ECDC Meeting Report

Joint Meeting for National Focal Points for Preparedness and Response & National Focal Points for Threat Detection, EWRS and IHR

7th May 2020, Thursday
13.00-15.30

13:00-13.10	**Welcome by** (10)(2e)
13.10-13.30	**Presentation 1** Overview of the current data collection through event and indicator based surveillance activities in ECDC, and what is that telling about the pandemic. (10)(2e) *and* (10)(2e)
13.30-13.50	**Discussion**
13.50-14.20	**Presentation 2** Highlights on the latest ECDC Rapid Risk Assessment with a focus on response measures taken by EU/EEA/UK countries and how this may influence strategies for de-escalation of measures. (10)(2e) *and* (10)(2e)
14.20-14.40	**Discussion**
14.40-15.00	**Presentation 3** Latest developments and knowledge in testing, serology and immunity status for SARS CoV-2. (10)(2e) *and* (10)(2e)
15.00-15.20	**Discussion**
15.20-15.30	**Summary by** (10)(2e)
15.30	**End of the meeting**

European Centre for Disease Prevention and Control (ECDC)
Postal address: ECDC, 169 73, Solna, Sweden
Visiting address: Gustav den III:s Boulevard 40, 169 73, Solna, Sweden
Phone: +46 (0)8 58 60 10 00
Fax: +46 (0)8 58 60 10 01
www.ecdc.europa.eu

Acronyms

AAR – After Action Review

IAR – In Action Review

ECDC – European Centre for Disease Prevention and Control

EU - European Union

MS – Member States

RRA – Rapid Risk Assessment

TESSy – The European Surveillance System

WHO – World Health Organisation

European Centre for Disease Prevention and Control (ECDC)
Postal address: ECDC, 169 73, Solna, Sweden
Visiting address: Gustav den III:s Boulevard 40, 169 73, Solna, Sweden
Phone: +46 (0)8 58 60 10 00
Fax: +46 (0)8 58 60 10 01
www.ecdc.europa.eu

Welcome by (10)(2e)

There are three important points to the agenda of the Webinar, which fit very well with the important questions being asked these days by different stakeholders and entities.

1) A streamlined approach for testing and reporting. How the data are being generated depends on a country's approach and it is important to see what can be streamlined.
2) Coordination of de-escalation measures. Countries do see this as a necessity, and the coordination for general principles of de-escalation has begun, including between neighbouring countries.
3) Immunity to COVID-19. Questions that are often asked are whether there is immunity conferred to this infection, if yes how long it lasts.

Other topics that are arising include summer holidays, tourism, a second wave of infection, and managing COVID-19 during influenza season.

One positive note about the current situation, is that it highlighted the importance and the link of health to all aspects of life, in particular to the economy. Health is not just a cost factor but also an investment that can help economies rise.

Presentation 1: Overview of the current data collection through event and indicator based surveillance activities in ECDC, and what is that telling us about the pandemic.

(10)(2e)

On 31st of December 2019 China reported the first cases of COVID-19. Within 2 months and a half, more than 170 countries were affected. The European countries were mainly reporting for the first time during February and March. Almost all countries are now affected worldwide.

The curve describing the wave of cases by continent shows that it began in Asia, then Europe and now America. The epicentre of this pandemic moved from east to west in 2 months.

The number of cases reported worldwide by continent is strongly affected by the testing strategy that can differ between countries, as well as the access to care, the reporting system and the reporting delay. Overall, the death distribution seems to be decreasing since mid-April, with the number of deaths being mainly driven by the USA.

Currently, the highest number of cases per 100,000 population are in the Americas and Europe. More interestingly, the curve describing the 14-day truncated cumulative incidence cases per 100,000 population shows us that the USA is reaching a plateau, which is not the case for Russia and Singapore. Russia and Singapore having implemented the measure to contain the spread later. For the other countries, South Korea, Japan and China, there is an important decreasing trend.

Zooming into Europe, the distribution of laboratory-confirmed cases of COVID-19 in the EU/EEA and UK shows us that since beginning of April there is a decreasing trend for almost all countries. Of course, the data are dependent on the testing strategy and reporting delay of countries. Specifically, there is a decrease in almost all EU/EEA and UK countries when comparing cases reported between the 23/04-29/04 and the 30/04-06/05. The curve describing the 14-day truncated cumulative incidence cases per 100,000 population in different parts of Europe shows that countries in north, east, south and west of Europe are decreasing or reaching a plateau.

