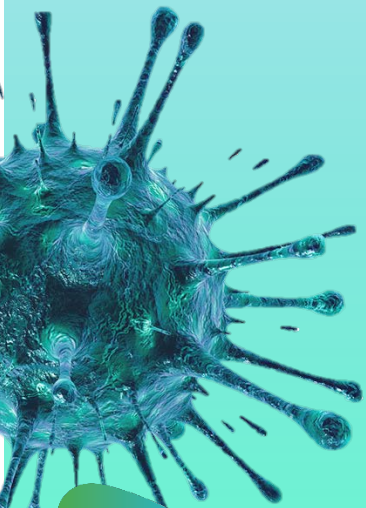


After Action Review of the Influenza seasonal peak 2018



عنوان
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Agency

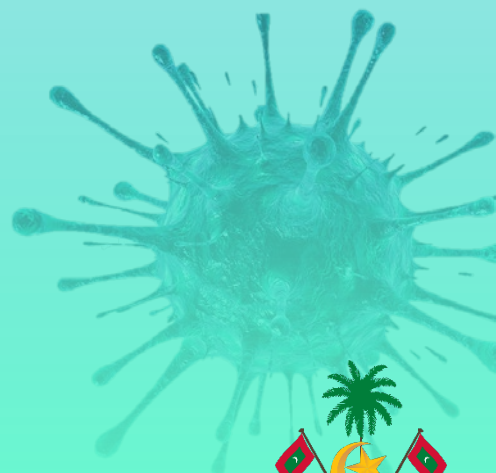


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Acronyms

HPA	Health Protection Agency
HECC	Health Emergency Coordination Committee
TAC	Technical Advisory Committee
ILI	Influenza Like Illness
SARI	Severe acute Respiratory Infections
ARI	Acute Respiratory Infections
PCR	Polymerase Chain Reaction
PIO	Public Information Officer
WHO	World Health Organization
NDMC	National Disaster Management Center
MRC	Maldivian Red Crescent
RIDT	Rapid Influenza Diagnostic Test

1. Introduction

The first cases of infection with influenza A (H1N1) pdm09 virus were in April 2009. A total of 214 countries and territories have reported laboratory confirmed cases of H1N1 with 18,138 deaths. The rapid spread of this disease resulted in WHO declaring a global pandemic in June 2009. However following this pandemic, many people had been infected and the population had developed immunity to Influenza A (H1N1) pdm09. Since then, this strain has been causing seasonal influenza outbreaks every year around the world.

Sporadic occurrences of Influenza A and B of subtypes such as H1N1, H3N2, Yamagata and Victoria lineage cases have been identified in the Maldives. Influenza surveillance and testing was initiated in the country in 2014 under a project funded by Centers for Disease Control and Prevention. In 2015, National Influenza Laboratory was established at Indira Gandhi Memorial Hospital (IGMH). This included procurement of PCR machine, other equipment and consumables. Prior to this, testing was done abroad by sending nasopharyngeal samples of influenza suspected patients. Indira Gandhi Memorial hospital, ADK hospital and Hulhumale' hospital from Male' area and Kulhudhufushi Regional hospital and Ungoofaaruu Regional hospital from the atolls were selected as sentinel sites for routine sample collection and testing. However, all other hospitals have also been sending samples to test for influenza since surveillance began. In addition, HPA has been maintaining SARI weekly surveillance for all hospitals.

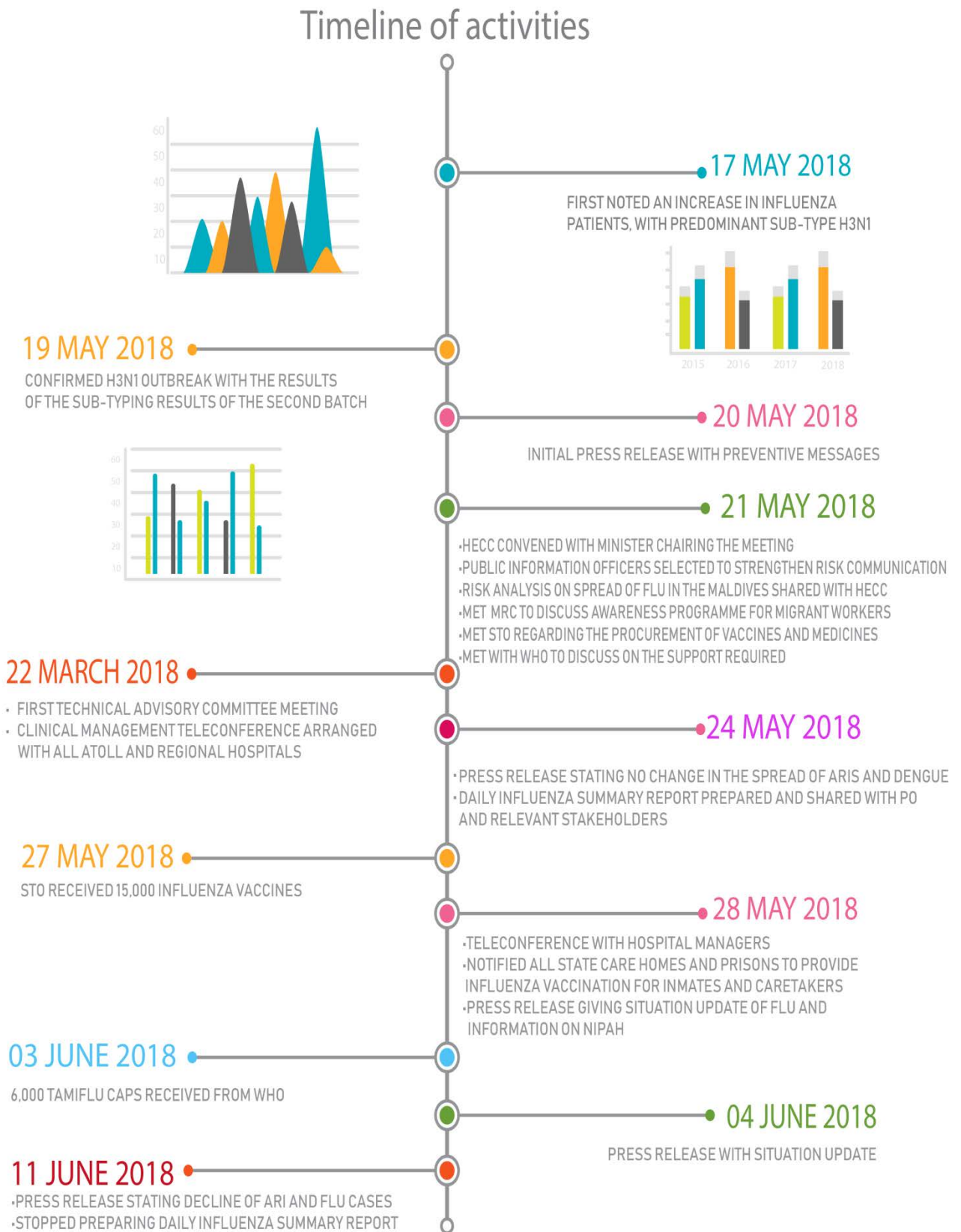
The first influenza epidemic which occurred in March 2017 was verified through laboratory testing. During this outbreak, 278 samples tested positive for H1N1 and 38 samples tested positive for H3N2. 36.6% of total tested samples were positive for influenza. Number of SARI patients with severe symptoms increased significantly. It was observed that flu symptoms worsened for pregnant women and for high risk patients. There were 6 deaths during the outbreak. As part of response actions, clinical management guidelines were prepared, sessions for clinicians were held through teleconference, UTM, Tamiflu and vaccines were procured and disseminated nationwide, and a policy on influenza vaccination was developed prioritizing high risk groups.

