



## Clinical Pathway for the Diagnosis and Management of Patients with COVID-19 in Family Practice

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August 2020

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## Abstract

### Background

Coronavirus disease 2019 (COVID-19) has rapidly spread worldwide, causing a pandemic. The Philippines ranks 3rd in Southeast Asia with more than 15,000 confirmed cases, and a case fatality rate of 6.01%, close to the global average of 6.33%.

### Objectives

This clinical pathway was developed to guide family and community physicians on the diagnosis and initial management of COVID-19 in terms of 1) clinical history and physical examination; 2) laboratory and ancillary procedures to be requested; 3) pharmacologic interventions; 4) non-pharmacologic interventions, and 5) patient outcomes to expect.

### Methods

The PAFP Clinical Pathways Group reviewed the published medical literature to identify, summarize, and operationalize the evidence in clinical publication on the management of patients with COVID-19 in family and community practice.

### Recommendations

The recommendations are time-bound tasks on patient care processes, in terms of history and physical examination, laboratory tests, pharmacologic and non-pharmacologic interventions. The recommendations are presented as a table and algorithm.

### Implementation

At the clinic level, self-audit using the recommendations of this clinical pathway as the standard may be done. At the organizational level, the PAFP should establish a new model of quality improvement initiative where self-practice audits are included as part of the program.

## Background

Coronavirus disease 2019 (COVID-19), first identified in Wuhan, China has rapidly spread worldwide, causing a pandemic. The Philippines ranks 3rd in Southeast Asia with more than 15,000 confirmed cases, and a case fatality rate of 6.01%, close to the global average of 6.33%. SARS-CoV-2, the etiologic agent of COVID-19, triggers immune-mediated responses responsible for most of the clinical manifestations of the disease. There have been reports of asymptomatic cases but the majority have mild symptoms of fever, cough, headache, and fatigue. Those who progress to the critical stage of the disease present with Severe Acute Respiratory Syndrome, sepsis, or Multiple Organ Dysfunction. They usually have risk factors like being male, age over 65 years old, current smoking, and presence of underlying diseases like diabetes, hypertension, cardiovascular disease, and respiratory disease. **(Zheng Z et al, 2020)** The definitive diagnosis of SARS-CoV-2 requires analysis of respiratory specimens collected through oropharyngeal and nasopharyngeal swabs. The reverse transcriptase-polymerase chain reaction (RT-PCR) is considered the confirmatory test. Serological rapid detection test (RDT) for SARS-CoV-2 IgM and IgG may be done, but as an adjunct only because antibodies appear later in the course of the disease. Supportive therapy is the cornerstone of management. Currently, there is no FDA-approved drug or agent specifically for the treatment of COVID-19. Drugs being investigated for treatment are those that are currently used for other viral infections or indicated for other conditions. A vaccine is yet to be developed. **(Palma-Mendoza NRN et al, 2020)**

## Objectives

This clinical pathway was developed to guide family and community physicians on the diagnosis and continuing management of COVID-19 patients commonly seen in family practice. The recommendations do not apply to patients with special needs. It provides recommendations to the following clinical decisions: 1) clinical history and physical examination; 2) laboratory and ancillary procedures to be requested; 3) pharmacologic interventions; 4) non-pharmacologic interventions, and 5) patient outcomes to expect.

## Methods of Development and Implementation

The PAFP Clinical Pathways Group reviewed the published medical literature to identify, summarize, and operationalize the evidence in clinical publication on the management of patients with COVID-19 in family and community practice. The recommendations are time-bound tasks on patient care processes, in terms of history and physical examination, laboratory tests, pharmacologic and non-pharmacologic interventions. We also specified the expected patient outcome during each consultation.

The group adopted several strategies in developing the recommendations. The first strategy is emphasizing on evidence-based recommendations as recommended assessments and interventions. The second strategy is the recognition of potential variations between-patient and between specific practice settings. The third strategy is the recognition of "stakeholder groups" in

family and community practice with careful attention to getting their opinion and support but without sacrificing the objectives of the clinical pathway implementation. The fourth strategy is the emphasis on the commitment to the establishment of the ultimate goal of improving the effectiveness, efficiency, and quality of patient care in family and community practice.

