European Economic Area (EU/EEA) countries and by Switzerland, member of European Free Trade Association (EFTA). The study used a semantic analysis based on two keyword lists: a generic list of keywords representing areas of possible ethical issues; and a more specific list of keywords related to particular ethical issues actually addressed in each national pandemic plan.

The semantic analysis showed there was little concern for ethical aspects and a lack of discussion of ethical issues in most pandemic plans developed by European countries, except for Switzerland, United Kingdom, Czech Republic and France. In addition, the analysis revealed multiple areas within the different plans where ethical considerations were important, but not addressed. Despite the limits of this analysis, it may represent a useful tool to guide future drafters of pandemic plans. It aims to encourage debate on the necessity to update all national pandemic plans to include ethical and other ISG issues, such as gender and participatory gov-

5

ernance, which have proved to be of great relevance in case of epidemics and pandemics.

Perspective from HLPF

How have the following topics been addressed (or not addressed), in the pandemic plans associated with your nation or region?



a. Allocation of scarce resources, such as diagnostic laboratory testing, influenza vaccines, or antiviral drugs in Bulgaria and in Italy ethical issues are not directly addressed in the National Pandemic Plan, but at the country level the plan complies with European practice. In case resources are insufficient for all needs, their allocation is predetermined in the plan and this allocation should be done in a clear and transparent manner. Priority is given to essential public structures important for health and life, such as water supply, food supply, public services, and activities of healthcare facilities. In France, diagnostic tests have not been an issue in past pandemics because sufficient quantity of influenza vaccines and antiviral drugs were available. A priority list of people to be vaccinated was set-up. This included health care workers (HCW), essential services (army, firemen, etc.), elderly, people with underlying chronic diseases, and pregnant women. However, an order of priority within the list was not established.

In general, the national Ministries of Health are called mainly to act on pandemic planning at the country level, and other relevant stakeholders, such as universities and researchers, are not much involved. If policies across Europe are analysed, the allocation of scarce resources is not explicitly dealt with in quite a number of pandemic plans; this issue is left open to decisions made on a case by case, depending on an assessment of several elements such as the specific cause of the pandemic, the associated risk factors, and the consequent high-risk groups.

Not surprisingly, a number of plans mentions a priority to protect HCWs and essential staff, so that it is similar across the board. The allocation of scarce resources in most pandemic plans in across Europe is fairly general, identifying high risk groups that will be prioritized, such as people with pre-existing lung conditions in the case of influenza or asthma. These people would be prioritized for rapid diagnosis and for vaccines and antiviral drugs, but that would all depend on a risk assessment based upon initial epidemiological information, so it is quite flexible and quite open in most plans at the European level.

The plan approved by European Decision 606 in 2009 for the A/H1N1 virus outbreak is an illustrative example of the way the reaction is put in place in case of a pandemic threat (this plan is available on the European Centre for Disease Prevention and Control, ECDC, website). The general strategy of the plan includes the rapid production of vaccine doses and priority allocation of the vaccines to personnel working in high risk areas, to those susceptible to developing complications, and to those particularly likely to transmit the disease. A very important aspect is protecting the healthcare workers. The plan also clearly identifies risk groups (according to WHO), pregnant women, children between 6 and 35 months old, people older than 65 year old and so on, and the order in which they will receive the vaccine.

b. Compulsory vaccination Compulsory vaccination is an ethical issue that is debated across Europe: if it is to be imposed on people, it should be regulated by established law, and not just by ad hoc rules put in place. The law should be accompanied by informative promotion campaigns so they are accepted, if not by everybody, then at least by a majority of society. In Romania, for instance, there is not a compulsory vaccination law; however, a proposal for such a law is currently being debated. Although vaccination is not compulsory in Romania, the national pandemic plan states that both health care personnel and the general population must follow general measures of protection and hygiene.

c. Limiting personal freedom through isolation and quarantine Given that limiting personal freedom cannot be done outside the law, isolation and quarantine are permissible only in special cases, under judicial control and court decisions. In Ireland, a number of legal instruments passed by legislature deal with issues such as tuberculosis, so if someone has been diagnosed with a disease that poses a threat to public health, they can be isolated for a certain length of time until they are deemed to be non-infectious. In most pandemic plans, quarantine are eighty more difficult to implement, and indeed it is a very specialised area. In France, when the H1N1

6



pandemic started (30 April 2009), hospitalization became compulsory for all subjects confirmed infected by laboratory test, regardless of clinical symptoms (severe or not). This decision for compulsory hospitalization was maintained until mid-June and was heavily contested by the population. School closures were also ordered in some regions. The main evidence from a study of pandemic plans across the European Union is that ethical issues are often not explicitly addressed, and that in the event of a pandemic, the legal backing and underpinning for measures such as isolation and quarantine are inadequate, and they could be easily challenged. For example, if a bird flu disease emerged in Co. Mayo in Ireland, and it could be contained by creating a cordon sanitaire around the area, that could very easily be challenged by a member of the public, preventing containment. In other countries such as the UK, authorities are given emergency powers, or the ability to enact emergency legislation, which would enable setting up a cordon sanitaire in emergencies. European plans in fact identify criteria by which the decision of isolation at home or in the hospital is appropriate. Limiting the spread of disease through quarantine or isolation also implies the limitation, as possible, of travelling in affected countries, or monitored control at the frontier. Other measures mentioned in European plans include temporary closing of transport, schools or other institutions.

d. Use of human subjects in research In general, the approach to this ethical issue is quite clear across Europe. Most countries have ethics committees that assess use of human subjects in scientific research, and such activities cannot be implemented without the consent of these committees. The use of human subjects in research on pandemics is generally not specifically addressed by pandemic plans, but as in other situations the wellbeing of humans prevails, and generally human subjects are not used in pandemic studies. In France where ethical issues are mentioned in pandemic plans but not addressed in detail, there are in fact very strict rules and ethical committees governing research in universities and research institutions, so this ethical issue is carefully monitored to a very high standard, ensuring this area is definitively well covered. In France, when the pandemic occurred in 2009, the incorporation of human studies was poorly organized; for example the follow-up of patients was not performed until the end of the pandemic. In the post-pandemic period, a validation process for clinical trials was implemented, allowing the quick activation of a clinical trial in the case of future pandemics. In the European Framework Programme for Research and Innovation Horizon 2020 there has been a major increase in the importance, recognition and profile given to ethical issues around the use of human subjects in research, including interviewing subjects as well as vaccinating and treating them. For people participating in research, there are a lot of controls and protection mechanisms, particularly for more vulnerable subjects such as the elderly or younger people. But these rules are generally not specifically included in National Pandemic Plans.

Do you believe your current plans adequately address ethical issues? What changes do you believe should be made? Freedom and human rights may be retrained during pandemics, and people may oppose the decisions taken regarding the prioritization of scarce resources. But if the principles by which they are administered are well explained and proper arguments offered, citizens will be more accepting and responsive. In Bulgaria and in Italy, the current pandemic plan does not adequately consider ethical issues. Forthcoming updates to these plans are expected to add new items that will clarify and more widely cover ethical issues. In Romania, ethical issues in the current plan are addressed according to WHO and ECDC guideline, so they can be considered quite adequate. In France, the current plan mentions ethical issues but they have not been fully addressed and reviewed. For example, although the use of human subjects in research has been addressed in the plan, the appropriate ethical committees have not been consulted. The overall pandemic plan should be reviewed by a committee concerned with general ethics, in order to find out other potential concerns that could hamper the execution of the plan in case of future pandemics. In general, to better address these relevant aspects it would be useful to include ethics guidelines which are shared at the international level by Member States. In this way, each country's plan will include mechanisms to put into practice, and a homogeneous approach will be achieved among different nations.



7

Would it be appropriate to incorporate international guideline (e.g., the WHO Checklist) into national pandemic plans? What mechanism do you recommend to enable this? It would be useful indeed to include international guideline to implement good practice in each country, and also for achieving interoperability with the plans of other countries, as the epidemic situation will affect not only one country but will have wider impact. There are only a few international guidelines to consider - first within WHO; second in the International Health Regulations, where there are sufficient mechanisms for international cooperation; third, for the European countries Decision No 2002/2053/EC on serious cross-border health threats, which involves two Institutions the Health Security Committee (HSC) of the European Commission and the ECDC. It could be possible to rely on a set of international guidelines to be adopted by member states, and they would be obliged under the International Health Regulations (IHR) to ensure that they had ethical guidelines incorporated into their pandemic plans. In Italy, for instance, the pandemic plan has not been modified and further improved since 2011, fundamentally because of limited resources available for all public health prevention activities. If Member States had such a commonly-agreed European document, procedure implementation would be easier. The public health sector has to cope with evident limited availability of resources, so the activation of specific task forces to work on particular issues is difficult. In Romania, international guidelines have already been incorporated into the national pandemic plan, and they work. Some guidelines have not been fully incorporated because they imply the use of resources that are not available at the moment, so they need to be adapted. This reminds that the mechanism for incorporating guideline must ensure the necessary resources are available, including adequately trained personnel. Thus, it is clearly essential to incorporate international guideline, which should take into consideration the specifics of each country, but the heart of single pandemic plans should be coherent around the globe. WHO has the legitimacy to prepare a basic care for preparedness and response plans, and include a cross-checklist for country-specific plans. Thus, the mechanism that should be put into practice obviously depends on each Member State, and the mechanism must be sure that there is enough input from academics, policy makers, and people who are actually implementing pandemic plans on the frontline.