(10)(2e)

Indicator based surveillance conducted by ECDC largely revolves around data reported to us by Member States (MS) into TESSy. In TESSy we collect data in case-based and aggregate format, and we currently have half a million records reported as case-based. For most countries, we have 80% or above

European Centre for Disease Prevention and Control (ECDC)
Postal address: ECDC, 169 73, Solna, Sweden
Visiting address: Gustav den III:s Boulevard 40, 169 73, Solna, Sweden
Phone: +46 (0)8 58 60 10 00
Fax: +46 (0)8 58 60 10 01
www.ecdc.europa.eu

completeness of reporting of cases to TESSy compared to official numbers. We have complete data on age and sex, and varying levels of completeness for other variables.

Trends in 14-day notification rate show that most countries have passed the peak and only three countries have not shown a concerted downward trend: Sweden, Romania and Bulgaria. In 28 out of 31 countries, the peak occurred between 13 and 35 days ago. In some countries, the notification rate still remains high, although it is declining, which is still indicative of high circulation of the virus in the population. The lack of consistency between countries on how cases and deaths are reported makes it dangerous to directly compare countries.

Influenza sentinel surveillance, specifically GPs and primary care practices, can be used to test a subset of patients that present with flue like syndromes and testing them for both influenza and SARS-CoV-2. If the system works well, this is one of the strongest indicators of geographical spread and intensity of transmission in the community. We only have data from seven countries, largely due to the lockdown and inability of individuals to go to their GP or people being discouraged to seek healthcare. We are also collecting data from hospitals where patients with SARI are tested. We only have reliable data from Belgium, but you can see overall 40% positivity, and there is quite a difference between age groups, with highest positive cases from individuals between 50 to 80+ years of age.

Based on TESSy data, the distribution by age by week over time shows us that in mild cases there is an even distribution across age bands with children being underrepresented. In hospitalized cases and severe cases the age-band becomes older, and over time, in particular in the fatal cases, there appears to be an increase in proportion of older cases. Age-sex pyramids show that mild cases have a bulk around adults and young adults, and hospitalised patients are much older and deaths are disproportionately represented in the older age group. Patients requiring ICU seem to fall off over the age of 70, which may reflect patterns around which patients are admitted. The male to female ratio is most skewed towards male in the hospitalized, ICU and fatal cases, whereas overall there seems to be a tendency towards there being more female cases.

According to TESSy data, 35% of cases required hospitalization in the EU and 2% have required ICU or respiratory support. If we restrict the analysis to only total hospitalized cases, we can see that 8% of hospitalized required ICU or respiratory support and almost 20% of hospitalized cases have died. High proportions of cases with pre-conditions are found in hospitalized and severe cases, whereas 80% of mild cases have no preconditions. The proportion of cases having cardiovascular disorder, lung disease, diabetes neuromuscular disorder, kidney related conditions and hypertension is higher in patients with severe outcome.

Presentation 2: ECDC Rapid Risk Assessment 9th update with a focus on response measure in EU/EEA/UK countries and how this may influence strategies for adjusting measures.

(10)(2e)

The last rapid risk assessment (RRA) was triggered by the Joint European Roadmap towards lifting the COVID-19 measures. This roadmap plans for the phase when MS can start economic and social activities, while minimising the impact on people's health and not overburdening the healthcare system. The roadmap sets out recommendations to MS, with the goal of preserving public health while gradually lifting measures.

The tasks assigned to ECDC in the roadmap include:

- data collection and modelling work in collaboration with the Joint Research Centre,
- setting up a network of COVID-19 reference laboratory and alignment of testing methodology,
- update guidelines on criteria for ending quarantine,
- maintain a list of areas of comparably low reported circulation, and
- advice on a common EU approach for future lockdowns.