For the first strategy, the group searches PubMed using the terms “COVID 19”, “diagnosis” and “treatment”. We also searched for guidelines of the DOH, PAFP, and other specialty societies in the Philippines. Retrieval of articles was focused on the following type of clinical publications, clinical practice guidelines, meta-analysis, randomized controlled trials, and clinical trials. The more rigorous meta-analysis of clinical trials and observational studies were prioritized over low-quality trials in the formulation of the recommendations. The evidence for the patient care processes was reviewed and summarized as notes to justify the recommendations. The second strategy was to present the recommendations to the committee who acted as a panel of experts and discussed potential variations in a different setting of family practice. As part of the third strategy, the clinical pathway will be disseminated to the selected PAFP chapters and members and other stakeholders for consensus development. Dissemination will be posting in the PAFP website, publication in the Filipino Family Physician Journal, conference presentations (PAFP Annual Convention), and focused group discussions.

As a fourth strategy, the implementation of clinical pathways to be adopted by the PAFP will be quality improvement activities in a form of patient record reviews, audits, and feedback. Audit standards will be the assessment and intervention recommendations in the clinical pathway. The implementation of clinical pathways will be at the practice level and the organizational level. Practice level can be a simple count of family and community medicine practitioners using and applying the clinical pathways. The organizational level can be activities of the PAFP national or chapter devoted to the promotion, development, dissemination, and implementation of clinical pathways.

## Grading of the Recommendations

The PAFP Research Committee met as a panel and graded the recommendations as shown in Table 1. The grading system was a mix of the strength of the reviewed published evidence and the consensus of a panel of experts. In some cases, the published evidence may not be applicable in the Philippine family and community practice setting, so a panel grade based on the consensus of clinical experts was also used. Thus, if the recommendation was based on published evidence that is a well done randomized controlled trial and the panel of experts voted unanimously for the recommendation, it was given a grade of **A-I**. If the level of evidence is based on an observational study but the panel still unanimously considered the recommendation, the grade given was **A-II** and if the level of evidence is just an opinion and the panel still unanimously recommended it, the grade was **A-III**.

**Table 1 Grading of the Recommendations**

Panel Grade Level	Evidence Grade Level		
	I	II	III
A	A-I	A-II	A-III
B	B-I	B-II	B-III
C	C-I	C-II	C-III

### Panel Grade Levels

A - All the panel members agree that the recommendation should be adopted because it is relevant, applicable and will benefit many patients.

B – The majority of the panel members agree that the recommendation should be adopted because it is relevant, applicable in many areas and will benefit many patients.

C - Panel members were divided that the recommendation should be adopted and is not sure if it will be applicable in many areas or will benefit many patients.

### Evidence Grade Levels

I - The best evidence cited to support the recommendation is a well-conducted randomized controlled trial. The CONSORT standard may be used to evaluate a well-conducted randomized controlled trial.

II - The best evidence cited to support the recommendation is a well-conducted observational study i.e. match control or before and after clinical trial, cohort studies, case-control studies, and cross-sectional studies. The STROBE statement may be used to evaluate a well-conducted observational study.

III - The best evidence cited to support the recommendation is based on expert opinion or observational study that did not meet the criteria for level II.

In the implementation of the clinical pathways, the PAFP recommends adherence to guideline recommendations that are graded as either A-I, A-II, or B-I. However, the committee also recommends using sound clinical judgment and patient involvement in decision making before applying the recommendations.