Can you recommend other approaches to improve consideration of ethical issues in pandemic planning across the EU? Greater input from citizens would be one; a more educated, aware, and informed public will ensure that ethical issues are dealt with in advance of a pandemic. There is the need for a greater capacity to understand, implement, and improve public health law, so it is recommended that a network of public health lawyers be set up across Europe, along with programs to foster greater knowledge and awareness about public health law among the public community, including public health physicians, public health nurses, and people working in policy that there would be a greater awareness of what public health law is and where deficiency exists. As stated above, ethical guidelines referenced by the WHO should be incorporated into national preparedness and response plans. However, a pandemic plan that outlines policy, but is not backed up by legislation, can fail in the event of a pandemic. Policy cannot be actually implemented without legal underpinning. Creating better plans requires better input from citizens, from public health lawyers, and from end users, people who are actually at the frontline. Definitely one of the key elements is communication: if people could be better informed regarding disease and its transmission, they would probably have a better reaction to issues such as quarantine and the allocation of scarce resources.

Vaccination hesitancy

The "WHO Recommendations Regarding Vaccine Hesitancy" is a collection of materials produced by a group formed by WHO and UNICEF in 2012 to study the issue. The definition of vaccine hesitancy released by this partnership is "delay in the acceptance of or the refusal of vaccinations, despite the availability of vaccine services". Although scepticism regarding vaccinations is a phenomenon that has existed since the earliest vaccines, today this fear is supported and amplified by the fact that anybody can read about contradictory viewpoints on the internet, even when such information has objectively nothing to do with science itself.



8



The WHO Strategic Advisory Group of Experts on Immunization (SAGE) emphasizes that it is urgent and necessary to develop institutional systems and organizational competencies on the local, national, and global levels to proactively identify, monitor, and address vaccine hesitancy, as well as to respond promptly to anti-vaccine movements that disseminate disinformation about possible adverse events following immunization.

Another fundamental aspect is the urgency to share as much as possible about the organization and availability of vaccination programs, involving all stakeholders in the decision-making process. It is essential to have a greater analytical capacity to establish the areas in which vaccine hesitancy originates. For this reason, the final recommendations of SAGE concentrate on three main categories: understanding the determinants of vaccine hesitancy; highlighting the organizational aspects that ease the acceptance of vaccines; and evaluating the instruments necessary for opposing this phenomenon.

In Italy, to face a worrying trend of decreasing immunization rates, a law decree has been approved in June 2017 after that some local and national authorities have suggested preventing unvaccinated children from entering childcare centres or nursery school. The proposal ignited a public debate about whether this simple and quick measure can be effective: some call for taking such an action only for a more serious emergency and others fear little efficacy or even a backfire effect in the end. A previous analysis by the ASSET project, in fact, could not find any evidence of a relationship between mandatory vaccination and rates of childhood immunization in the EU/EEA countries for polio, pertussis and measles, suggesting that such measures are not able by themselves to guarantee a good coverage against preventable infectious diseases. A new feature on ASSET website provides some clues for other kinds of practical interventions, aimed both at improving dialogue with reluctant families and at targeting health professionals who do not support, while not openly discouraging, vaccination.

Donato Grieco, former General Director of Health Prevention at Italian Ministry of Health, WHO consultant and currently working for ASSET project states: "Low coverage in vaccinations is a complex issue, with several causes in different countries and in different population groups. It needs to be faced with a multifaceted strategy".

Perspective from HILPF

Under what conditions should mandatory vaccination be considered? Can laws be passed in Europe to compel the population to agree to be vaccinated? What kind of laws are necessary? How can these laws be enforced? What kind of sanctions can be imposed on people refusing to be vaccinated? How will different countries in Europe respond to proposed legislation on mandatory vaccination?

The correspondence between vaccine refusal and the incidence of certain diseases has already been established: improving the level and quality of immunization at a population level is the best method of protection against infectious disease (that are preventable through vaccination).

For instance, in 2015, the DTPa vaccination rate was about 30% lower than the previous year in Romania. It is worrying that the proportion of the people who refuse vaccination (for themselves or for their children) increases year by year. This phenomenon is associated with a higher risk for developing vaccine-preventable diseases. The decrease in vaccination rate can lead to outbreaks. When such things happen, vaccination should become mandatory for avoiding the spread of the disease.

As an example, two years ago the identification of two cases of polio paralytic in Ukraine represented a threat for Romania, given the geographical proximity and the declining immunization rate. Moreover, the death of two children (one from Spain and another from Belgium), following the infection with *Corynebacterium diphtheriae* produced an international "state of alert" about the importance of vaccination.

In presence of highly transmissible pathogens, vaccination should be mandatory for HCWs everywhere: this allows the health system to remain active, and avoid transmission between HCWs and patients. For security reasons, other essential groups such as army and firemen should also be subject to mandatory vaccination. In France, the legal structure exists to make vaccination mandatory for HCWs, so upon recommendation by

public health authorities, mandatory vaccination can be made a law. Another national example is Finland where mandatory vaccination for HCWs is about to enter into force.

Mandatory vaccination should be avoided if possible, and practiced only under a public health threat with high risk affecting most of the population. But even in this circumstance, preliminary explanatory work is needed for public acceptance. People are not so much against the mandatory nature of immunizations when they are convinced of the benefits of the measure. In the case vaccination should become mandatory for the overall population, public health authorities should insure the availability of the vaccine for the entire population. Refusing entry to the work place or school should be imposed on people who are not vaccinated. In the post-pandemic period, vaccination should remain mandatory if the pathogen continues to circulate. A temporary law for a limited period of time could be acceptable for countries that do not have a mandatory vaccination plan. And in the case of a pathogen with low transmission rate, the mandatory aspect is unnecessary.

Particularly concerning children immunization, it should be the decision of the Government, not the parents. People should bear in mind that events from each European country influence the whole Europe, as we stand together. Thus, we should act together. The health of future generations can be influenced by what is being done today. Vaccination is the most effective way to prevent some infectious diseases avoiding epidemics or pandemics at community level but also making people not becoming ill both for the disease itself and for related complications. The immunization of children is a key aspect of the problem, and to prove to parents that vaccines are beneficial is absolutely necessary. Besides making people abide by national law, certain regulations should be developed to discourage parents' refusal to vaccinate their children (constraints, sanctions etc.). For this, as well, explanation to the people should be done in the best manner.



Pandemic response can require restriction of basic human rights, which raises questions that are the specialty of ethicists, questions of law/ethics that may be quite far from the focus/interest of public health officers and scientists. It should be kept in mind that from the public health viewpoint, the general aim is to ensure that the population health is rightly protected, and that the key issues in this context are what laws are necessary, how can these laws be enforced, and what kind of sanctions would be most effective.

To better address the issue of vaccination, a complex strategy is needed for healthcare services, a strategy oriented towards prevention practices, health education, promotion and training. Law enforcement needs to consider socio-economics and how that affects the population's access to health services, including vaccine-related services.

A key element of the strategy is again an open dialogue with the population, through several channels. Given the importance of the doctor-patient relationship and the influence of the medical personnel on the population's opinion on vaccination, there is a need for effective, reliable communication from physicians and other HCWs. Physicians should focus their efforts on increasing parental compliance, especially when they express uncertainty about the benefits of vaccines or misconceptions and fear. Of less influence but important nonetheless are other sources of information for the population, such as health insurance companies, vaccination campaigns, and internet advice. Actions related to these sources can include expanding vaccination campaigns, creating online information platforms for vaccination, or offering mobile services for public health awareness. These channels can emphasize the importance of vaccination, or for example provide a free of charge medical guide with up-to-date, concrete and accessible information to parents preventing pro-vaccination data to increase their confidence in the medical procedure. On the other hand, these channels can be used to counter scepticisms about the benefits of vaccinations, fear of extremely severe adverse reactions, and even anti-vaccination campaigns. Another part of the strategy might be sanctions to be thought at a wide



ranging instrument even if there is a pretty critical need for debate before applying penalties. When sanctions are required, they might include, for example, people losing the ability to use some public goods, funds, or payments, in recognition that they are not making their contribution to the public health. Other sanctions might include a requirement to pay out of pocket, rather than using health insurance or free medical care, for illnesses that would have been prevented through vaccination. People who refuse vaccination might then incur sanctions ranging from paying more taxes to the state, or losing welfare and/or some health insurance benefits till being children.

An ASSET report on unresolved scientific questions concerning epidemics and pandemics outlines how, as we are living in the "post-trust" age, trust is one of the most outstanding issues. To the extent it is feasible maintain citizens' trust in institutions and governmental and public health institutions, and with the community as a whole, citizens will believe vaccination will protect their own health, and mandatory vaccination will not be necessary. The solution to overcome the current "status quo" is complex but the legal approach is only a component and maybe not the most relevant. Indeed, the law is a typical one-way communication tool: "I inform you that if you kill the king then you will be beheaded". Another issue to be overcome is the lack of two-way communication (and collaborative decision making) between decision-makers and civil society. Citizenship engagement must be a high priority. In France the Ministry of Health adopted a citizen consultation approach to vaccination in Bulgaria and Romania to foster vaccine compliance (and other important public health practices) among "Roma" people, using an effective system of health mediators. If these two states had simply decided to impose vaccination on the community of Roma people by law, success would have been very unlikely.



A noteworthy aspect is that countries in Europe differ in their social structure and therefore their vaccination practices. Differences in vaccination practice also apply between Eastern versus Western countries or Scandinavian versus Mediterranean Member States. For example, in Southeast Asia countries mandatory isolation and quarantine were applied when SARS, H5N1, and bird flu outbreaks occurred, and people complied. Whether that approach would work in other countries or in Europe is an open question.