This roadmap is a gradual roll back, and it sets up criteria and common principles, which ECDC elaborated in the ninth RRA. In terms of epidemiological criteria, there should be a sufficient decrease of cases, hospitalization, and low levels of virus circulation. In addition, sufficient healthcare capacity should be in

European Centre for Disease Prevention and Control (ECDC)
Postal address: ECDC, 169 73, Solna, Sweden
Visiting address: Gustav den III:s Boulevard 40, 169 73, Solna, Sweden
Phone: +46 (0)8 58 60 10 00
Fax: +46 (0)8 58 60 10 01
www.ecdc.europa.eu

place as well as appropriate monitoring and surveillance capacity. As standard surveillance systems might be less effective in collecting data, other sources of data could be used to learn about virus circulation, these might include contact-tracing apps, mobility data from telecom operators, absenteeism from schools and workplace, and all-cause mortality.

Moreover, the roadmap's common principles include the lifting of measure based on science and centred around public health, and a coordinated approach matched with respect and solidarity between MS. Based on these principles, we focused on scientific evidence that supports the decision of which measure can be lifted first, how can MS prepare to lift measures, and once measures are lifted to wait 2-4 weeks to see the effect of lifting the first set of measures.

The overall aim of the ninth RRA is to provide the commission and MS with a set of public health objectives. These objectives are to:

(I) reduce morbidity, severe disease and mortality in the population through proportionate non-medical countermeasures with emphasis on protecting vulnerable (high-risk) groups, and

(II) limit and control virus circulation and transmission in the general population, the so-called flattening the curve, and maintaining the number of infections at a level that are manageable for the healthcare system.

For this RRA, we looked at the risk of severe disease in the general population and vulnerable groups, as we were seeing high mortality in nursing homes and long term care facilities. The risk of resurgence of sustained community transmission was also looked at in case the measures are lifted to quickly, in an uncoordinated manner or without the appropriate capacity in place.

(10)(2e)

In the ninth RRA, it was specified that for the development of a robust surveillance the following should be considered:

- epidemiological criteria,
- enhanced testing,
- monitoring the intensity and geographical spread,
- detection of nosocomial outbreaks,
- identification and monitoring of changes in risk groups,
- age specific population immunity,
- measuring the impact on healthcare systems,
- monitoring viral changes, and
- measuring the impact of mitigation and physical distancing measures.

Another element that has been developed in the ninth RRA is a framework for contact tracing that covers active case finding, detection of cases based on extensive testing, isolation of cases and early quarantine, follow-up of contacts possibly supported by electronic tools and/or applications.

Expanding testing capacity and harmonising testing methodologies across MS is a fundamental aspect in the coming months. This will allow for early detection and isolation of cases, which is critical if we want to maintain good knowledge of the distribution of cases and conduct early response. It will also help for clinical management, contact tracing, protecting risk groups by early diagnostic in specific settings, and assessing population immunity and return-to-work strategies.

With regards to sufficient healthcare capacity and resilience there is a need to recover from the impact of the pandemic on general capacity. There is also a need for sufficient hospital and ICU beds, and the monitoring and estimation of resource needs to ensure that healthcare systems have the capacity to respond to a new surge in cases. Prioritisation should be given to building capacities related to medical, IP, laboratory, contact tracing equipment as well as human resources. In addition, a strong risk communication strategy should be in place to inform and engage both public and vulnerable groups, with a rationale of phasing out 'stay-at-home' policies and adjustment of community measures.

The response measures monitoring conducted at ECDC assembles various elements, including the epidemiological situation, the mapping of interventions and laboratory testing and policies. Together these elements can allow for timely monitoring of non-pharmaceutical interventions, timely and accurate risk assessment, and integration in the modelling framework in order to look at specific scenarios and the impact of reducing measures.

European Centre for Disease Prevention and Control (ECDC)
Postal address: ECDC, 169 73, Solna, Sweden
Visiting address: Gustav den III:s Boulevard 40, 169 73, Solna, Sweden
Phone: +46 (0)8 58 60 10 00
Fax: +46 (0)8 58 60 10 01
www.ecdc.europa.eu

In the assessment of the response to COVID-19 the aim is to provide evidence to strengthen future response measures and identify best practices. It is also possible to conduct In-action reviews during the outbreak and After-action reviews for long-term assessment.

(10)(2e)

Areas of future work that ECDC will be conducting on COVID-19 are disease characterisation (pathogenesis and burden of COVID-19), risk of transmission for specific factors and demographics, knowledge on immunity, evaluation of the effectiveness and impact of non-pharmaceutical intervention, impact of COVD-19 on other diseases, and treatment and vaccination.