## Pathway Recommendations

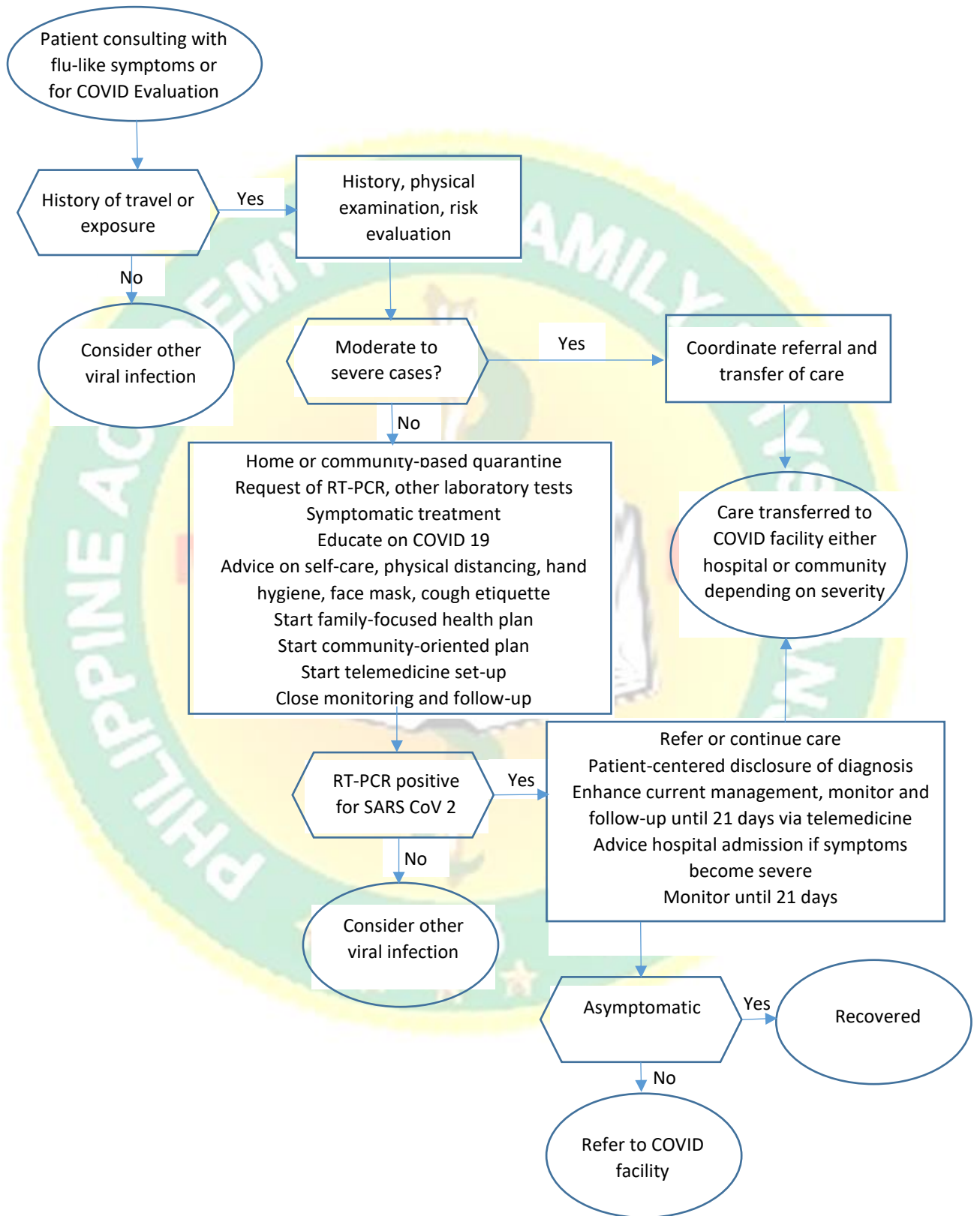
Visit	Pathway Tasks				Patient Outcomes
	History and Physical Examination	Laboratory	Pharmacologic Intervention	Non-pharmacologic Interventions	
First Visit	<ul style="list-style-type: none"> <li>___ Implement triaging system for patients with flu-like symptoms <b>(A-III)</b></li> <li>___ Take a history focusing on fever respiratory and gastrointestinal symptoms (refer to checklist) <b>(A-II)</b></li> <li>___ Take a history of travel or exposure to confirmed COVID area or patient <b>(A-II)</b></li> <li>___ Elicit risk factors smoking, diabetes, cardiovascular, respiratory and other chronic disease <b>(A-II)</b></li> <li>___ Physical examination focusing on vital signs, respiratory, cardiac and O2 sat when available <b>(A-II)</b></li> <li>___ Evaluate family genogram and SCREEM <b>(A-II)</b></li> </ul>	<ul style="list-style-type: none"> <li>___ Request for RT-PCR testing <b>(A-II)</b></li> <li>___ Rapid antibody test may be Requested as an alternative if on day 5 onwards of symptoms <b>(C-II)</b></li> <li>___ Request for other laboratories to evaluate status of concomitant illness or differentials i.e. CBC if bacterial infection is considered <b>(A-II)</b></li> </ul>	<ul style="list-style-type: none"> <li>___ Symptomatic treatment, antipyretics, metered-dose inhaler if necessary <b>(A-I)</b></li> <li>___ Delayed antibiotic prescription if warranted <b>(A-I)</b></li> <li>___ Continuation of treatment for other existing medical condition <b>(A-I)</b></li> </ul>	<p><b>Patient Intervention</b></p> <ul style="list-style-type: none"> <li>___ Provide balanced information on COVID-19 <b>(A-II)</b></li> <li>___ Educate on cough etiquette, use of appropriate PPE, hand hygiene, physical distancing and quarantine <b>(A-II)</b></li> <li>___ Advice on adequate nutrition, hydration and rest <b>(A-II)</b></li> <li>___ Offer psychological support, self-care advice and monitoring of symptoms <b>(A-II)</b></li> </ul> <p><b>Family Intervention</b></p> <ul style="list-style-type: none"> <li>___ Assist to develop and implement a Family Health Plan <b>(A-II)</b></li> </ul> <p><b>Community-level Intervention</b></p> <ul style="list-style-type: none"> <li>___ Refer for contact tracing and coordination of care with the municipal/city health office <b>(A-II)</b></li> </ul> <p><b>Follow-up Visit</b></p> <ul style="list-style-type: none"> <li>___ Set-up telemedicine for monitoring and follow-up <b>(A-III)</b></li> </ul>	<ul style="list-style-type: none"> <li>___ Adequate knowledge on COVID-19 <b>(A-III)</b></li> <li>___ Agree to comply with management plan <b>(A-III)</b></li> </ul>
Variations	<ul style="list-style-type: none"> <li>___ Consider referral to COVID 19 facility right away if the patient agree <b>(A-III)</b></li> <li>___ Patients who consult with history of exposure or contact but no symptoms may still follow this pathway <b>(A-III)</b></li> </ul>				