To make mandatory vaccination effective, it will be necessary to take enforcement measures. Although enforcing laws is more a legal matter, it is better that compliance is not based primarily on punitive measures but rather motivation, providing more benefits to people who comply with the law, rather than penalties to those who do not comply. The need for enforcement can be reduced by measures such as building up broad public awareness using an integrated and coordinated communication plan, or encouraging mandatory vaccination through associated social benefits. The problem of vaccines is definitely far from a simple one, with many controversies on the subject, involving issues such as human rights, medical ethics, and conflicts of interest in the geopolitical sphere. Also, mass and social media get a strong effect on the population, sometimes exaggerating negative news and accidental "errors" resulting from vaccination, as well as presenting ill-founded accusations against the medical system. In spite of the fact that this is distorted and false information, in free society they can compel people to deny immunization to their own children.

The success of an immunization program depends not only on technological advance in health care, but also on a compliant population that believe vaccination is beneficial, resulting in wide vaccination cover-

age. While technological advances have a similar impact across Europe, compliance of various populations differ. We can expect that the countries in Europe will respond differently to any legislation on mandatory vaccination, depending on history, culture, and influence of media in the region. Also, the dominant political orientation (conservative, liberal or other ideology) would influence the proposed legislation. Until now, such factors have consistently blocked efforts that would prevent, control or even eradicate several potentially devastating infectious diseases. We hope for a better future for immunization in Europe.

In any event, then, broadly speaking about vaccination it has to be considered a critical public health practice that cannot be refused. It is freely available to all; it benefits the individual by preventing the target disease and associated complications; and it protects the community as a whole, especially vulnerable at-risk populations. Although immunization policies are decided at national level, the importance of vaccination for all of Europe would warrant use of a European law frame to compel compliance of Member States. The recurring example of such a European law framework is the EU Decision No 1062/2011/EC on serious cross-border health threats, that is related to two international institutions, the Health Security Committee of the European Commission, and the ECDC.

General insights on ethics from HILPF

Ethics and law in emergency situations, public health interest should take priority over individual freedom. Laws should reflect shared basic principles across the EU, be tailored to local history and culture, and be complemented by information campaigns and incentives.

The consistency and acceptance of restrictions on personal freedoms to protect public health would be facilitated by establishing common criteria for such actions. In this context, the RANDEM project carried out a review and analysis of ethical and human rights issues:

"Ethics... can make a significant contribution to debates such as what levels of harm the public are prepared to accept, how the burdens of negative outcomes should be distributed across the population and whether or not more resources should be invested in stockpiling antiviral medications" (Thompson, A.J., et al., Pandemic Influenza preparedness: an ethical framework to guide decision-making. BMC medical ethics, 2006).



- Pandemic management is not purely scientific, as it involves decisions which should reflect the moral value of the society
- Human rights need to be respected not just on moral grounds but also to comply with national and international obligations
- Pandemic response will often involve decisions which reduce individual rights for the common good. This may be justifiable but only if decisions are based on transparent principles which are clearly non-discriminatory and protect the vulnerable
- Effective pandemic management requires public trust and support. Ethical principles such as openness and collaboration are necessary to achieve this trust and support, as well as to reduce the likelihood of panic
- Resources may be scarce and rationing may be necessary, and this will draw upon implicit or explicit ethical principles
- Several frameworks are in place on ethical issues in pandemic preparedness planning (as from WHO or international treaties)
- Greater prioritization of ethics and human rights in pandemic planning recommended (eg. allocation



of scarce resource)

- Greater alignment of national pandemic preparedness plans between EU Member States recommended
- Increased research into ethics and human rights in pandemic planning recommended (human rights has received almost no attention – duty of health care workers re risk to their life)

These conclusions support the importance of having predetermined, well-thought-out, transparent plans, and clearly understood laws. These elements create a solid foundation for ethical pandemic response. In planning and carrying out ethical pandemic response, the role of participatory governance is particularly important. Ethical principles, policies, and rules are to some degree fixed, however there are always judgements required to implement them. For example, at a 2006 workshop in Washington D.C., four principles were suggested as ethical guidelines for pandemic response: utility - act so as to produce the greatest good, efficiency - minimize the resource needed to produce an objective or maximize the total benefit from a given level of resource; fairness - treat like cases alike and avoid unfair distribution (that is, discrimination based on irrelevant or illegitimate characteristics of a person or group); liberty - impose the least burden on personal self-determination necessary to achieve legitimate goals (or, broadly speaking, do not trade all freedoms for security).

In applying principle such as these, we are faced with questions such as "which good is best?" or "how much benefit would be obtained?" or "what is fair?" or "what is the cost of giving up freedom?". In some situations, these questions have clear, objective answers, however in many cases it is often not so clear. It would seem that in these cases, public participation, i.e. participatory governance, is particularly important, to allow decisions that reflect local values, and decisions that the public may disagree with, but will see as having been fairly arrived at.

As in the discussion of vaccination hesitancy and whether vaccination should be mandated, we see again that public participation definitively represents an important complement to the foundation laid by plans and laws.

Pandemic Preparedness and Response

AN ANALYSIS CARRIED OUT IN ASSET ON TO WHAT EXTENT ETHICAL ISSUES ARE RECALLED IN NATIONAL PANDEMIC INFLUENZA PLANS

Influenza pandemics are unpredictable but recurring events that can have severe consequences on human health and socio-economic life to global level. For this reason, the World Health Organization (WHO) has recommended all countries to prepare a pandemic influenza plan following its own guidelines. The WHO guidance, revised in 2009, stresses the importance of ethical principles such as equity, liberty, solidarity and states that any measure limiting the individual rights and the civil liberties (such as isolation and quarantine) must be necessary, reasonable, proportional, equitable, not discriminatory, and not in violation of the national and international laws. For such purposes, WHO has developed a framework of detailed considerations in order to ensure that overall concerns (such as protecting human rights and the special needs of vulnerable and minority groups) are addressed in pandemic influenza planning and response.

Experts from the ASSET project conducted a study on this issue, performing a semantic analysis of national pandemic plans developed by ten European Union/European Economic Area (EU/EEA) countries and by Switzerland, member of European Free Trade Association (EFTA), including EU and WHO documents.

The analysis has been based on two keyword lists: in a first, generic, list, keywords represent areas of possible ethical interest; in a second, more specific, list, keywords are more precisely related to ethical issues actually addressed in each national pandemic plan. Aim of the research was to assess and compare the occurrence rates of each keyword within both lists, in order to evaluate the relevance of ethical issues and the application of ethical principles in the development of national preparedness and response plans. The semantic analysis showed little concern for ethical aspects and a lack of discussion on ethical issues in most pandemic plans developed from European countries, except for Switzerland, United Kingdom, Czech Republic and France. This is even more relevant since the analysis revealed multiple areas of possible ethical interest within the different plans.

Despite this work has some limits it may represent a useful tool to guide future drafters of pandemic plans. It aims at encouraging debate on the necessity to update all national pandemic plans including ethical and other SS issues, such as gender and participatory governance, which have proved to be of great relevance in case of epidemics and pandemics.

Two main messages can be deduced:

- Pandemic response national plan should include ethical issues
- Most of the actual plans from EU countries do not comply with WHO suggested ethical requirements

Public Health Initiatives

ONE OF THE TWO ASSET COMMUNICATIONS AT THE EUPHA CONFERENCE IS ON ETHICS



The 10th European Public Health Conference will be held in the Stockholm from the 3rd to the 4th of November. The EPH Conference aims to contribute to the improvement of public health in Europe by offering a means for exchanging information and a platform for debate to researchers, policy makers, and practitioners in the field of public health and health service research as well as public health training and education in Europe. ASSET will be presenting two communications and one of them dealt with the semantic analysis carried out starting from the national pandemic plans published on ECDC website that is reported in the previous columns on 'Pandemic Preparedness and Response'.

ASSET AND DARWIN: TWO EUROPEAN PROJECTS TO TACKLE PUBLIC HEALTH EMERGENCY MANAGEMENT



DARWIN is a EU funded research project under the Horizon 2020 research programme and is focused on improving responses to expected and unexpected crises affecting critical societal structures during natural disasters (e.g. flooding, earthquakes) and man-made disasters (e.g. cyber-attacks). To achieve it, DARWIN is working on developing European resilience management guidelines aimed at critical infrastructure managers, crisis and emergency response managers, service providers, first responders and policy makers. Such these DARWIN resilience guidelines will serve to facilitate faster, more effective and highly adaptive responses to crises among European citizens in times of crisis and disaster as well as they will also be of significant benefit for governments of EU member states. The guidelines go under a process for test in two key sectors (Healthcare and Air Traffic Management (ATM)), and also ASSET partners have been involved in such this process. As done in ASSET, also DARWIN holds a Community of Practitioners (CoP).

Social networks

ETHICS, EMERGENCY AND PANDEMIC PREPAREDNESS ON PUBLIC HEALTH EMERGENCY.GOV



The PHE.gov page on Facebook includes interactive information that is constantly updated in matter of public health emergency measures and tools to be used. The US Assistant Secretary for

Preparedness and Response uses social networks to address relevant issues in matter of emergency preparedness and response. First, an ethical issue such as stigmatization is here reported: What Does Stigma have to do with Mental Health and Disasters?



Up to 70 percent of people who need mental health care don't get it. Find out how stigmatization prevents people from getting the care they need in the wake of a disaster and what emergency planners and responders can do to stop stigmatization.

Zika Virus is a current emergency and CDC explains very clearly what kind of infection it is, how the contagion occurs and what consequences are on health.

The post here shown gives advice in order to prevent the infection by using condoms: if you are infected with Zika, you can transmit it to your partner – even if you don't have symptoms. Think you might be infected? Recently traveled to a location where Zika is present? Use a condom to prevent spreading the virus. Since 2006, the U.S. Department of Health and Human Services (HHS) has established a domestic vaccine



manufacturing capacity, built stockpiles of medical countermeasures to protect people from pandemic influenza, and developed evidence-based guidance on the prevention, mitigation and treatment of pandemic influenza. They invite readers to check out the latest update to the Pandemic Influenza Plan to learn how they are working to meet next-generation challenges and better protect people in the face of the next pandemic.

manufacturing capacity, built stockpiles of medical countermeasures to protect people from pandemic influenza, and developed evidence-based guidance on the prevention, mitigation and treatment of pandemic influenza. They invite readers to check out the latest update to the Pandemic Influenza Plan to learn how they are working to meet next-generation challenges and better protect people in the face of the next pandemic.