On 19th May, an initial alert was received from the IGMH laboratory regarding an increased number of positives for H3N2 from the PCR batch run on 15th May. A second batch of 21 samples were sub-typed on 20th May to confirm the rise in H3N2 and from this batch, 20 tested positive for H3N2 and 1 tested positive for H1N1. Response activities were started with the convening of the Health Emergency Coordination Committee (HECC) which was chaired by the Minister of Health. In addition to the HECC, the Technical Advisory Committee (TAC) for flu was formed to offer advice for response activities and to

provide technical expertise. Immediate action was taken to procure Tamiflu and vaccines through STO and WHO. During the first week of the influenza peak, 151 samples were collected, out of which 57% tested positive for influenza and by the fourth week, 34% of the 32 samples tested were positive for influenza. After a review done by the Flu Death Review Committee, 4 influenza deaths were confirmed.

Although it is established that influenza virus is causing seasonal respiratory diseases in the country, the current surveillance data is not enough to determine the period when the seasonality of the virus occurs. Since the national programme began analyzing data in 2016, at least 5 more years of data is required to determine annual seasonality. In addition to laboratory data, ARI and SARI data is collected. It is feasible to carry out a burden of disease study for the country with the surveillance data obtained from the past few years. Furthermore there is an immediate need to develop a national influenza vaccination policy and to make vaccines available to the public during the first quarter of the year, around the time the vaccine becomes available in the market. Simultaneously, it is important to advocate for influenza vaccination, especially for high risk groups.

2. Timeline of Activities/Events



3. Summary of Actions Taken

The details of actions taken in different areas of response, including committees, surveillance, case management, health promotion and vaccination are mentioned below:

3.1 Outbreak Response Committees

3.1.1 Health Emergency Coordination Committee (HECC)

In accordance with the Health Emergency Operations Plan (HEOP), the HECC is the main decision making and policy formulation body in matters related to public health emergency management at the ministry and at national level in the Maldives. Under the leadership of Minister of Health and DGPH, HECC was convened on the 21st May 2018 for coordination and provide direction to the response activities, based on the risk assessment. In addition to representatives from Ministry of Health, members from the Maldivian Red Crescent (MRC) were also represented in the committee. However, no public health emergency level was declared for this emergency.



Minister of Health chairing the first HECC meeting on 21 May 2018

Major decisions made at HECC include:

- Assignment of Public Information Officers (PIO) so that any information to the public passes through these members, and it was decided that updates will be provided through press releases on Mondays and Thursdays;
- Immediate procurement order for Tamiflu and vaccines was given to STO. Vaccination for public was organized through health facilities with procurement from STO; and
- A policy level decision was made to include cost for influenza vaccination for front-line health workers in the annual health facility budget.

3.1.2 Technical Advisory Committee (TAC)

The Technical Advisory Committee (TAC) for flu was formed as an advisory body to provide technical expertise and guidance on the response actions. It was convened on 22 May 2018, with representation from medical experts from all relevant areas and acting Director General of Health Services, Dr Mohamed Habeeb as the chair-person.

During this peak, members of the TAC worked on clinical management guidelines, made media appearances, were involved in conducting clinical teleconferences for atoll and regional hospitals and provided expertise and guidance on various issues that were raised.

Annex 1: List of TAC members



TAC for Flu Outbreak (May-June 2018) Members

Table 1: Technical Advisory Committee Decisions and Status of implementation

DATE	DECISIONS/RECOMMENDATIONS	STATUS OF IMPLEMENTATION	RECOMMENDATION FOR FUTURE
22-May-18	Due to shortage of vaccine stock at STO, release of vaccines from HPA (travel vaccine stock) to STO to make it available for the public	Released 3,000 vaccines from HPA stock to be replaced when STO's stock get renewed	
	Protocol for sample collection (both for Male' and atolls) proposed to collect samples from all SARI cases, all high risk groups including pregnant women and children < age 5.	Circular to implement this decision sent out to all health facilities on 23 May 2018	
	Additional Tamiflu to be procured; estimated as 12,000 caps and 100 syrup bottles	Requested STO for 6000 caps and 50 bottles and for the rest, request made to WHO <ul style="list-style-type: none"> 6000 caps received from WHO on 3 June STO processed purchase of 50 syrup bottles Guideline on compounding Tamiflu capsules to syrup made by Dr Nazla Musthafa and circulated to all hospitals 	
	Clinical management teleconference arranged with all atoll and regional hospitals	Teleconference held on 23 May, facilitated by Dr Zeyba and Dr Moosa <ul style="list-style-type: none"> Clinical Management Guideline on ILI and ARI updated by Dr Zeyba which was agreed by all TAC members and circulated to all health facilities 	
		Situation update on flu will be provided every Monday and Thursday in the form of press release	Bi-weekly press releases at the beginning but since no major update weekly update since week 22 <ul style="list-style-type: none"> Total 6 press releases circulated