Visit	Pathway Tasks				Patient Outcomes
	History and Physical Examination	Laboratory	Pharmacologic Intervention	Non-pharmacologic Interventions	
Second Visit	<ul style="list-style-type: none"> <li>__ Evaluate status of previous symptoms or appearance of new symptoms <b>(A-II)</b></li> <li>__ Ask for symptoms in other family or household members <b>(A-III)</b></li> <li>__ Do Psychological screening and evaluation <b>(A-II)</b></li> </ul>	<ul style="list-style-type: none"> <li>__ Interpret and confirm laboratory result for COVID-19 <b>(A-II)</b></li> <li>__ Evaluate laboratory results for concomitant illness or differentials <b>(A-II)</b></li> </ul>	<ul style="list-style-type: none"> <li>__ May revise pharmacologic treatment based on symptoms and laboratory results <b>(A-I)</b></li> <li>__ Continue symptomatic Treatment <b>(A-I)</b></li> <li>__ Continuation of treatment for other existing medical condition <b>(A-I)</b></li> </ul>	<p><b>Patient Intervention</b></p> <ul style="list-style-type: none"> <li>__ Disclose the results of the test in a patient-centered manner <b>(A-II)</b></li> <li>__ Reinforce health education, psychological support, self-care and monitoring <b>(A-II)</b></li> <li>__ Assess compliance on cough etiquette, use of PPE, hand hygiene and quarantine <b>(A-II)</b></li> <li>__ Assess compliance on adequate nutrition, hydration and rest <b>(A-II)</b></li> </ul> <p><b>Family Intervention</b></p> <ul style="list-style-type: none"> <li>__ Reinforce implementation of a Family Health Plan <b>(A-III)</b></li> </ul> <p><b>Community-level Intervention</b></p> <ul style="list-style-type: none"> <li>__ Maintain coordination of care with the municipal/city health office <b>(A-III)</b></li> </ul>	<ul style="list-style-type: none"> <li>__ Acceptance of the Diagnosis <b>(A-II)</b></li> <li>__ Improvement or resolution of symptoms <b>(A-I)</b></li> <li>__ Patient satisfaction <b>(A-II)</b></li> <li>__ Prevention of spread to other family member and community <b>(A-III)</b></li> </ul>
Variations	<ul style="list-style-type: none"> <li>__ Prefer telemedicine consultation, follow-up and close monitoring until 21 days <b>(A-III)</b></li> <li>__ Refer to COVID-19 facility if worsening Symptoms <b>(A-III)</b></li> </ul>				