On the web



Started in September 2015, Pandemic Risk and Emergency Management, PANDEM, was a Coordination and Support action funded by the Horizon 2020 Secure Societies Programme (101000-069-2014/2015) under the topic 'Crisis management 4: Feasibility study for strengthening capacity-building for health and security protection in case of large-scale pandemics'.



PANDEM matches the growing health security threat posed by pandemics that the European Union faces due to the convergence of risk factors driving disease emergence, amplification and dissemination of disease with pandemic potential. As per ASSET, also in this H2020 project the core concept is that protecting the health and security of European citizens against pandemic threats requires a coherent response by all stakeholders.

PANDEM has then been contributing to the reduction in the health, socio-economic and security consequences of future pandemics so that society can be better prepared at regional, national, EU and global level.

PANDEM focused on the needs and requirements of users and first responders across the spectrum of pandemic risk management. Given the cross-border and multi-sectoral context of the health and security challenge for building pandemic risk management capacity, a systems-based methodology was applied in order to apply the final outcome for use in a pan-European setting. PANDEM has brought a highly skilled group of senior experts from the health, security, defense, microbiology, communications, legal, information technology and emergency management fields together to develop innovative concepts for pandemic management. The consortium identified current best practice, user needs and research priorities in core areas of risk assessment, surveillance, communication and governance. As also done in ASSET, the PANDEM project also mapped stakeholders and end-users responsible for managing key functions in pandemic management. This includes policy-makers in national, EU and global public health agencies, security agencies, national laboratories, national communications offices, staff in civil defense units and first responders in health care facilities including paramedics, triage staff and health care workers.

In a Snapshot



Donato Greco and Eva Benelli (ASSET project partners from Zelig) published an [article](#) commenting the Italian law decree that mandates 12 childhood vaccinators to allow children access state school.

First, they highlight to what extent the risk for a community to get a disease can be reduced or eliminated by a really effective protection that is vaccine, indeed.

What does school risk stand for?

Italy confirms to be one of the European countries with high vaccination coverages, up to 90%. However, even in a vaccinated population some people risk to be infected by those who are not vaccinated: about 25 thousand unvaccinated children per year; non-responders, immunodeficient or healthy carriers, migrants whose vaccination history is hard to reconstruct.

Diseases to be distinguished

Required vaccinations are justified because they are associated to state school attendance: the right for education and the right for health go together and are not conflicting. The Italian Constitution allows children to get educated and protected by vaccine preventable diseases. Vaccination is firstly a right.

The sense of the Italian law decree

In Italy, despite vaccination refusal is around 2-3%, several studies estimate vaccination hesitancy among parents ranging from 20 to 30%. Then, an adequate counselling program could be planned to reduce people refusing vaccination to their children so that infective risk would be minimized.

Need for conviction and transparency

The decree foresees even penalties and suspension of parent responsibility: these elements indicate more obligation and coercion than affirming a fundamental right. A clear and transparent communication would always be the best choice: vaccination hesitancy is in fact generated by the mistrust of citizens in authorities. Three key aspects could have been communicated: why those 12 vaccinations have been selected, the little that vaccines cost to healthcare system yearly compared to drugs overall, how the vaccine surveillance works.

Limits of vaccination supply

It is finally important to look at the current vaccination supply and its own organization. In Italy there are one thousand active vaccination centres, six thousand pediatricians and forty thousand general practitioners to practice about two million vaccinations per year: eight vaccinations per working day are requested to the healthcare system but three of them are delivered by pediatricians and general practitioners. In the end, what can be achieved by imposing vaccinations in school children could be better reached by a better and more integrated vaccination supply. It is a crucial strategic objective: an obligation perspective suits better with healthcare services and professionals who are mandated to practice vaccinations actually.

Disclaimer

The ASSET project was designed to accomplish a European Commission Call (DG Research and Innovation - H2020), for developing a Mobilization and Mutual Learning Action Plan in response to epidemics and pandemics with regard to Science in Society related issues.

The European grant agreement ensures scientific and editorial freedom to the ASSET consortium partners.

The views expressed in the ASSET Pandemic Preparedness and Response Bulletin "Share and move" are those of the authors and may not necessarily comply with European policy.

Statements in the Bulletin are the responsibility of their authors and not authors' institutions.

In case of conflict of interests, it is declared.

Readers are advised to verify any information they choose to rely on.

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ANNEX III – The seventh ASSET-PPRB Issue



Pandemic Preparedness and Response Bulletin

Issue 7, December 2017



OPINION BY THE EUROPEAN COMMISSION



Share and move

ASSET Pandemic Preparedness and Response Bulletin

Issue 7, December 2017

ASSET on social networks



2

"Share and Move" is the ASSET Bulletin that intends to highlight strategic priorities and policy-related initiatives on preparedness and response towards Public Health Emergencies of International Concern (PHEIC), as well as to be used by a wide target, ranging from competent institutional actors and public health authorities to decision-makers and influencers, even on social networks.

INDEX

Editorial	4
Pandemic & Emergency Preparedness and Response	4
Public Health Initiatives	14
From ASSET World	17
Social Networks	19
On the Web	22
In a Snapshot!	23

3

Editorial

THE SEVENTH AND LAST PANDEMIC PREPAREDNESS AND RESPONSE BULLETIN, SHARE AND MOVE, LOOKS AT GENDER ISSUES ACCORDING TO AN ASSET PERSPECTIVE

The European cooperative program [ASSET](#) is reaching its end, December 2017. Since January 2014, it has been aiming to address effectively both scientific and societal challenges raised by public health emergencies of international concern (PHEIC), like pandemics, by combining multidisciplinary expertise.

ASSET roots in the Science In Society (SIS) framework that was defined by the European Commission in 2001 to foster public engagement and a sustained two-way dialogue between science and civil society. So are the fundamental pillars identified: governance, open access, science education, public engagement, ethics and gender equity.

In line with these general SIS key issues for developing a Responsible Research and Innovation (RRI) framework, the editorial line of the ASSET Pandemic Preparedness and Response [Bulletin](#), Share and move, has been set accordingly.

Since the second Bulletin, each issue has been concentrated on one specific topic mainly: the [second](#) 'Share and move' focused on governance of pandemics and epidemics, the [third](#) edition concentrated on unsolved scientific questions, the [fourth](#) periodical was associated to analysing intentionally caused outbreaks, the [fifth](#) publication dealt with crisis participatory governance, ethics are concerned in the [sixth](#) issue, and here we come to highlight how gender pattern impacts on preparedness and response toward public health emergencies in general and specifically per its interconnection with vaccination.

A focus on gender issues. Proposing the same structure than the others, the present ASSET Pandemic Preparedness and Response Bulletin, Share and move, offers readers an overview on gender issues both affecting preparedness and response in general as well as in particular in association with the vaccination pattern.

Starting from the main results coming out from the initial project "Study and Analysis" phase, relevant studies in the field, such as I-MOVE, SIVUK and PAGES are reported as well as interesting inputs circulating in the international scientific community as well as on the web and the most used social networks.

In this last issue of Share and move, a specific PHEIC considered is Zika virus because of its high interconnection with female health and pregnancy condition. In the last few years, in fact, this emerging Flaviviridae virus has spread rapidly and raised concern as it has been associated with foetus microcephaly when pregnant women are infected.

Even basing on relations between Zika and women health, it is noteworthy interesting open questions which are recalled in the comment "Risk of Zika-related microcephaly: stable or variable?" published on The Lancet in August 2017, such as: "Were the numbers an artifact of over-reporting? Were they real, did cofactors modify the risk given Zika virus in pregnancy, or was it due to something else? Could it be because of severity of Zika infection, viral load, or cofactors (the most popular being previous or co-infection with dengue)?"

4



Pandemic & Emergency Preparedness and Response

Gender issues in pandemics and epidemics

Dealing with communicable diseases outbreaks (pandemics and epidemics), it is important to look at gender differences affecting exposures as well as access to, knowledge on, and uptake of, vaccinations.

Application of a targeted gender and life course approach in highlighting evidence-based issues of gender in pandemics and epidemics fits in to the activity of investigating the relevant societal challenges that exist in the field.

Definitions first! When sex and gender matter

Gender refers to socially constructed roles, behaviours, activities, and attributes that a given society considers appropriate for men and women.

Sex refers to the biological and physiological characteristics that define men and women, boys and girls (WHO 2002b).

Differences based on sex and gender are important for understanding and improving outcomes and uptake rates for vaccination.

For instance, biologically, females and males differ in their immunological responses to seasonal influenza virus vaccines.

Women have higher antibody responses to influenza vaccinations – the antibody response of a woman to half a dose of influenza vaccine is equivalent to the antibody response of a man to the full dose (Klein et al 2010).

Or about underlying medical conditions, women are for example more likely to have diabetes in their lifetime than men but, particularly those in lower socioeconomic groups, receive less adequate diabetes care than men from the same socioeconomic group (WHO 2010a).

A doubled research has been carried out in ASSET by looking at what is retrieved within available literature and by asking relevant stakeholders about gender, epidemics and pandemics.

Main results are reported in the following table that sums-up relevant considerations from literature review (left column) and from interviews to stakeholders (right column) per each single issue (centre column).