DATE	DECISIONS/RECOMMENDATIONS	STATUS OF IMPLEMENTATION	RECOMMENDATION FOR FUTURE
24-May-18	To display clinical management pathway in the OPDs of all health facilities	Informed atoll and regional hospitals on 25 May and to clinics on 27 May	It was noted that the guideline sent is not accessible to clinicians specially in private clinics. QA to take action to increase accessibility for clinicians
27-May-18	Release weekly report from HPA reflecting aggregate data. This report will include ARI and viral fever data.	<ul style="list-style-type: none"> • Press releases prepared from 28 May gives data • Daily Influenza summary report prepared from 24 May 	To make surveillance data available on Ministry's website throughout the year
	Influenza vaccination program for people in state care facilities. This includes prisons, Fiyavathi, Hiya, Guraidhoo center and rehabilitation center (estimate: 2,000). Recommended for the corresponding government ministry to take lead in ensuring those under their care are vaccinated every year for influenza	Request sent on 28 May <ul style="list-style-type: none"> • Ministry of Gender (for Fiyavathi and Hiya) • Maldives Police Service for police custodial • Maldives Correctional Service for Prisons • Ministry of Health for Guraidhoo Special Needs Care Center 	
	To initiate influenza vaccination from Dhamanaveshi with easy access to vaccines from STO	By then Dhamanaveshi has already started vaccination during the day and started in the evenings from 29 May	
28-May-18	Bulk vaccination to be sold only to health facilities not to private companies. Vaccines will not be sold for mass prescription	STO present at the meeting	
	For the request of 15,000 Junior vaccines, due to difficulty in procuring the requested amount, minimized the amount to 5,000 junior vaccines		
29-May-18	To release press release with influenza vaccination information	Press release on 29 May	
31-May-18	Private clinics need to attain prior approval from QA and MFDA for influenza vaccination	<ul style="list-style-type: none"> • Regular checks by MFDA on vaccine storage in clinic • MFDA and QA jointly monitored and issued approval for vaccination 	

DATE	DECISIONS/RECOMMENDATIONS	STATUS OF IMPLEMENTATION	RECOMMENDATION FOR FUTURE
31-May-18	TAC made the decision to not depend on the result obtained from RIDTs for treatment during outbreaks. CDC guideline was used to reach this decision.	<ul style="list-style-type: none"> • Informed this decision with CDC advice on 7 June 2018 • Review of the CDC advice done by Dr Nazla Musthafa and the circular is shared with all health facilities for action 	
	Discussion on making Tamiflu available from pharmacies. Even though it is not a WHO/general requirement to keep Tamiflu in the programme, majority members agreed to maintain Tamiflu as it, in the programme because there is the need to strengthen treatment protocol before making it available on prescription in order to address drug resistance development	To follow the same process of procuring and supplying Tamiflu by the programme	

3.2 Surveillance

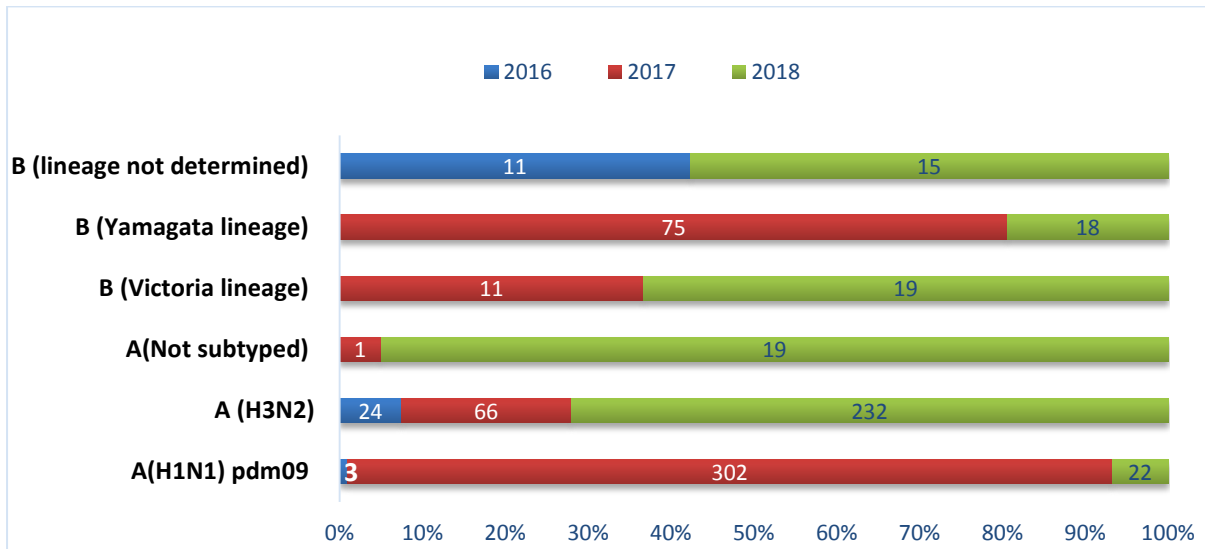
Table 2: Influenza test results from 2016 – 2018

Year	Total number of influenza A detections			Total number of influenza B detections			Total tested
	A(H1N1) pdm09	A (H3N2)	A (Not subtyped)	B (Victoria lineage)	B (Yamagata lineage)	B (lineage not determined)	
2016	3	24				11	283
2017	302	66	1	11	75		1,658
2018	22	232	19	19	18	15	993

During the early phase of the influenza peak, an initial alert was received on 19th May from IGMH laboratory regarding an increase in number of positives for H3N2 from the PCR batch run on 15th May. To confirm the rise in H3N2, another batch was sub-typed on 20th May and from this batch, 20 tested positive for H3N2 and 1 tested positive for H1N1. With the influx of samples, testing protocol during the peak was limited to SARIs and high risk ILI and sub-typing was limited. Approximately 38 samples were run per day.

Male' area was the most affected during this influenza peak. However, samples were received from Raa Ungoofaaruu Regional hospital, Hithadhoo Regional hospital and Adh Atoll hospitals as well. Majority of the samples received from these hospitals tested positive for influenza A (H3N2).