Visit	Pathway Tasks				Patient Outcomes
	History and Physical Examination	Laboratory	Pharmacologic Intervention	Non-pharmacologic Interventions	
Third and Subsequent Visit	___ Evaluate status of previous symptoms or appearance of new symptoms after 21 days <b>(A-II)</b>	___ Repeat RT-PCR is not Necessary <b>(A-II)</b> ___ Do Laboratory test only for other disease <b>(A-II)</b>	___ Continuation of treatment for other existing medical condition <b>(A-I)</b>	<b>Patient Intervention</b> ___ Reinforce health education, psychological support, self-care and monitoring <b>(A-II)</b> ___ Offer wellness intervention <b>(A-III)</b> <b>Family Intervention</b> ___ Reinforce continued implementation of a Family Health Plan <b>(A-III)</b> <b>Community-level Intervention</b> ___ Maintain coordination of care with the municipal/city health office <b>(A-III)</b>	___ Symptom-based recovery from COVID 19 <b>(A-III)</b> ___ Patient and family Satisfaction <b>(A-II)</b> ___ Prevention of spread in other family member and community <b>(A-III)</b>
Variations					



# Algorithm



**Figure 1** Decision Algorithm for COVID 19 Patients in Family Practice

## Clinical Evidence of the Recommendations

### First Visit

#### Precautionary Measures Before Consultation

The World Health Organization (WHO) continues to recommend droplet and contact precautions for those people caring for COVID-19 patients. **(WHO, 2020)**. Proper and rational use of personal protective equipment (PPE), hand hygiene, and physical distancing are the primary strategies to prevent COVID-19 exposure in outpatient clinics. **(PSMID/PHICS/PCP, 2020)** The physician and health care staff must be physically and psychologically ready to provide service to a COVID 19 patient. The clinic must have a management and operations plan that includes triage, patient flow, treatment, infection prevention and control measures, management of PPE supplies, and potential staff shortages, as well as necessary preparations for the resumption of clinic services after the enhanced community quarantine. **(PAFP, 2020)**

#### Clinical History and Physical Examination

##### Clinical History

Adults and adolescent COVID-19 patients commonly manifest with flu-like symptoms including fever (83-99%), cough which is usually non-productive (59-82%), fatigue (44-70%), anorexia (40-84%), shortness of breath (31-40%), and myalgias (11-35%). Olfactory (29.64-75.23%) and gustatory (20.46-68.95%) dysfunction may represent early symptoms in the clinical course of COVID-19 infection, preceding the onset of respiratory symptoms. **(Tong, et.al, 2020)** A small proportion of patients present with gastrointestinal symptoms like diarrhea and vomiting. **(Tu et al, 2020)** These symptoms present in varying levels of severity, as shown in Table 1. **(WHO, 2020)** Alarming symptoms that require urgent medical attention include the difficulty of breathing, chest pain, and confusion which may represent acute respiratory distress, severe pneumonia, and/or sepsis especially among those who are at high risk **(WHO, 2020; PSMID, 2020)**. Family physicians must make an effort to elicit all of these symptoms for appropriate decision making. The screening questionnaire as shown in Table 2 can help.