From Literature	Issue	From Stakeholders
This pattern represents the unique challenges.	Gender	In only one case a specific focus on gender issues has been reported. The prevalent opinion is that influenza does not discriminate by gender.
Pregnant women are at risk due to unique factors connected to pregnancy. In general, vaccination of pregnant women serves to protect both the woman and the foetus (Klein et al 2010).	Pregnancy	High awareness and proactive behaviour apply.
Older women's vaccination behaviour is not fully understood. Also, women in general, and older women in particular, are under-represented in clinical trials and biomedical research, hindering any development of sex-specific treatments or policy guidelines.	Elderly	Identified strategies or targeted messages for older women are quite absent. It is an action area where much more emphasis and is needed.
They tend to be predominantly female, and there is little consensus on how to target the low vaccination rates health professionals, and how to reach out to care givers.	Health care workers and Carers	Very little awareness of the gendered situation in this subpopulation.
Adverse health outcomes may occur, and the complex interplay of gender and social and economic marginalisation makes this a particular issue for women (Davidson et al 2011).	Hard to reach groups	Somehow a recognised problem, possible solution consists in tailored and increased communication.
Consideration of demographic, ethnic and social differences, including gender, allows for a more effective and targeted communications against distrust of vaccination.	Communication	The importance of effective communication is continuously stressed: it becomes the largest issue to be addressed even if it is identified more as a general problem.

5

6

PREGNANCY AND VACCINATION

Pregnant women are more likely to have severe disease and hospitalization with either seasonal or pandemic influenza, compared both to the general population and to peer non-pregnant women. During pandemics, the mortality rate for pregnant women is higher than non-pregnant women but it is not the case with seasonal influenza unless the strain is particularly severe (WHO 2010).



When pandemics occur, pregnant women have an increased risk of severity of infection and a disproportionately high risk of mortality from H1N1 (Geehan-Vassallo et al 2011).

In the first two months of the H1N1 flu pandemic in 2009 in the United States, a majority of the cases that were hospitalised were women (n=21/26), and of these women five were pregnant.

During the pandemic, females of childbearing age were much more likely to be hospitalised with critical illness than men in a number of countries (WHO 2010).

FOCUS 1 - Pandemic influenza vaccination (A/H1N1pdm09): evaluation of outcomes in pregnant women and newborns. Massimo Fabiani, Antonino Sella, Maria Cristina Rota, Stefania Giannelli, Alessia Ranghieri, Gloria Nacca, Silvia Declich, Siena Cagnan, Tolinda Gallo, Maurizio D'Amato, Enrico Volpe, Patrizio Pezzotti, Lorenza Ferraris, Vittorio Demicheli, Domenico Martinelli, Rosa Prato, Caterina Ritvo and EVS Working Group 2015, II, 31 p. Rapporti ISTISAN 15/7 (in Italian) ISSN: 1123-3117 (paper) + 2384-8936 (online)

Keywords: Pandemic vaccination; Influenza; A/H1N1pdm09; Pregnancy

A retrospective cohort study has been conducted to evaluate the effect of the adjuvanted influenza pandemic vaccination A/H1N1pdm09 of pregnant women on maternal and neonatal outcomes. The study has been conducted in four Italian regions (Piedmont, Friuli-Venezia Giulia, Latium, and Apulia) among 300,332 women in their second or third trimester of gestation. Based on data retrieved from the regional administrative databases and registries, the statistical analysis has been conducted using the Cox regression model, controlling for the potential confounding effect due to the socio-demographic characteristics and the clinical and reproductive history of women. We have observed no statistically significant associations between vaccination and maternal or neonatal outcomes. Pre-existing risk conditions have been observed more frequently among vaccinated women, thus suggesting that pregnancy alone is not a sufficient reason for vaccination.

FOCUS 2 - Maternal vaccination against H1N1 influenza and offspring mortality: population based cohort study and sibling design This prospective population based cohort study, published on BMJ in November 2015, answered the question "What is the mortality in offspring of mothers who had influenza A(H1N1)pdm09 vaccination during pregnancy?". The study was carried out in seven healthcare regions in Sweden based on vaccinations taking place between 2 October 2009 and 26 November 2010. H1N1 vaccination data were linked with pregnancy and birth characteristics and offspring mortality data in 275,500 births (of which 1203 were stillbirths) from 137,886 mothers. Of these offspring, 41,183 had been exposed to vaccination with Pandemrix, a monovalent AS03 adjuvanted H1N1 influenza vaccine, during fetal life. A primary comparison group consisted of pregnancies of women who were not vaccinated during the same calendar period. In a second comparison, non-exposed siblings of infants prenatally exposed to vaccination were used as controls. Cox regression was used to estimate hazard ratios for stillbirth, early neonatal mortality (days 0-6 after birth), and subsequent mortality (beginning on day 7) in vaccinated versus non-vaccinated women, adjusting for mother's age at delivery, body mass index, parity, smoking, country of birth, and disposable income and sex of offspring. The results of this study suggest that AS03 adjuvanted H1N1 vaccination during pregnancy does not affect the risk of stillbirth, early neonatal death, or later mortality in the offspring. During follow-up, 1172 stillbirths, 380 early neonatal deaths, and 706 deaths thereafter occurred. The main study finding is that H1N1 vaccination during pregnancy is not associated with adverse fetal outcome or offspring mortality, including when familial factors are taken into account.

Pregnant women are more at risk of influenza because of different reasons: hormonal changes during pregnancy, chiefly oestrogen and progesterone, underlie some of the distinct immunological changes that accompany pregnancy (Klein et al 2010).

The risk of complications from influenza increases in the second and third trimester, when the physiological changes accompanying pregnancy, such as increased demands on cardiovascular output, play a role.

Also, the immune function change that is associated with pregnancy, which serves to prevent the woman's immune system from rejecting the foetus, reduces the capacity of the pregnant woman to mount the strong antiviral response that is needed to control a viral infection (Jankeston et al 2009).

However, there appears to be very little risk of direct infection of the foetus if the mother contracts influenza, and the effect of fever resulting from the influenza does not appear to lead to foetal abnormalities (WHO 2010).





FOCUS 3 - Influenza A/H1N1 M239 adjuvanted vaccine in pregnant women and adverse perinatal outcomes: multicentre study The cross-sectional multicentre study on influenza A/H1N1 M239 adjuvanted vaccine in pregnant women and adverse perinatal outcomes, published on BMJ in February 2013, assessed the risk of adverse perinatal events of vaccination of pregnant women with an M239 adjuvanted vaccine. The study was carried out in 46 public hospitals in major cities in Argentina, from September 2010 to May 2011 involving 30 448 mothers (1733 vaccinated) and their 30 769 newborns. The main outcome measured was the primary composite outcome of low birth weight, preterm delivery, or fetal or early neonatal death up to seven days postpartum. This large study using primary data collection found that M239 adjuvanted A/H1N1 influenza vaccine did not result in an increased risk of adverse perinatal events and suggested a lower risk, among vaccinated women. These findings should contribute to inform stakeholders and decision makers on the prescription of vaccination against influenza A/H1N1 in pregnant women.

There is limited research done on vaccine safety in pregnant women, however studies suggest the vaccine is safe, and there are no indications that vaccination causes harm (ECDC 2012).

In general, vaccination of pregnant women serves to protect both the woman and the foetus (Klein et al 2010).

Existing studies on pregnant women who have taken the influenza vaccine show no adverse risk or side effects on the mother, foetus, or the child once it is born – rather, there is a good record of administering the vaccine, particularly in the second and third trimester (WHO 2010).

The WHO recommends all pregnant women to receive vaccinations during the influenza season, and that they should be given highest priority among all the risk groups (WHO 2012).

Yet, despite recommendations and despite the increased risk of illness and mortality that accompanies pregnant women getting influenza, vaccine covers of pregnant women tend to lag behind those seen in the general population (Klein and Palusz 2014).

A number of reasons explain this low figure: evidence points to pregnant women not knowing of the increased risks associated with pregnancy and influenza; also, many health care providers do not recommend pregnant women to uptake pandemic or seasonal influenza vaccine due to concerns over giving a vaccine to a pregnant woman (WHO 2010).

Such inconsistent advice from relevant health care providers is an evident obstacle to vaccine uptake for pregnant women (ECDC 2013).

Data on pregnancy and vaccination is scarce, and there is very little data on this from Europe.

In terms of drivers and barriers for pregnant women, there is little evidence-based research resulting in weak information (ECDC 2013).

FOCUS 4 - Feasibility of Text Message Influenza Vaccine Safety Monitoring During Pregnancy This prospective observational study was conducted during 2013–2014 and analysed in 2015–2016 on aspects of feasibility and accuracy of text messaging to monitor events after influenza vaccination throughout pregnancy and the neonatal period which were never studied before.

On the contrary, they may be important for seasonal and pandemic influenza vaccines and future maternal vaccines. Enrolled pregnant women receiving inactivated influenza vaccination at a gestational age of 20 weeks were sent text messages immediately through participants-reported pregnancy and to request fever, health events, and neonatal outcomes. Women reported via text both pregnancy- and non-pregnancy-specific health events, not all associated with medical visits.

Most pregnancy-specific events in the electronic medical record (EMR) were reported via text message.

This study demonstrated the feasibility of text messaging for influenza vaccine safety surveillance sustained throughout pregnancy.

In these women receiving inactivated influenza vaccination during pregnancy, post-vaccination fever was infrequent and a typical pattern of maternal and neonatal health outcomes was observed.

It is not studied enough in human beings because of the risk to the mother and the foetus, but more research could be made on animals (Klein et al 2010).

More research is needed to find the optimum dose of the vaccine, and to provide more data to firmly refute the hesitation towards giving pregnant women influenza vaccinations.

Lately, very few studies have been done in Europe on influenza vaccine effectiveness in children – there is a paucity of research in this area (ECDC 2013).