Graph 1: Influenza Typing and Sub-typing results from 2016 to 2018

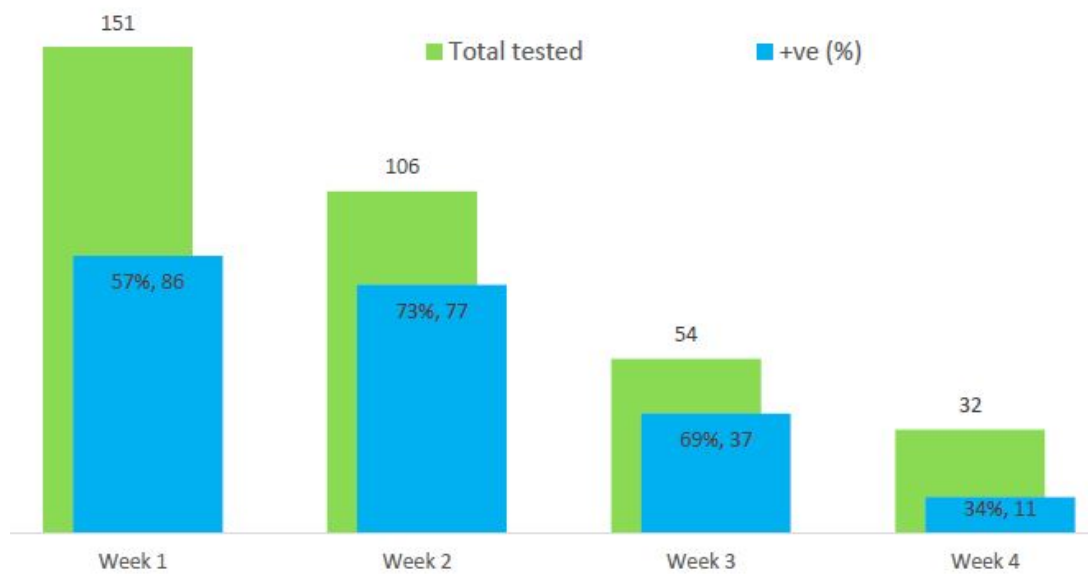


The above graph shows all isolated strains of influenza which exists in the Maldives since 2016. In 2016, Influenza B virus was the pre-dominant sub-typing in rotation. Year 2017 shows an increase in influenza A (H1N1) pdm09 which indicates the outbreak in March 2017. Also the highest numbers for influenza A (H3N2) also was observed during this period. In the same year, an increase in influenza B (Victoria lineage) was observed in the first four months and an increase in influenza B (Yamagata lineage) was observed from September to December with complications in SARI elderly patients. For the current year, it can be determined that influenza A (H3N2) predominantly caused this peak.

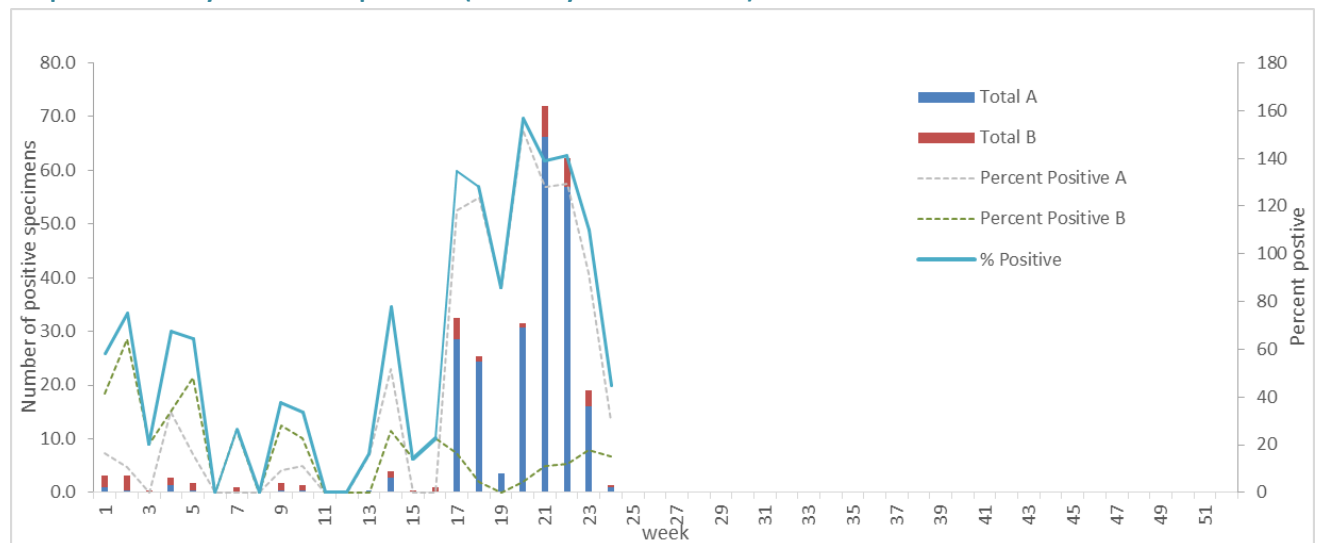
Table 3: Total tested and positive for ILI/SARI for the outbreak period (15 May – 11 June 2018)

Status	Total tested	total positive
ILI	437	276
SARI	180	103
unclassified	20	10
Total	637	389

Graph 2: Percentage positivity for influenza for the outbreak period (15 May – 11 June 2018)



Graph 3: Summary of influenza positives (1 January – 16 June 2018)



Issues and challenges

1. There are currently two PCR machines in IGMH laboratory. One PCR machine was operating at the time and the other one required calibration. As a result, two batches were run per day, which lengthened the time required for testing; and
2. National Influenza Database was not updated regularly.

3.3 Case Management

With the alert about an increase in influenza cases, an initial risk assessment was done on 20th May 2018. The response activities were initiated based on the results/findings of this assessment.

Annex 2: Risk Assessment of Influenza infection 2018

The clinical management pathway for ARI and ILI was revised and teleconferences were conducted for clinicians from all atoll and regional hospitals. This guide included approach to treatment of patients with ILI symptoms, patients in the high risk categories and admission process for suspected SARI cases after consultation with the on-call physician in IGMH. It also included the type of investigations that needs to be carried out together with drug dosage information and referral guidance.

According to the testing protocol advised by TAC, priority was given to collect samples from SARI and high risk ILI patients for testing.

Issues and challenges

1. Low stock of Tamiflu oral suspension for pediatric cases, hence clinicians from Male' area had to compound capsules. Dr Nazla Musthafa, a member of TAC developed a guideline on compounding of Tamiflu capsules to syrup, which was shared with all hospitals; and

Annex 3: Compounding capsule to suspension for immediate use

4. It was noted that clinical guidelines were not accessible to all clinicians practicing in private clinics. It was recommended for Quality Assurance division to take action to increase accessibility to all clinicians

3.4 Health Promotion

2.4.1 Press Release

Through the course of the influenza peak, six media press releases were issued. The initial press release was released on 20 May 2018, with confirmation of an increase in influenza A (H3N2) cases in the previous day. The press release included preventative messages on ARI's and dengue as well. Information/updates were shared with the public through press releases on Monday and Thursday every week during the peak. Additionally, in the first HECC meeting, minister assigned Public Information Officers (PIO) as focal points to inform media on developments.