A small proportion of children may be infected by COVID-19. Symptoms frequently seen in children with COVID-19 include fever (axillary temperature  $\geq 38^{\circ}\text{C}$ ), cough, sore throat, and difficulty of breathing observed as fast breathing, chest indrawing, and noisy breathing in a calm child. Other symptoms that may warrant close observation include rhinorrhea, diarrhea, vomiting, abdominal pain, fatigue, headache, rashes, and myalgia **(PPS/PIDSP, 2020)**.

**Table 1. Levels of Severity and Clinical Manifestation of COVID-19**

Level of Severity	Clinical Manifestation
Mild	fever, cough, nasal congestion, sore throat, headache, malaise, some gastrointestinal symptoms; NO evidence of viral pneumonia or hypoxia
Moderate	With clinical signs of pneumonia (fever, cough, dyspnea, fast breathing) but not severe, and SpO2 ≥ 90% (≥92%) on room air
Severe	Severe pneumonia with RR > 30 breaths/min., severe respiratory distress, or SpO2 ≤ 90% (≤92%) on room air
Critical	Acute Respiratory Distress Syndrome, Sepsis

**Table 2 OPD Patient Screening Form (PSMID/PHICS/PCP, 2020)**

In the past two weeks did the patient have any of the following:	YES	NO
1. Respiratory symptoms <ul style="list-style-type: none"> <li>• Cough</li> <li>• Shortness of breath</li> <li>• Colds</li> <li>• Throat pain</li> <li>• Other respiratory symptoms</li> <li>• Influenza-like symptoms (headache, muscle and joint pain, diarrhea, lack of smell or taste)</li> </ul>		
2. Fever more than 38C		
3. History of COVID-19 infection		
4. Household member diagnosed with COVID-19		
5. Travel or residence in an area reporting local transmission of COVID-19		
6. Contact or exposure to someone with recent travel to an area with local transmission of COVID-19		

It is important to emphasize that the majority (81%) of COVID-19 patients have mild disease and do not require hospitalization. (PAFP, 2020) However, as family physicians, we should also be aware of factors that might lead to disease progression. This should be elicited during the first consultation with a potential COVID 19 case. The identified prognostic factors associated with disease progression are 1) male: OR = 1.76, 95% CI (1.41, 2.18), 01; 2) age over 65 years old: OR =6.06, 95% CI(3.98, 9.22); and 3) current smoking: OR =2.51, 95% CI(1.39, 3.32). The presence of underlying disease were also associated with severity i.e. 1) diabetes: OR=3.68, 95% CI (2.68, 5.03); 2) hypertension: OR = 2.72, 95% CI (1.60,4.64): 3) cardiovascular disease: OR = 5.19, 95% CI(3.25, 8.29); and 4) respiratory disease: OR = 5.15, 95% CI(2.51, 10.57). (Zheng Z et al, 2020)

## Family Genogram, SCREEM and Other Family Assessment Tools

The family genogram and SCREEM (Social, Cultural, Religious, Educational, Economic, and Mental) are family assessment tools used to determine the patient's family structure and resources which will enable family physicians to assess and mitigate the patient and family's risk and ability to cope with COVID-19. The family genogram may be used to identify vulnerable and/or high-risk family members (i.e. elderly and/or those with underlying medical conditions) that may need to be separated from symptomatic patients, ascertain the number of household members to aid in contact tracing and assess the risk for person-to-person transmission and identify a family caregiver who will facilitate the implementation of a family-focused care plan. **(PAFP, 2020; DOH/DILG, 2020)**. On the other hand, the family SCREEM may be used to assess the patient and family's internal and external resources. Internal resources may include household income, religious and cultural beliefs, health literacy, and health-seeking behaviors which all influence the family's decisions and actions in dealing with the medical, psychosocial, and economic challenges imposed by the COVID-19 pandemic. External resources such as relatives, neighbors, churchmates, community health services, and social amelioration may serve to complement and/or augment the family's capacity. **(PAFP, 2020; DOH/DILG, 2020)**. Other family assessment tools which may help in administering a family-focused care plan include Family APGAR to determine family functioning, Family Map to get a picture of the interactions/coalitions among family members, and Family Lifeline to determine the family's method of coping to past stressors and potential to cope with the current stress of COVID-19. Time and other logistic considerations may not allow the Family Physician to do all these during the first visit but maybe completed during subsequent meetings or telemedicine consultations.