Children younger than five years old showed the highest hospitalisation rate attributed to influenza; this age group also has the highest incidence of the disease in children under 15 years of age (ECDC 2012).

Influenza vaccination is generally well-tolerated in children, and any adverse reactions reported were usually mild or moderate.

Influenza vaccines are not licensed in children younger than six months old – there is therefore a lack of alternatives to treat children in this age group, who are in the risk group for exposure to influenza – nevertheless, recent studies have shown that influenza antibodies from the mother are transferred to the child (ECDC 2012).

FOCUS 5 - Seasonal influenza vaccines in Italy: assessing effectiveness and safety, Season 2015-2016 Stefania Spina Alegranti, Valeria Alfonsi, Antonia Bella, Stefania Giannelli, Paolo Ruggieri, Alessia Ranghetti, Eva Charlotte Appaloni, Enrica Taveggia, Caterina Rizzo and the Working group I-MOVE and SVEVA 2017, in: 80 p. *Rapport ISTAN 17/19 (in Italian)* ISSN: 1125-3117 (paper) + 2364-4936 (online)

Keywords: Influenza vaccine; Effectiveness; Safety; Pharmacoepidemiology

In Italy, during the 2015/2016 flu season, the National Institute of Health (ISS), with the support of the Italian Drug Agency (AIFA), conducted two studies to estimate vaccine effectiveness (I-MOVE) and evaluate safety (SVEVA) of the flu vaccine. A total of 8 regions, among 21, participated to the study which can correspond to more than 50% of the Italian population in 2015 (not all regions participated to both objectives of the study). For the I-MOVE study, 1094 cases of IU (506 cases and 498 controls) were recruited by 64 general practitioners and pediatricians. The results indicate that the vaccine gave moderate protection against the virus type A (H1N1) pdm09 and very low protection for A (H3N2) and B due to the antigenic mismatch that was observed, compared to the vaccine strain. For SVEVA study, 3213 vaccinated cases were monitored and 354 (26%) side effects were notified after 7 days of vaccination, the major part were mild. In order to obtain more solid data regarding vaccine effectiveness, and to describe rare adverse events, it is necessary to increase the sample size of both studies.

GENDER AND SCIENTIFIC RESEARCH

In the article 'Editorial policies for sex and gender analysis' published on The Lancet in December 2016, basing on the recommendations by the International Committee of Medical Journal Editors (ICMJE) some guidelines on reporting sex and gender in medical journals are proposed

1. Require correct use of the terms sex and gender. Using these terms precisely increases clarity, enables critical review, and facilitates meta-analysis.
2. Require the reporting of the sex, gender, or both of the study participants, and the sex of animals or cells. If males and females were not studied in appropriate proportions, these elements of study design should be justified in the Methods section, and considered in the Discussion section.
3. Consider analysing data by sex, gender, or both where appropriate, or providing the raw data in the main manuscript, supplemental material, or in an accessible data repository. Report on the approach chosen for sex and gender analysis and comment on it in the Discussion section. In studies that are underpowered to detect sex or gender difference, access to data allows for use of those data in meta-analysis and systematic reviews.
4. Analyse the influence (or association) of sex, gender, or both on the results of the study where appropriate, or indicate in the Methods section why such analyses were not performed. Where those analyses were not performed, consider covering this topic in the Discussion section. Readers need to know whether the results generalise to both sexes. Include negative results as well as results that show differences.
5. If sex or gender analyses were performed post hoc, indicate that these analyses should be interpreted cautiously. Negative post-hoc analyses may be underpowered, leading to a false conclusion of no difference. By contrast, if many such analyses were done, the additional comparisons may lead to spurious significance suggesting an erroneous conclusion of a sex-related or gender-related difference where no such difference was in fact present. To minimise this likelihood, authors could consider making a statistical adjustment (such as a Bonferroni correction).

On the same volume another article 'Sex-related reporting in randomised controlled trials in medical journals' recalls the sex and gender issues in clinical trials: 'Journals have ample opportunity and considerable leverage to bolster their requirements. Some major medical journals, including The BMJ and the NEJM, require only that authors report the sex distribution of participants and make no request for sex-specific analyses, prespecified or post-hoc. JAMA instructs authors to "report the sex distribution of study participants or samples in the Methods section". If only one sex is reported or included in the study, authors are instructed to "explain why the other sex is not reported or included, except for studies of diseases/disorders that only affect males (eg, prostate disease) or females (eg, ovarian disease)". The Lancet explicitly encourages but does not require researchers to "enrol women and ethnic groups into clinical trials of all phases, and to plan to analyse data by sex, and by race". Journals' encouragement is a step in the right direction, but, as evidenced by our results, a stronger stance is necessary to push researchers to rigorously consider sex-specific results in the design and interpretation of their trials. [...] Funders and editors must commit to requiring the disaggregation of data by sex, gender, or both, so that researchers, clinicians, and policy makers are better able to understand the sex/gender-specific outcomes of trials of clinical and global health interventions. Mandatory requirements in turn allow meta-analyses to achieve the necessary power to draw statistically meaningful conclusions about sex-specific responses to interventions, allowing the medical community to tailor health care to meet the needs of all people.'

An article published on JAMA in November 2016, 'Reporting Sex, Gender, or Both in Clinical Research', recommends that 'sex is recognized implicitly as an important factor in clinical research. More work is needed to standardize the way sex and gender are reported and elucidate the way these characteristics function independently and together to influence health and health care. The following recommendations for reporting in research articles may improve understanding and comparability across studies, and help deliver truly personalized medicine: (1) use the terms sex when reporting biological factors and gender when reporting gender identity or psychosocial or cultural factors; (2) disaggregate demographic and all outcome data by sex, gender, or both; (3) report the methods used to obtain information on sex, gender, or both; and (4) note all limitations of these methods.' A table is also reported as example 'Suggested Approach for Reporting Demographic Characteristics of Study Participants and Outcome by Sex and Gender (N = 50)'

Suggested Approach for Reporting Demographic Characteristics of Study Participants and Outcome by Sex and Gender (N = 50)	
Female (sex/ethnicity)	50
Male (sex)	50/0
Female (sex)	21
Male (sex/ethnicity)	21
Female (sex)	14
Male (sex)	35
Sex, by race	50 (R)
Sex	20 (W)
Sex, by race	30 (E)
Sex	20 (A)
Sex	30 (H)

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CONSIDERATIONS ON IMPLICATIONS OF GENDER ISSUES IN PANDEMIC AND EPIDEMICS

ASSET studies show that a lack of awareness on sex and gender issues does exist. There is a need for a more gendered approach to influenza pandemic/epidemics and vaccination, in terms of:

POLICY

- Provide clear communication strategies at the European, national and regional levels on influenza pandemic/epidemics and vaccination. Clear, consistent and targeted communication is essential to successfully provide information.
- Consider health literacy in the development of all vaccination promotion initiative in different settings and levels.

RESEARCH

- Develop research that targets women's attitudes to influenza and vaccinations by adopting a variety of research methods, such as psychosocial, ethnographic and phenomenological, to complement biomedical and public health research.
- Make the inclusion of women in clinical trials explicit and the numbers included statistically relevant to allow for systematic analysis of sex difference.
- Carry out stratified analyses separately for men and women to take into account the fact that a treatment may not only have a different effect in men and women, but that secondary factors may influence efficacy, and side effects may also differ.
- Prioritise the standardisation of data collection methods in a sex/gender-disaggregated that can easily be processed and interchanged between local, national and European levels.
- Study further barriers to accessing information on vaccination from a gender perspective. Promote more gendered research into influenza pandemic/epidemics and vaccination to ensure that policy makers are better informed.

WORK ON TARGET GROUPS

- Update, clarify and standardise influenza vaccination advice materials for pregnant women. Include higher emphasis on the needs of elderly in national vaccination strategies.
- Pay special attention to vulnerable and marginalised groups providing specific communication campaigns targeting hard to reach groups. Information campaigns are even more effective if the target groups are involved both in the information design and delivery.
- Promote increased awareness among health professionals on specific problems faced by all-age women in relation to vaccination and the importance of consideration of a life course approach.
- Support more research into the gendered effect of influenza and vaccination on healthcare workers and carers; both tend to be predominantly female.

Public Health Initiatives

STRATEGIES FOR THE WOMEN HEALTH IN EUROPE

The World Health Organization (WHO) Regional Office for Europe edited a report *Women's health and well-being in Europe: beyond the mortality advantage (2016)*. Women's health is at a crossroads. Global efforts to advance women's health have been endorsed by countries through the adoption of the 2030 Agenda for Sustainable Development and are being taken forward through the Sustainable Development Goals and the global strategy for women's, children's and adolescents' health. To strengthen action as part of progressing the Health 2030 agenda, a strategy on women's health and well-being in the WHO European Region 2017–2021 will be considered by the 66th session of the WHO Regional Committee for Europe in September 2016. This report provides background to the strategy. It presents a snapshot of women's health in the Region, discusses the social, economic and environmental factors that determine women's health and well-being, brings into focus the impact of gender-based discrimination and gender stereotypes, considers what the concept of people-centered health systems would need to entail to respond to women's needs, and considers perspectives important for the international and national frameworks that govern women's health and well-being in Europe.