In addition to disease control and preventative measures, the third press release issued on 28 May 2018 provides data comparison on ARIs and percentage positive amounts for influenza and findings from the Nipah risk assessment. The final press release on 11th June 2018 states the decline of ARI and influenza reported cases and provides comparison of influenza positive percentage for the first and fourth week of the outbreak. The preventative messages were repeated throughout all the press releases, highlighting the importance of influenza vaccination, especially for high risk groups.

Annex 4: Press releases disseminated during the influenza peak

2.4.2 Awareness



Continuous efforts were made to address public concerns as well as to increase public awareness. Information on ARI's, influenza and dengue as well as preventative messages was disseminated through social media. The Leaflets/posters as well as safe hygiene practices videos in multiple languages were distributed by Maldives Red Crescent volunteers to reach out to the expatriate population. The Public

Information Officers (PIOs) together with experts made TV/radio appearances to increase public awareness.

2.4.3 Trend updates

Daily Influenza Summary report was prepared and shared daily with the President's office, WHO and MRC, for the duration from 24 May to 11 June.

[Annex 5: Daily Influenza Summary Report_11June 2018](#)

3.5 Influenza Vaccination

Unlike the vaccination procedure in May 2017 outbreak, during this outbreak, HPA did not take the lead in providing vaccines to the health facilities. At the beginning of 2018, Maldives Food and Drug Agency (MFDA) gave permit for pharmacies to import vaccines. With this permit, only STO and ADK imported influenza vaccines so far this year.

However with recommendations from HECC, 30,000 vaccines were requested from STO to be brought in and to be made available for public purchase. From the records of STO, 30,706 adult and 502 junior dose sales were made to health facilities and pharmacies during the outbreak period. During this period, ADK Company issued 1,300 adult and 200 junior doses from their pharmacy.

Issues and challenges

1. By using the approval obtained through Service Application for IM/IV injection, private clinics were administering influenza vaccination. Hence the need to update Service Application, to state that approval for IM/IV injection procedure does not include approval for influenza vaccination was noted;
2. MFDA found from their inspections that clinics operating in Male' were not storing vaccines properly during the influenza peak. Due to this, a request was made to STO to temporarily withhold issuing of vaccines until the problem was dealt with and approval was given from MFDA; and
3. Issues were also noted in regulating mobile/homecare vaccination.

3.6 Influenza Death Review

As per the advice of TAC, a Flu Death Review Committee was formed to investigate persons who died during the influenza peak period and who were tested positive for influenza at the time of death.

Two categories were observed during the investigation:

1. Influenza Death: In this category are deaths directly related to delayed initiation of treatment including nosocomial (flu) deaths. After the investigation, it was found that there are four deaths in this category; and
2. Influenza Related Death: Even though the patient is tested positive for influenza at the time of death, if treatment has already been started, or patient recovered from flu and died from other complications which is not directly related to influenza.



Flu Death Review Committee, 20 June 2018

4. Lessons Learned

1. Based on the advice given by TAC, it was decided to not depend on the result obtained from RIDTs for treatment during outbreaks. CDC guideline was used to reach this decision.

5. Recommendations

1. Revise the Influenza Epidemic and Pandemic plan to incorporate the major actions and communications experienced during the outbreak;
2. To formulate a national influenza vaccination policy;
3. As unavailability of influenza vaccines was an underlying issue identified from the March 2017 outbreak, it is important to ensure availability of vaccines for purchase around the time new vaccine is introduced to the market next year; March/April 2019;
4. To implement influenza vaccination campaign in December 2018/January 2019;
5. To conduct case management sessions for all hospitals in December 2018; and
6. To endorse a health sector Risk Communication Plan.

Report Prepared by Ramsha AbdulSattar, Project Coordinator

Report Checked by Dr Ibrahim Afzal, Epidemiologist

Report Approved by Ibrahim Nishan Ahmed, Deputy Director General

Annex1_List of TAC Members

Formed on the 21st May 2018 upon the recommendation of the Health Emergency Coordination Committee (HECC), due the increase in Influenza cases observed in May 2018.

Technical Advisory Group (TAC) members		
1	MOH	Dr. Aishath Rameela, Minister of State for Health
2	MOH	Dr. Mohamed Habib, Minister of State for Health
3	IGMH	Dr. Moosa Hussain, Respiratory Physician
4	IGMH	Dr. Niyasha Ibrahim, Paediatrician
5	IGMH	Dr. Aminath Zeyba, Emergency Physician
6	IGMH	Dr. Milza Abdul Muhusin, Consultant in Pathology
7	IGMH	Dr. Aseel Jaleel, Consultant in Obstetrics and Gynaecology
8	ADK	Dr. Abdulla Niyaf, Paediatrician
9	Consultant	Dr. Fathimath Nadhiya, Consultant in Internal Medicine
10	Consultant	Colonel Dr. Ali Shahid Mohamed
11	MTAGI	Dr Nazla Musthafa, Peadiatrician
12	Hulhumale'	Dr Aishath Aroona Abdulla
13	Dhamanaveshi	Dr. Azeez Hameed
14	MFDA	Ns. Shareefa Adam Manik, Director General
15	QAID	Uz. Thasleema Usman, Deputy Director General of Public Health
16	HPA	Maimoona Aboobakuru, Director General of Public Health
17	HPA	Ibrahim Nishan Ahmed, Deputy Director General of Public Health
18	HPA	Dr. Ibrahim Afzal, Epidemiologist
19	HPA	Dr Nazla Rafeeg, Senior Medical Officer
20	HPA	Dr Mariyam Jenyfa, Senior Medical Officer



Risk analysis of the spread of Influenza Infection in Maldives

May 2018

Risk Assessment

1. Hazard identification
2. Exposure assessment
3. Hazard characterization

1. Hazard Identification

What is Influenza (also called Flu)?

The flu is a contagious respiratory illness caused by influenza viruses that infect the nose, throat, and sometimes the lungs. It can cause mild to severe illness, and at times can lead to death. The best way to prevent the flu is by getting a flu vaccine each year.

Signs and Symptoms of Flu

People who have the flu often feel some or all of these signs and symptoms that usually start suddenly, not gradually:

Fever* or feeling feverish/chills

Cough

Sore throat

Runny or stuffy nose

Muscle or body aches

Headaches

Fatigue (very tired)

Some people may have vomiting and diarrhoea, though this is more common in young children than in adults.

*It's important to note that not everyone with flu will have a fever.