### Physical Examination

The physical examination focused on the chest and lungs is essential to complement the patient's history of illness as well as to guide diagnosis and management. The majority of patients present with mild disease and the physical examination findings may be unremarkable or mild. Physical examination findings of vital importance that might make the family physician consider referral for higher-level care include wheezing, crackles, decreased breath sounds, chest indrawing, grunting, tachycardia, hypotension, weak pulses, which may correlate with pneumonia. Quick referral may need to be done if there is confusion, lethargy, unconsciousness, inability to breastfeed or drink among pediatric patients, cyanosis, temperature instability, tachypnea, and O<sub>2</sub> Saturation <90% on room air. **(WHO, 2020; PSMID, 2020; PPS/PIDSP, 2020)**.

### Laboratory and Ancillary Procedures

#### Real-time Reverse Transcription Polymerase Chain Reaction (rRT-PCR)

Molecular-based assays particularly nucleic acid amplification testing using real-time reverse transcription-polymerase chain reaction (rRT-PCR) assay is the recommended test for diagnosing SARS-CoV-2 infection in a COVID-19 suspect case. **(PSMID, 31 March 2020; PPS-PIDSP, 12 April 2020)** Suspect COVID-19 cases should be referred to licensed COVID-19 testing laboratories for specimen collection and confirmation of diagnosis. The WHO recommends the collection of upper respiratory tract specimens (nasopharyngeal and oropharyngeal) for testing. **(WHO, 27 May 2020)** There are

variations in rRT-PCR assay which implies that they may not have equal diagnostic accuracy, hence the need for these tests to be evaluated by the Philippine FDA. The Philippine FDA has approved a total of 60 PCR-based test kits as of 24 June 2020, for use in 73 licensed COVID-19 testing laboratories as of 29 June 2020.

### **Rapid Antibody Test**

Rapid antibody tests (RAT) cannot be used as a stand-alone test to definitively diagnose COVID-19 and cannot be used for mass testing. These tests can only be used in people who had onset of symptoms for at least 5 days (i.e. for IgM) and 21 days (i.e. for IgG). **(PSMID, 31 March 2020)**

### **Other Tests**

Other tests that may be requested towards reaching a diagnosis for a suspect COVID-19 case include imaging studies particularly chest radiography and chest computed tomography. A complete blood count may also be requested if another cause of the symptoms is being considered.

### **Pharmacologic Treatment**

Symptomatic treatment and supportive care are the cornerstones of treatment for mild COVID-19 infections. Recommendations for these were made by WHO and PSMID based on best practices or expert opinions. **(PSMID, 31 Mar 2020)**

#### **Drugs to give for fever**

Antipyretics such as paracetamol and ibuprofen are recommended for fever. **(WHO, 2020)** Concerns have been raised regarding the safety of using NSAIDs on COVID-19 patients. However, based on a rapid systematic review done involving 73 studies, there is no evidence of severe adverse events or effects on acute health care utilization, long-term survival, or quality of life in patients with COVID-19, as a result of the use of NSAIDs. **(WHO, 19 Apr 2020)**

#### **Drugs to give for colds**

There are no recent guidelines or published research that give specific recommendations on the pharmacologic management of colds or nasal congestion in relation to COVID-19. The American Academy of Family Physicians recommends the use of over-the-counter decongestants with or without antihistamines. This recommendation, however, is based on inconsistent or limited-quality evidence. **(DeGeorge & Dalrymple, 2019)** A systematic review showed a small positive effect on subjective measures of nasal congestion but with no good-quality evidence to support clinical use. **(Deckx, et al, 2016)**