Discussion

Specification on the data collected for modelling - (10)(2e)

A number of databases for response measures has been created by research groups such as Oxford, LSHTM, JRC and ECDC. One of the main issues of these databases is that they are oriented to a specific goal, such as closure, movement of people, point of entry or more towards the economic impact. We need to monitor these response measures in light of the mode of transmission, specifically which measures can reduce transmission.

One challenges is that the timeline of the measures needs to be well documented and matched to the epidemiological data. Another challenge is the interpretation of the epidemiological data and benchmarks that can be used to determine the effectiveness of the response measures, which is highly biased towards the testing capacity. Mobility data is a good and simple resource to monitor how people are moving, and understand the drop of population movement in relation to specific response measures. One of the problems for the analysis is that the response measures at the beginning were implemented in a very short amount of time, limiting the possibility of attributing effectiveness to specific response measures.

Can you explain better how the integration of epi data, non-pharmaceutical interventions and testing policy will take place, and is modelling for that being developed?

ECDC uses a compartmental model, an epidemiological approach with blocks of population moving across the natural history of the disease. You start with a fully susceptible population and you move to through disease states like infectious, hospitalized, recovered and so on. The rate of movement between compartments and other parameters are based on scientific literature and TESSy data. Some parameters are fixed and some can be free to match the epidemiological data. Then you can add the response measures over time from the beginning of the outbreak. Currently, we are modelling in the short-term future, where we model different scenarios by looking at what would happen if all the response measures that are currently implemented continue or we look at scenarios where we reduce the effectiveness of the current package of response measures by 20%. We are prudent in conducting long-term forecasts as COVID-19 is an emerging disease with many unknowns. Based on the documentation, the response measures and the testing we can look at the reproductive number and the trend in relatively short periods ahead of us. This might help detect an early flare up of cases or understand the trajectory of the dynamic of the disease.

The database of response measures was based on the incident management model in the EWRS. To what extent do you see the EWRS model fits the purpose in a situation like that, and should there be modifications in order to improve capacity to address these specific needs?

The first challenge was the pace of the outbreak and the intensity of the response measures. The database of the measure was started based on the EWRS and then looking into the public information form the countries websites. 95-98% of information in the EWRS was in the public domain. The monitoring and listing of response measures is challenging due to the regional aspect, where regional specificity is not captured in EWRS. Obtaining step-by-step de-escalation might also not be reported in EWRS.

Is there any collaboration with WHO?

European Centre for Disease Prevention and Control (ECDC)
Postal address: ECDC, 169 73, Solna, Sweden
Visiting address: Gustav den III:s Boulevard 40, 169 73, Solna, Sweden
Phone: +46 (0)8 58 60 10 00
Fax: +46 (0)8 58 60 10 01
www.ecdc.europa.eu

Yes, ECDC collaborates with WHO and other research groups around Europe. We have a weekly meetings and collaboration.

Italy experience ([redacted], Italian MoH)

In Italy, the MoH issued a decree for health risk monitoring COVID-19, which includes indicators on monitoring capacity, testing and contact tracing capacity, and impact on health services. The indicators will feed two algorithms (one of probability, the other of impact) which cover a risk assessment matrix.

Of the 1st of May Italy started first step of de-escalation. Lockdown is now not so strict and some activities have opened. On the 3rd of April the MoH released a decree for health risk monitoring for this phase, from phase 1 to 2. There are three types of indicators developed:

1) Monitoring capacity that can provide health authorities specific information.
2) The capacity of testing, the time between the beginning of symptoms, the time in which the diagnosis is conducted, and the capacity of local public health department to do contact tracing.
3) Capacity of the HC system and services to take on a new outbreak or increasing numbers of people coming into the ICU in particular.

There are 21 indicators. These indicators are used for 2 algorithms, one about probability, and the other about the impact of new outbreak. The two algorithms feed the risk attribution for specific regions.

Germany experience ([redacted], RKI)

We are discussing about topics related to re and de-escalation, which can be separated into 3 groups.