How Flu Spreads

Most experts believe that flu viruses spread mainly by tiny droplets made when people with flu cough, sneeze or talk. These droplets can land in the mouths or noses of people who are nearby. Less often, a person might also get flu by touching a surface or object that has flu virus on it and then touching their own mouth, nose, or possibly their eyes.

Period of Contagiousness

You may be able to pass on the flu to someone else before you know you are sick, as well as while you are sick. Although people with the flu are most contagious in the first 3-4 days after their illness begins, some otherwise healthy adults may be able to infect others beginning 1 day before symptoms develop and up to 5 to 7 days after becoming sick. Some people, especially young children and people with weakened immune systems, might be able to infect others with flu viruses for an even longer time.

Incubation Period

The time from when a person is exposed to flu virus and infected to when symptoms begin is about 1 to 4 days, with an average of about 2 days.

Complications of Flu

Complications of flu can include bacterial pneumonia, ear infections, sinus infections, and worsening of chronic medical conditions, such as congestive heart failure, asthma, or diabetes.

People at High Risk from Flu

Anyone can get the flu (even healthy people), and serious problems related to the flu can happen at any age, but some people are at high risk of developing serious flu-related complications if they get sick. This includes people 65 years and older, people of any age with certain chronic medical conditions (such as asthma, diabetes, or heart disease), pregnant women, and young children.

Preventing Seasonal Flu

The first and most important step in preventing flu is to get a flu vaccination each year. CDC also recommends everyday preventive actions (like staying away from people who are sick, covering coughs and sneezes and frequent handwashing) to help slow the spread of germs that cause respiratory (nose, throat, and lungs) illnesses, like flu.

Diagnosing Flu

It is very difficult to distinguish the flu from other viral or bacterial causes of respiratory illnesses on the basis of symptoms alone. There are tests available to diagnose flu. More information is available: [Diagnosing Flu](#).

Treating Flu

There are influenza antiviral drugs that can be used to treat flu illness.

More information is available: [“Seasonal Influenza, More Information.”](#)

[\(CDC website\)](#)

1. Exposure assessment

Influenza surveillance shows an increase in influenza cases (appendix)

- Influenza is endemic in Maldives and we have had 2 Outbreaks.
- It is the month of Ramadan and a lot of people will gather in mosques, shops, markets, and outings during the evenings.

- A lot of people will have the tendency to go to hospitals and clinics at night which will further increase the exposure factor.

Hazard characterization

We have had deaths from Influenza during our previous outbreaks but we have not had a death from Influenza this year.

The severity and consequences have already been discussed in the hazard identification.

Risk Assessment

Risk Question: What is the risk of having an Influenza outbreak in Maldives within the month of May 2018?

Based on the Information on Hazard identification, Exposure assessment and Hazard characterization

		Severity of Impact/Consequences		
		Minor	Moderate	Major
Probability	Frequent	Medium	High	High
	Likely	Low	Medium	High
	Remote	Insignificant	Low	Medium

Risk assessment show a High risk of having an Influenza outbreak in Maldives within the month of May 2018.

Risk management

Prevention and control

The following actions need to be taken as specified in the Ebola plan 2014.

1. Convene the HECC and the TAG
2. Case management protocols to be revised by the TAG. Ensure a proper stock of Tamiflu Oseltamivir capsules (6770), Tamiflu syrup (43)
3. Increase Surveillance from Central as well as other Sentinel sites
4. Daily/Weekly Influenza Reports to be generated
5. Geographical mapping of reported cases
6. Ensure that proper Laboratory service and testing capabilities as well as necessary reagents are available. Find out the type and subtype of the Influenza virus that are circulating.
7. Social mobilization
8. Community engagement
9. Awareness of risk factors for Influenza infection

10. Get the public vaccinated. Does the Vaccine we have cover the strains that we are observing this time.
 - The tested samples till now are showing dominant spread of Inf A. (Only 1 batch has been subtyped yet so it is too soon to comment on the type)
 - The Current vaccine in circulation is the trivalent-vaccine (Inf A (H1N1, H3N2), Inf B (Victoria))
11. Find out the current available stock of Influenza virus. Procure at least the same amount of vaccines that were used during the last outbreak in (2017)
 - 500 vaccines available at ADK pharmacies. 500 vaccines are available at STO. 1000 vaccines will be available in 3 weeks (STO)
 - During the last outbreak 68308 (54994 (adults), 13314 (Children)) vaccines were used.

Risk communication

1. Ensure that the public is brought up-to-date on the current situation and make them well aware of the possibility of a major outbreak.
Prepare a New Alert same as the initial News Alert used during the last outbreak.
2. Ensure that the public is aware of the preventive measures that can be taken. Media, social media, IEC materials should be used. Form Viber groups to keep the HECC and TAG updated.
3. Ensure that the risk groups receive the vaccination/awareness/treatment. The Health care providers should be first in line to receive the vaccination.
4. Ensure proper waste/biohazardous material disposal in Health care provision set ups.
5. Ensure that marginalized and expatriate populations are given awareness in their respective languages.

Prepared by: Dr Ibrahim Afzal

Appendix

Figure 1: National ARI trend (2015-2018)

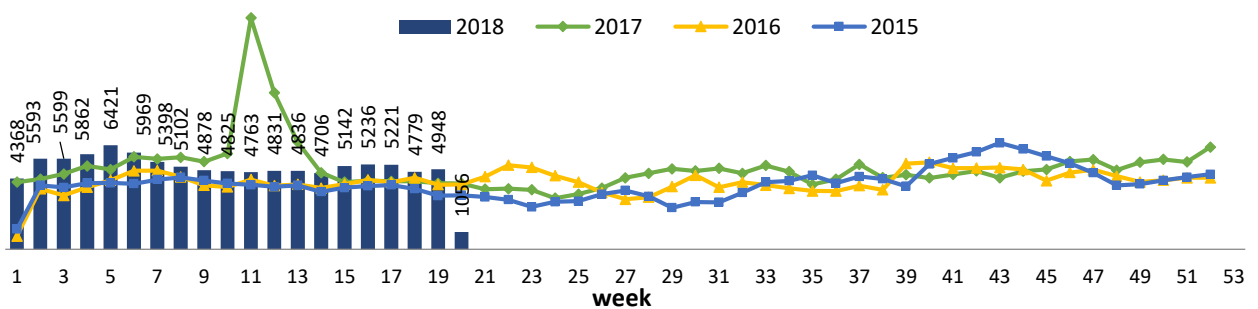
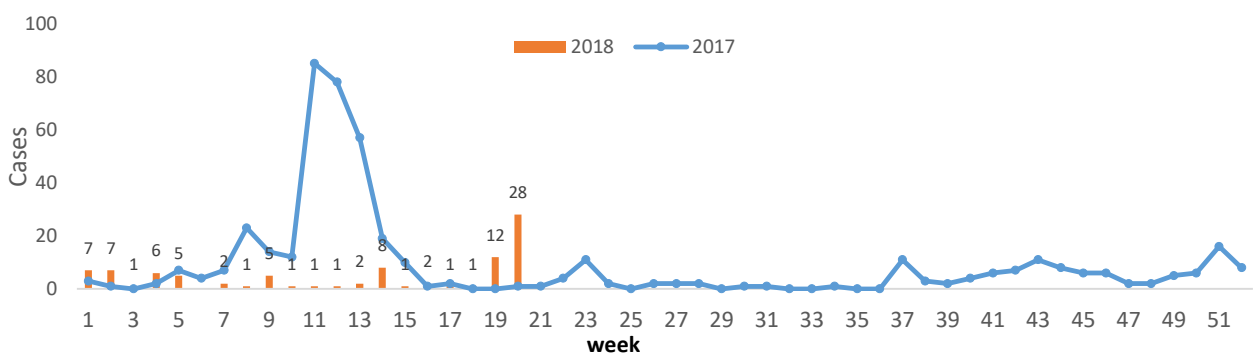