Women health in Italy

In the Ann Ist Super Sanità 2016 | Vol. 52, No. 2 a whole monographic section is retrievable dealing with sex and gender-related issues on the population health status in Italy:

- A sex and gender perspective in medicine: a new mandatory challenge for human health
- Why the study of the effects of biological sex is important
- Health status of the Italian people: gender inequalities
- Sex And Gender Equity in Research (SAGER): reporting guidelines as a framework of innovation for an equitable approach to gender medicine
- Gender-related differences in lifestyle may affect health status
- Sex-driven vulnerability in stress and drug abuse
- Gender disparity in addiction: an Italian epidemiological sketch
- Gender differences in pain and its relief
- Gender issues on occupational safety and health
- The influence of sex and gender on immunity, infection and vaccination
- Sex-based differences in autoimmune diseases
- The gender perspective in cancer research and therapy: novel insights and on-going hypotheses
- Gender differences in cardiac hypertrophic remodeling
- Sex-related biomarkers in cardiovascular and neurodegenerative disorders



RUBELLA IS ONE OF THE MOST DANGEROUS DISEASES DURING PREGNANCY, BUT FEW FOREIGN WOMEN ARE VACCINATED

A focus on the study Vaccination programs represent effective tools for active prevention which are also good means to tackle social inequalities in accessing healthcare services. However, by comparing rubella immunization rates (IRR) in women of childbearing age, immigrants versus Italians, vaccination coverages are much lower in the first group basically due to cultural barriers and access to information. These are the main considerations coming out from the scientific article Comparison of rubella immunization rates in immigrant and Italian women of childbearing age: results from the Italian behavioral risk factor surveillance system PASSI (2011–2015) published by some ISS researchers on PLoS ONE, in October 2017.

Data from the ongoing Italian Behavioral Risk Factor Surveillance System (PASSI: Progresses in Assessing population health in Italy) collected in 2011–2015 were analyzed. The analysis was performed using log-binomial models to compare IRR between 41,094 Italian women and 3,140 regular immigrant women of childbearing age (18–40 years), stratifying the latter by area of origin and length-of-stay in Italy (recent: ≤ 5 years; mid-term: 6–10 years; long-term: > 10 years).

Immigrant women showed a IRR of 36% compared to 60% among Italian women.

Adjusting for demographic characteristics (i.e., sex, age and area of residence), socio-economic factors (i.e., education, occupation, family composition and economic status) and an indicator of the presence of at least one health-risk behavior (i.e., physical inactivity, current cigarette smoking, excessive alcohol consumption and excess weight) did not significantly change this difference. Recent immigrants and immigrants from high migratory pressure countries (HMPC) in sub-Saharan Africa and Asia showed the lowest IRR (respectively, 30% and 27%) compared with Italian women.

As shown by the study, the relevant differences in IRR between immigrant and Italian women were not explained by different demographic, socioeconomic and health-risk behavior characteristics. As entitlement to free-of-charge immunization in Italy is universal, regardless of migration status, other informal barriers (e.g., cultural and barriers to information access) might explain lower IRRs in immigrant women, especially recent immigrants and those from HMPC in sub-Saharan Africa and Asia.

The infographic displays the following data points:

- Italian women:** 60% immunized
- Immigrant women:** 36% immunized
- Recent immigrants (≤ 5 years):** 30% immunized
- Mid-term immigrants (6–10 years):** 36% immunized
- Long-term immigrants (> 10 years):** 40% immunized

Per the researchers' voice Given that PASSI coordination is based in ISS, Gianluigi Ferranti - one of the researchers authoring the article - has been interviewed to better explain the added value of the study published on PLoS ONE: «This analysis identifies the percentage of women in childbearing age who are immunized against rubella, comparing the IRR between immigrants and Italians, and studying determinants which cause the great differences retrieved. To date, in Europe, any population studies have not been published to give such this kind of information. In Italy, the test to check the immunization rate and the vaccine for rubella are offered on universal basis and free of charge, apart from citizenship and migratory status. Matching this aspect with the study findings, it could be reasoned that the lower IRR among immigrant women depends on informal barriers such as cultural or to access information».

Alignment with a SD perspective Prevention programs, such as vaccination or cancer screening, are proved tools for tackling social inequalities related to accessing healthcare services.

Anyway, in some cases it is not a matter of social inequalities related to access rather than cultural resistance or susceptibility to intervention. These issues imply that it is not enough to offer prevention programs proactively in order to reach out all people at major risk, but it is also necessary to remodel the intervention to meet the own specific vulnerability.



It occurs that, for instance, within vaccination coverage programs, in spite of active offer, some disadvantaged population groups show a lower compliance. It is the case of rubella immunization rate in immigrant women of childbearing age who report much lower values than Italians. Such these differences are not due to sociodemographic or health risk factors. Social inequalities are then not recalled but a particular resistance to intervention itself is retrievable. In this way, other barriers, being cultural or obstacles to information, can play a determining role in accessing rubella vaccination in some population groups, making them highly vulnerable.



This public health evidence allows to think about the adoption of a culturally-oriented communication that is able to overcome causes basing the low compliance on one hand and the implementation both of qualitative e quantitative studies on the other; in order to identify obstacles and promote adequately access-enabling strategies for rubella immunization among immigrant women. Further efforts and investigations are then needed both on research level as well as in the framework of public health policies and implementation programs.



From the ASSET World

INITIATIVES, VIEWPOINTS AND PERSPECTIVES ON GENDER-RELATED ISSUES

As indicated in the Editorial, among contents proposed in the last Share and Move, it included an overview on gender issues affecting preparedness and response in general but also specifically associated to vaccination pattern. This last is the main gender-related aspect that has been studied in ASSET. This Bulletin section reports all the gender-driven activities carried out in the project.



SCIENTIFIC COMMUNICATION Gender pattern as a SE factor highlighted by the ASSET scientific events (Summer Schools, final conference) Specific sessions were dedicated to gender issues in the three Summer School editions (Rome: 2015, 2016, 2017) as well as in the final conference (Rome, 30-31 October 2017). Within the ASSET Final Event, gender issues were presented ranging from results coming out over the project on connection with vaccination mainly to the female role in health promotion, till a wider overview of to what extent women are present in scientific researchers community.

MOBILIZATION AND MUTUAL LEARNING Relevant practice and stakeholders in the field The most gender-based ASSET output is represented by its Sex & Gender & Vaccination Platform that gathers contents and articles from ASSET experts aimed to disseminate and promote gender-sensitive and women-centered research on pandemics. In particular, it aims to disseminate information on flu pandemic related risks, notably for pregnant women and infants, preventive measures, antiviral drugs, vaccines and vaccination, and make information available to women to enable them to make informed and responsible decisions.



In ASSET, another structure related to a portal that allows relevant stakeholders discuss is the Best and Promising Practice Platform gathering significant and appropriate initiative, experiences, documents, evidence, etc. on Science-in-Society related issues in public health research on epidemics and pandemics.

POLICY WISER Vaccination hesitancy at the third ASSET High Level Policy Forum One out of the three themes selected for discussion at the third and last High Level Policy Forum (HLEF) meeting in Brussels on 28th April 2017 was represented by vaccination hesitancy standing as one of the most relevant vaccine-related issues in the international public health scenario at the moment.



MOBILIZATION AND MUTUAL LEARNING Several targeted outreach initiatives (local consultations) were carried out in 11 ASSET partner cities (Rome, Milan, Lyon, Dublin, Athens, Brussels, Oslo, Sofia, Bucharest, Geneva, Jijika) during 2017.



The ASSET local initiatives were supposed to be gender-focused at most: women were directly involved in eight initiatives as well as outcome on female health is retrievable in other five MML experiences at local level.

About topics, vaccination represents the core focus of ten local initiatives but is mentioned in the others as well.

PUBLIC PARTICIPATION Citizens from 8 partner countries consulted on vaccine uptake-related issues. One out of the six concrete policy recommendations which came out from the ASSET citizen consultation meetings relate to specific thematic areas of action about pregnancy and vaccination: update, clarify and standardize influenza vaccination advice materials for pregnant women.



It means that the public recognizes to what extent the female population and in particular pregnant women are an attention worthy target group in public health.

They in fact desire clear, and updated information on vaccination and pregnancy, firmly believing that improved communication and dialogue can restore trust and build better relationships between health authorities and public.

Social Networks

The social media pages from the Office of Public Health Preparedness and Response of the American Centers for Disease Control and Prevention (CDC) offer interesting materials which are addressed both to specific target groups and to the whole population.

>Power of Preparedness-Ready, Wrigley

The toolkit 'Ready Wrigley' that is available for children includes: books, checklists, a mobile application for kids, posters. One of the children's books is released by the American Academy of Pediatrics and CDC to build capacity in children's preparedness by inspiring youth readiness and promoting individual resilience.



>Power of Preparedness-Preparedness Month 2017-Social Media Graphics

Browsing the left menu, all the web tools delivered under the topic area of 'Preparedness' are available. Accessing the section on the 2017 edition of 'National Preparedness Month', materials developed for social media pages are also included. The social media graphics concern the communication campaign developed on Twitter, Facebook, Instagram.

Both on Twitter and on Facebook a single image is published with the pay-off:

YOU HAVE THE POWER TO BE PREPARED
READY...STEADY...SHOW...GO!

On the contrary, on Instagram more detailed messages are delivered, one per each week of the 'National Preparedness Month 2017':

WEEK 1 READY (Build a kit. Make a plan. Be informed!)

WEEK 2 STEADY (Review plans. Update kits!)

WEEK 3 SHOW (Inspire others to prepare!)

WEEK 4 GO! (Take immediate actions to save lives!)

ADDRESSING THE ZIKA OUTBREAK: A CASE FOR LEVERAGING MOMMY BLOGGERS AS PART OF THE INTERNATIONAL RESPONSE



In January 2017 an article published on publichealthjournal.com recalled the relevance of leveraging the American mom bloggers after the World Health Organization (WHO) declared the outbreak of the Zika virus and its suspected link to birth defects an international public health emergency.

This insight is presented as new tools to fight the infection including allowing health agencies to coordinate efforts.

As a supplement to institutional efforts by the health authorities, also more grassroots social media channels are recognized to be helpful for sharing valuable information through trusted voices to different important audiences.