1) Transmissibility: Indicator related to the number of tests per population. There is a lot of attention of R0. The incidence per 100,000 inhabitants per local area is also considered. A cut-off has not been yet decided, but 50 case per 100,000 inhabitants was discussed.
2) Severity of disease: looking into the number of cases requiring hospitalization, intensive care or respiratory support.
3) Available capacity: the available capacity for local public health authorities in charge of implementing infectious disease measure, such as contact tracing. We have recently established a traffic light system where local health authorities are supposed to indicate green, yellow or red in terms of the available capacity to fulfil these measures. In addition, the number of available beds in ICU and respiratory support status are considered.

Presentation 3: Laboratory response, testing and serological assays, sero-epidemiological studies and virtual EU/EEA coordination mechanism.

[redacted]

It is very important for a test to fit its purpose. Based on the purpose the laboratory criteria might change. Examples of testing purposes are clinical management and decision making for individual care, public health management, or surveillance. There is still a need for expanding testing capacities as it is important for contact tracing and for countries to know in detail the situation of every region. Fast and reliable testing is key to swift diagnoses and to measure population acquired immunity.

Testing strategies vary between countries, with different target groups such as healthcare workers, individuals with travel history or patients presenting SARI symptoms. Based on the TESSy data and other data from countries, we see that testing capacity has been increasing over time, which should be taken into account when interpreting the number of positive cases.

The Foundation for Innovative New Diagnostics (FIND) collected information of COVID-19 tests, and as of the 5th of May there have been 636 listed tests. These include rapid diagnostic tests, manual RNA decision tests, automated lab-based (near POC or POC NAAT), manual or automated immunoassays, antigen detection tests, and antibody detection tests. There are few scientific publications on the performance of

European Centre for Disease Prevention and Control (ECDC)
Postal address: ECDC, 169 73, Solna, Sweden
Visiting address: Gustav den III:s Boulevard 40, 169 73, Solna, Sweden
Phone: +46 (0)8 58 60 10 00
Fax: +46 (0)8 58 60 10 01
www.ecdc.europa.eu

these tests, and therefore there is still limited evidence on the reliability and comparability of these different diagnostic tests.

In the USA, based on the FDA, there are no approved diagnostics for COVID-19, but there are 59 test that have received emergency authorisation. These include molecular tests, total antibodies, IgG, and IgG and IgM (2 of these are rapid tests: Cellex and AutoBio Diagnostics tests). For antibody tests, it is important to look at the timing, which is 10-15 days post symptom onset and can have impact on the validation data.

Within our laboratory network, we are collecting this type of validation data, and 20 countries have shared data with us. This data includes data for 29 antibody test and 18 nucleic acid tests for clinical performance, and 13 nucleic acid tests for analytical performance. There are other tests under consideration and evaluation.

The objectives for serological testing are for obtaining sero-prevalence data, documenting of potential reinfections, contact tracing, biobanks, and diagnostics (not really recommended as the immune response comes late). The types of serological tests are in-house and commercial tests, these tests can detect different types of antibodies, but we have to keep in mind that not all antibodies are neutralising. The immune response does not happen immediately, around 10-15 days since the infection we can start to see antibodies that can be measured. There have been reports of different antibody responses between mild and severe patients, where hospitalized and severe cases seem to have a higher number of detectable antibodies.

The positive antibody test can tell us that the person was infected in the past and detect if it was a recent or distant infection based on the type of antibody. It does not tell us if the person has recovered, if the antibodies are neutralising and the antibody levels. A negative antibody test does not tell us much, as it could be that the person is not infected, or that the person was very recently infected and did not develop the antibodies yet, the person was infected but already cleared the virus, or the antibody levels are too low for detection

There are multiple knowledge gaps: level of protection by antibodies and by innate and T-cell immunity, the duration of the immune response, neutralising antibodies and the severity of diseases, correlates to protection, and clinical validation of tests.

(10)(2e)

The objectives of seroepidemiological studies are: assessing immunity to SARS-CoV-2 to monitor the spread of COVD-19 by age, sex and known risk groups (including healthcare workers), assessing the fraction of asymptomatic infections, assessing and comparing immunity in individuals with no symptoms, moderate or severe disease, and assessing SARS-CoV-2-specifc antibodies and cell mediated immunity.