Figure 2: National Influenza trend (2017-2018)



Annex 3: Compounding Capsule To Suspension For Immediate Use

COMPOUNDING CAPSULE TO SUSPENSION IMMEDIATE USE

When the commercially available Tamiflu suspension is not available the following procedure may be used to prepare the appropriate doses of Tamiflu for children 1 year and older. The preparation should be used immediately and any unused portion discarded.

The procedure describes the preparation of a 15 mg/mL solution.

1. Hold one Tamiflu 75 mg capsule over a small bowl, carefully pull the capsule open and pour the powder into the bowl.
2. Using a graduated syringe, add 5 mL water to the powder. Stir for about two minutes.
3. Draw up into the syringe the correct amount of mixture from the bowl (see table below)*.The recommended dose is body weight dependent. Push down on the plunger of the syringe, to empty its entire contents into a second bowl. Discard any unused mixture.

Body weight (for age 1 year and above)	Recommended dose	Treatment dose of Tamiflu mixture (15 mg/mL)* given for 5 days
≤ 15 kg	30 mg	2ml twice daily
> 15 to 23 kg	45mg	3ml twice daily
> 23 kg to 40kg	60mg	4ml twice daily
> 40 kg	75mg	5ml twice daily

Note: This compounding procedure results in a 15 mg/mL mixture, which is different from the commercially available Tamiflu Oral Suspension. It is recommended to discard all unused preparations immediately unless it is mixed in an FDA approved vehicle (such as Cherry Syrup (Humco®) or Ora-Sweet SF (sugar-free) (Paddock Laboratories) or in water containing 0.05% w/v sodium benzoate added as a preservative

4. In the second bowl, a small amount (1 teaspoon maximum) of sweetened food product such as regular or sugar-free chocolate syrup, light brown or table sugar dissolved in water, dessert toppings, rose syrup, apple sauce or yogurt to the mixture maybe added to mask the bitter taste of the medication (for those above 1 year of age).
5. Stir this mixture well and give the entire contents of the second bowl to the patient. This mixture must be swallowed immediately after its preparation. If there is some mixture left inside the bowl, rinse the bowl with a small amount of water and have the patient drink this remaining mixture.

In those of age between 2 weeks to less than 1 year the preparation is recommended to be at concentration of 6mg/ml.

This is prepared as follows;

1. Hold one Tamiflu 75 mg capsule over a small bowl, carefully pull the capsule open and pour the powder into the bowl.
2. Using a graduated syringe, add 12.5 mL water to the powder. Stir for about two minutes.
3. Draw up into the syringe the correct amount of mixture from the bowl according to the weight (0.5ml/kg/dose)**. Discard any unused mixture.

Ages <u>2 weeks to below 1 year</u> recommended dose is according to the individual weight of the baby	Recommended dose 3mg/kg/dose	Treatment dose of Tamiflu mixture (6 mg/mL)** 0.5ml/kg/dose twice daily x 5 days
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Note: It is recommended to discard all unused preparations immediately unless it is mixed in an FDA approved vehicle (such as Cherry Syrup (Humco®) or Ora-Sweet SF (sugar-free) (Paddock Laboratories) or in water containing 0.05% w/v sodium benzoate added as a preservative.

• **අධිකාරියාණයේ සේවයේ පවතින සෑම සේවකයෙකුටම සෞඛ්‍ය සේවාවක් ලෙසින් සලකා බැලිය යුතුය.**

• **සෞඛ්‍ය සේවාවක් ලෙසින් සලකා බැලීමේදී සෞඛ්‍ය සේවකයෙකුගේ සේවයේ පවතින කාර්යයන් සලකා බැලිය යුතුය.**

සෞඛ්‍ය සේවකයෙකුගේ සේවයේ පවතින කාර්යයන්:

1. **අධිකාරියාණයේ සේවයේ පවතින සෑම සේවකයෙකුටම සෞඛ්‍ය සේවාවක් ලෙසින් සලකා බැලිය යුතුය.**
2. **සෞඛ්‍ය සේවකයෙකුගේ සේවයේ පවතින කාර්යයන් සලකා බැලිය යුතුය.**
3. **සෞඛ්‍ය සේවකයෙකුගේ සේවයේ පවතින කාර්යයන් සලකා බැලිය යුතුය.**
4. **සෞඛ්‍ය සේවකයෙකුගේ සේවයේ පවතින කාර්යයන් සලකා බැලිය යුතුය.**
5. **සෞඛ්‍ය සේවකයෙකුගේ සේවයේ පවතින කාර්යයන් සලකා බැලිය යුතුය.**
6. **සෞඛ්‍ය සේවකයෙකුගේ සේවයේ පවතින කාර්යයන් සලකා බැලිය යුතුය.**
7. **සෞඛ්‍ය සේවකයෙකුගේ සේවයේ පවතින කාර්යයන් සලකා බැලිය යුතුය.**

සෞඛ්‍ය සේවකයෙකුගේ සේවයේ පවතින කාර්යයන් සලකා බැලිය යුතුය.