One way to effectively do this – especially for reaching pregnant women who are at great risk for negative effects from the Zika virus—is through the online influencers known as "mommy bloggers". In the United States alone, 3.2 million women identify as bloggers; and they can be quite influential.

According to [your study](#), 14% of American mothers with at least one child in their household report turning to blogs for advice; and some of the most successful mommy bloggers reach millions of readers. These blogs can act as important sources of information, support and connecting for pregnant who are making important decisions to promote the health of their children.

Thus, engaging mommy bloggers to share timely and life-saving information at the right moment can help get the word out to women who need this information the most.

Use of grassroots social media channels to share timely and life-saving information at the right moment can help get the word out to women who need this information the most.

In 2013, Twitter launched Twitter Alerts, which delivers "alert" tweets through the platform's traditional timeline feed and via text messaging to a user's cellphone.

The American Red Cross generated more than \$5 million via text message donations in the 48 hours following the Haiti earthquake in 2010.

Moreover, social media are increasingly used communication channels where people are going for information in crises. A [survey](#) conducted by the American Red Cross found that 18% of adults said they would turn to digital or social media in an emergency situation and 63% said emergency response agencies should regularly monitor their Web sites and social media so they can respond promptly to requests for help posted there.

Despite this, there are few examples where mommy bloggers have been engaged as part of a response to an outbreak; yet, these situations are the perfect opportunity to do so.

As Eric Olson, vice president of [The Motherhood](#), a social media marketing agency and blogger network based in the U.S., says, "Misinformation and myths, particularly around complex health issues, can easily proliferate online."



Working with influencers such as mom bloggers, who have a dedicated, nationwide readership on their blogs and social media platforms, can be a valuable and effective method of disseminating important, accurate information online - and beyond.

A recent survey of more than 700 blog readers by The Motherhood Indicated that more than 85 percent of readers discuss topics they see on blogs with friends and family offline.

Empowering and educating influencers to share details about the Zika virus and serve as ongoing health ambassadors on the topic can help real moms get the facts and alleviate fears."

Mommy blogs should not be overlooked by public health officials as important channels for influencing family health decision-making during times of crisis.

Especially for outbreaks, like Zika, where mothers and mothers-to-be are priority audiences, engaging these kinds of online channels to provide accurate and timely information can be a powerful supplement to ongoing emergency response efforts in order to answer burning questions and address the fears of mothers worldwide.

TRAVEL ALERT ON ZIKA BY CDC

Pregnant women should consider postponing travel to 14 countries and territories from Brazil to Mexico where mosquitoes are spreading the Zika virus, which is associated with microcephaly in infants

The Centers for Disease Control and Prevention (CDC) announced on 15.3.16 that pregnant women in any trimester should consider postponing travel to 14 countries and territories in South and Central America and the Caribbean where mosquitoes are spreading the Zika virus. In its level 2 travel alert, the CDC also advises women who are thinking about becoming pregnant to consult with their physician before traveling to these areas, and if they do, follow strict precautions to avoid mosquito bites. Safeguards include wearing long-sleeve shirts and long pants and using insect repellent. The 14 countries and territories covered by the travel alert are Brazil, Colombia, El Salvador, French Guiana, Guatemala, Haiti, Honduras, Mauritius, Mexico, Panama, Paraguay, Suriname, Venezuela, and the Commonwealth of Puerto Rico. It is because of growing evidence of a link between Zika and microcephaly. Babies with microcephaly have a smaller-than-expected head and smaller brains as well that may not have developed properly.



On the Web

Zika Virus

Protecting Pregnant Women and Babies



Educate. Ask. Support.

Zika virus infection (Zika) during pregnancy can cause damage to the brain, microcephaly, and congenital Zika syndrome, a pattern of conditions in the baby that includes brain abnormalities, eye defects, hearing loss, and limb defects. Pregnant women can protect their babies from these Zika-related health conditions by not traveling to areas with Zika. Men and women who live in or travel to an area with Zika can prevent infection by avoiding mosquito bites and using condoms during sex.



Key points include:

- 44 states reported cases of pregnant women with evidence of Zika in 2016. Most were travel-associated.
- About 1 in 10 pregnant women with confirmed Zika had a fetus or baby with birth defects.
- Only 1 in 4 babies with possible congenital Zika were reported to have received brain imaging after birth.



Video: April 2017 Vital Signs – Zika Virus: Protecting Pregnant Women and Babies

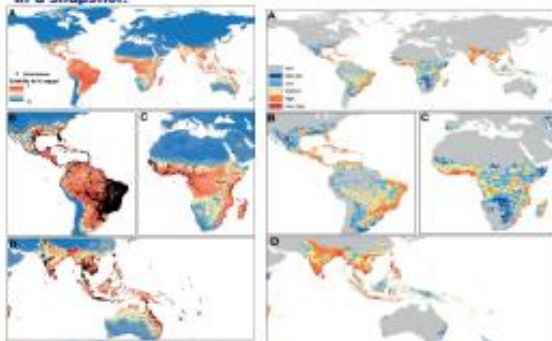
About 1 in 10 pregnant women with confirmed Zika had a fetus or baby with birth defects.



Vital Signs is a monthly report that appears as part of the CDC journal, *Morbidity and Mortality Weekly Report*.



In a Snapshot!



Alberto J. Alanti, Antonella Badgalupo and Pedro E. Cattán from the Chilean University in Santiago published the article 'Spatial quantification of the world population potentially exposed to Zika virus' on International Journal of Epidemiology, in 2017. The authors present niche modelling techniques to estimate the potential distribution area of *Aedes aegypti* mosquito, the main vector for Zika virus (group figures 3A-D). This was overlapped with human population density, determining areas of potential transmission risk worldwide (group figures 2A-D). They quantified the population at risk according to risk level (group figures 3A-D). They found the vector transmission risk mainly distributed in Asia and Oceania on the shores of the Indian Ocean. In America, the risk concentrates in the Atlantic coast of South America and in the Caribbean Sea shores in Central and North America. In Africa, the major risk is concentrated in the Pacific and Atlantic coasts of Central and South Africa. The world population under high and very high risk levels includes 2.261 billion people. These results illustrate Zika virus risk at the

global level and provide maps to target the prevention and control measures especially in areas with higher risk, in countries with less sanitation and poorer resources. Many countries without previous vector reports could become active transmission zones in the future, so vector surveillance should be implemented or reinforced in these areas.

Disclaimer

The ASSET project was designed to accomplish a European Commission Call (DG Research and Innovation - HEALTH), for developing a Mobilization and Mutual Learning Action Plan in response to epidemics and pandemics with regard to Science in Society related issues.

The European grant agreement ensures scientific and editorial freedom to the ASSET consortium partners.

The views expressed in the ASSET Pandemic Preparedness and Response Bulletin "Share and move" are those of the authors and may not necessarily comply with European policy.

Statements in the Bulletin are the responsibility of their authors and not authors' institutions.

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Readers are advised to verify any information they choose to rely on.

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RELEVANT WEB REFERENCES/RESOURCES

INSTITUTIONS

- ✿ **Australian Response MAE Network (ARM)** <http://www.arm.org.au/>
- ✿ **Information Centre on Emerging Infectious Diseases in the ASEAN Plus Three Countries** <http://www.aseanplus3-eid.info/>
- ✿ **Center for Disease Control and Prevention (CDC)**
<http://www.cdc.gov/mmwr/international/world.html>
- ✿ **EpiCentro** www.epicentro.iss.it/
- ✿ **European Center for Disease Control and Prevention (ECDC)**
http://www.ecdc.europa.eu/en/healthtopics/seasonal_influenza/epidemiological_data/Pages/Weekly_Influenza_Surveillance_Overview.aspx;
<http://www.ecdc.europa.eu/en/press/news/Pages/News.aspx>
- ✿ **Georgia Institute of Technology (GATECH)** www.emergencypreparedness.gatech.edu
- ✿ **Hellenic Center for Disease Control and Prevention (HCDCP)**
<http://www2.keelpno.gr/blog/?p=2778&lang=en>
- ✿ **Maryland State**
<http://preparedness.dhmh.maryland.gov/SitePages/Public%20Health%20And%20Emergency%20Preparedness%20Bulletins.aspx>
- ✿ **National Center for Disaster Preparedness – Columbia University (NCDP)**
<http://ncdp.columbia.edu/>
- ✿ **Drexel University (Philadelphia)**
<http://www.drexel.edu/publicsafety/emergencypreparedness/program/bulletin/>
- ✿ **Vermont State** http://healthvermont.gov/pubs/disease_control/2005/2005-06.aspx
- ✿ **World Health Organisation (WHO)** <http://www.who.int/bulletin/volumes/92/12/en/>;
<http://ojs.wpro.who.int/ojs/index.php/wpsar/article/view/266/395>;
<http://www.afro.who.int/en/mozambique/country-programmes/disease-prevention-and-control/communicable-diseases.html>

JOURNALS

- ✿ **British Medical Journal (BMJ)** www.bmj.com/
- ✿ **Eurosurveillance** <http://www.eurosurveillance.org/public/links/Links.aspx>
- ✿ **Journal of American Medical Association (JAMA)** <https://jamanetwork.com/journals/jama>
- ✿ **The Lancet** www.thelancet.com/
- ✿ **The New England Journal of Medicine (NEJM)**
<http://www.nejm.org/doi/full/10.1056/NEJMra1208802#t=references>



NETWORKS

- ✿ **EpiNorth** <http://www.epinorth.org>
- ✿ **EpiSouth** www.episouthnetwork.org - www.episouth.org/
- ✿ **FluResp** www.fluresp.eu
- ✿ **I-Move** www.i-moveplus.eu/ - <https://ec.europa.eu> › European Commission › Horizon 2020
- ✿ **Passi** www.epicentro.iss.it/passi/
- ✿ **Venice III** venice.cineca.org/