Different types of studies can be used for sero-epidemiological studies, such FFX studies, household studies for transmission purposes, healthcare worker and facility studies, and cross-sectional or repeated surveys through either random sampling, blood donations and residual sera.

WHO, with our support, conducted a survey on the ongoing sero-epidemiological studies in 17 EU/EEA countries and found that the following type of studies are planned: cross-sectional, repeated cross sectional and longitudinal studies. In addition to this, the research and innovation Horizon 2020 research project funded several consortia for COVID-19, with three that have sero-epidemiological components: RECOVER project from Antwerp University, I-MOVE-COVID-19 by Epiconcept and CORESAM by the Helmholz Centre for Infectious Disease Research.

The EU commission has also asked us to set up a virtual collaboration for sero-epidemiological studies. This collaboration would be used for providing and sharing common, comparable or complementary protocols, standardised or comparable testing methods, link with third-party studies, ensure the rapid sharing of experience, identify technical needs, share information, collaborate via online platforms and teleconferencing, and identify funding and technical support.

Following the CONSISE work, there is a useful publication on the reporting of sero-epidemiological studies for influenza that will be useful for the COVID-19 studies as it provides a framework in designing of studies and reportable aspects for peer-reviewed publications.

European Centre for Disease Prevention and Control (ECDC)
Postal address: ECDC, 169 73, Solna, Sweden
Visiting address: Gustav den III:s Boulevard 40, 169 73, Solna, Sweden
Phone: +46 (0)8 58 60 10 00
Fax: +46 (0)8 58 60 10 01
www.ecdc.europa.eu

Discussion

What is the genetic variance of the virus so far? And what does this mean on the validity of the test?

Until now we have seen little mutation rate, with fewer mutations than the influenza virus, and this is expected as the coronavirus has an RNA proofreading mechanisms. There have been two main clades, which we have been following closely through sequence databases. The A2 clade is taking over in the global circulation, prevailing in Europe and the United States. Very recently, there have been reports on a certain mutation that has been detected in this prevailing clade and in it may have higher transmissibility in humans, but the data are very recent.

There has been a report that a test has been affected by one of the mutations of the virus, so this is an indication that the laboratory have to be very vigilant when assessing the tests that they use. We have developed a primer/probe mutation detection tool, available on the ECDC website that can be used for the main assays that have been developed. Of course, the downside is that the commercial assays do not disclose the primer/probe binding sites in the genome so it is difficult to say if a specific mutation affects that assay.

Can you comment on the validity of testing wastewater?

Environmental surveillance has been used a lot for poliovirus. We know that SARS-CoV-2 manages to infect gut cells and has been isolated in faeces, and it is expected that there will be some detection of the viral RNA in the wastewater. This is a surveillance system that can be used to monitor the virus in the community.

The use of this is more for early identification of the virus circulating in the community or as a signal that there is a low enough transmission that the virus cannot be detected in sewage.

Presentation 4: In-Action and After-Actions Reviews for COVD-19

(10)(2a) i)

In the past we developed a guidance on best practices on how to conduct After-Actions Reviews (AAR). Forthcoming activities in AAR supported at ECDC have two types of objectives. Short-term objectives are to assess what has happened so far in the response to COVID-19, to identify strategic priorities going forwards, and to exchange lessons learned. The way to project this would be through brief, half-day type of workshop that we call In-Action reviews. Middle- and long-term objectives are to support comprehensive AAR, implementation of action plans and foster exchange of good practices. A documentation on how to conduct AAR and IAR will be distributed, and will include questions that can guide this process.

This type of work will help to improve strategies and how we can go forward with COVID-19.

How can In-Action reviews be performed during the crisis and what type of template you would use to support decision-making?

We are suggesting a short structured workshop following a facilitated look back approach. There is a facilitator and you construct a timeline with key events, and identify key stakeholders who should join the meeting. Another important aspect is that you focus on one or two areas, rather than whole scale response.

END OF MEETING

European Centre for Disease Prevention and Control (ECDC)
Postal address: ECDC, 169 73, Solna, Sweden
Visiting address: Gustav den III:s Boulevard 40, 169 73, Solna, Sweden
Phone: +46 (0)8 58 60 10 00
Fax: +46 (0)8 58 60 10 01
www.ecdc.europa.eu