1. **සෞඛ්‍ය සේවකයෙකුගේ සේවයේ පවතින කාර්යයන් සලකා බැලිය යුතුය.**

(DEET, Picaridin (KBR3023 or Icaridin), IR3535, OLE, PMD and 2-undecanone)

2. **සෞඛ්‍ය සේවකයෙකුගේ සේවයේ පවතින කාර්යයන් සලකා බැලිය යුතුය.**
3. **සෞඛ්‍ය සේවකයෙකුගේ සේවයේ පවතින කාර්යයන් සලකා බැලිය යුතුය.**

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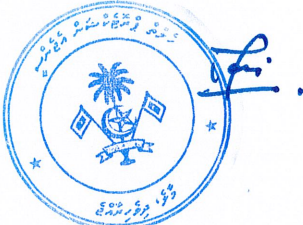


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Daily ARI and Influenza summary

Reporting date: 11 June 2018

Figure 1: National ARI trend (2015-2018)

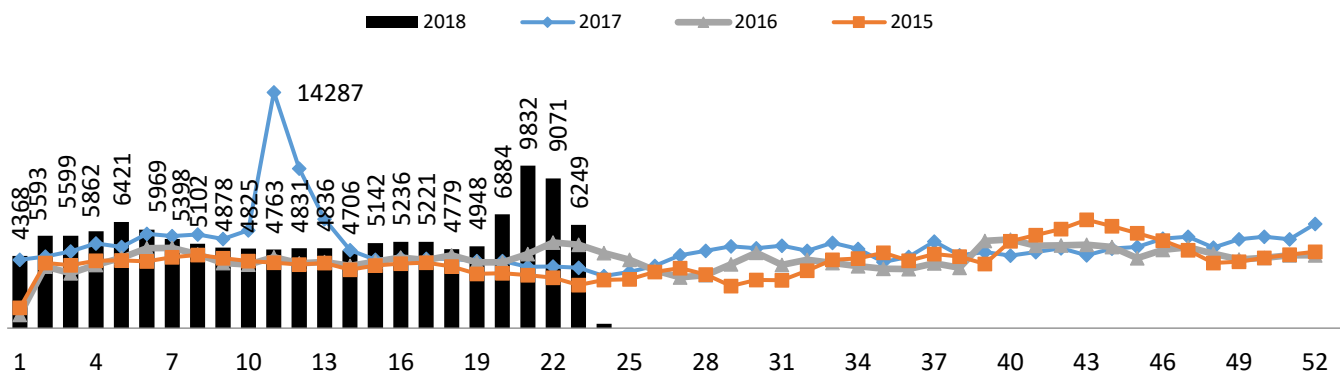
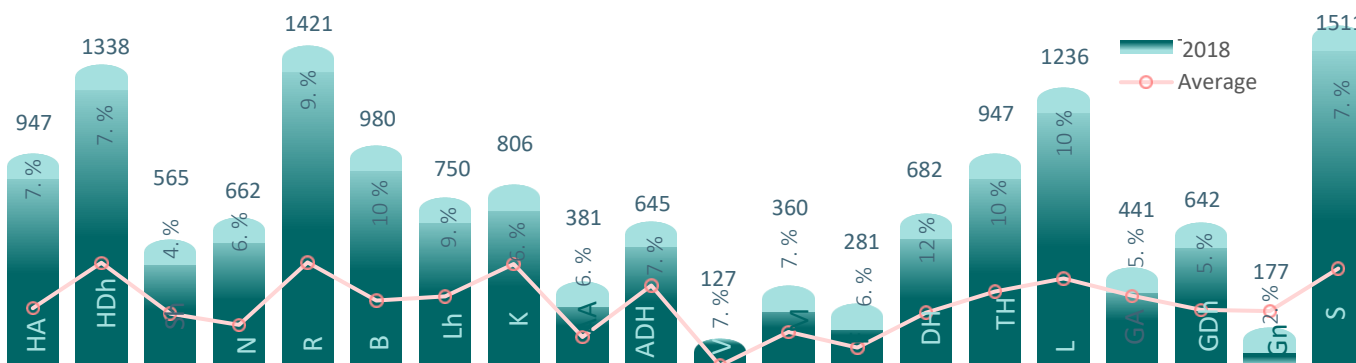


Figure 2: Atoll ARI consultation numbers from 15 May - 10 June 2018



**% of the Atoll's population with ARI*

Figure 3: Percentage Positivity for Influenza based on sample collection date (15th May - 10th June)

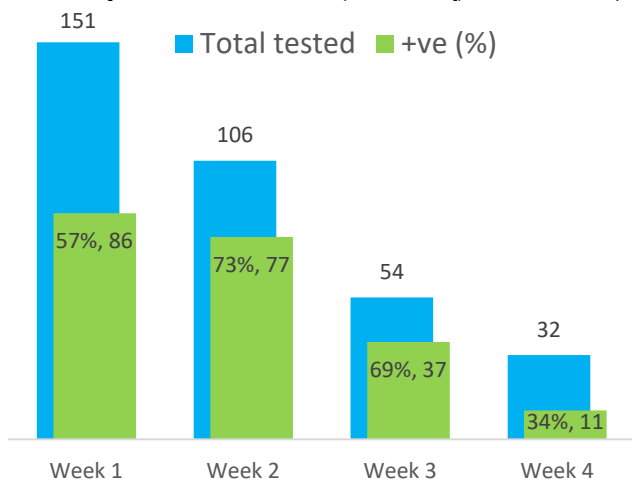
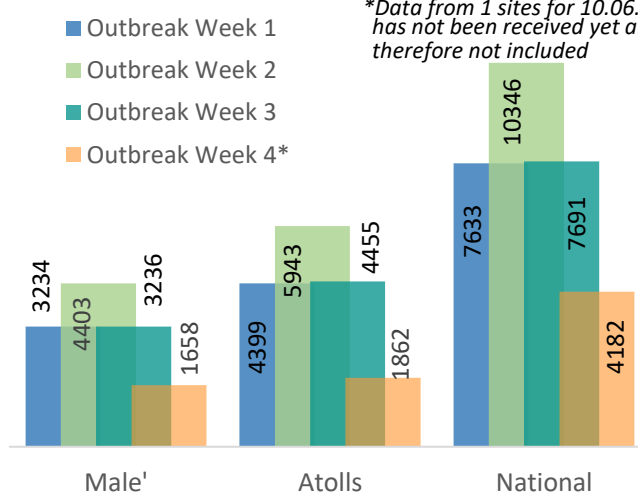


Figure 4: National ARI consultations for outbreak week 1, 2, 3 & 4



Note: caution must be taken in interpreting laboratory data as testing consists of two process (identifying type of and subtype of influenza)
All data in this report are subject to changes as surveillance and data management is an ongoing process.
This report must not be modified from its original form.