## Drugs to give for cough

There are no recent guidelines or published research that give specific recommendations on pharmacologic management of cough in relation to COVID-19. The American College of Chest Physicians does not recommend the use of over-the-counter cough and colds preparations due to conflicting evidence. **(Malesker, et al, 2017)** Two systematic reviews on the use of over-the-counter cough preparations and antihistamines for acute cough did not provide any good-quality evidence to support clinical use. **(Chalumeau & Duijvestijn, 2013; De Sutter, et al, 2015)**

## Other drugs

### *Antibiotics*

Antibiotics are not recommended in the treatment of mild COVID-19 infections. However, for moderate infections or mild infections with evidence of secondary bacterial infection, antibiotics may be given. Local guidelines for community-acquired pneumonia (CAP) should be followed. Young patients with stable co-morbid diseases should be managed as CAP-low risk. The use of antibiotics based on local bacteriological surveillance data may be justified only when an accompanying bacterial infection cannot be ruled out. **(Chua, et al, 2010)**

### *Corticosteroids*

The routine use of corticosteroids for mild to moderate COVID-19 infections, whether as treatment or prophylaxis is not recommended. The use of methylprednisolone is only for patients with rapid disease progression or severe illness. **(Jin, et al, Feb 2020)** However, a systematic review and meta-analysis on the impact of corticosteroid therapy on SARS-CoV2, SARS-CoV, and MERS-CoV showed no significant improvement in survival, hospital stay, ICU admission rate, or mechanical ventilation. **(Li, et al, 2020)** Corticosteroids are only recommended in the management of patients with sepsis. **(Lamontagne, et al, 2018)**

### *Vitamins*

There is insufficient evidence to support the use of vitamin C, oral or intravenous, or zinc as direct or adjunctive treatment of COVID-19 infections. A systematic review of the use of zinc for common cold showed a reduction in the duration of symptoms when zinc was started within 24 hours of the onset of symptoms. However, this data should be interpreted with caution since the quality of evidence is low due to the heterogeneity of data. **(Singh & Das, 2015)**

### *Nebulization*

There is insufficient evidence to make recommendations for or against the use of nebulization for patients with COVID-19 infection. There is also insufficient evidence to classify nebulizer therapy as an aerosol-generating procedure that is associated with COVID-19 transmission. If a bronchodilator is necessary, a metered-dose inhaler may be given. **(WHO, 2020 clinical management)**

### Investigational treatment

Antivirals, immunomodulators, chloroquine/hydroxychloroquine, or plasma therapy are not recommended outside of a clinical trial setting. There is insufficient good-quality evidence in supporting the use of these drugs.

### Treatment for existing medical condition

Anti-hypertensive drugs should not be routinely stopped in patients with COVID-19 infections. Therapy may be adjusted as per the recommendations for the general population. It has been reported that SARS-CoV-2 enters human cells via the angiotensin-converting enzyme 2 (ACE2) receptors. (Hoffman, et al, 2020) There is a concern as to whether RAAS antagonists should be used in COVID-19 patients. However, a rapid review conducted by WHO (May 2020) involving 11 observational studies revealed that there is low-certainty evidence that patients on RAAS antagonists influence the risk of poor outcomes from COVID-19. (WHO, 7 May 2020) Treatment of other pre-existing conditions such as diabetes mellitus likewise needs to be continued in the setting of COVID-19.

**Table 3 Pharmacologic Options for Management of Fever**

Drug	Dose	Expected Effect	Precaution and Side Effects
Paracetamol	500mg q4 PRN, max 3g daily	Lysis of fever	Contraindicated in patients with severe hepatic impairment or active liver disease
Ibuprofen	200mg q6 PRN	Lysis of fever	Contraindicated in patients with a history of GI bleeding or ulceration. Most common side effects are abdominal pain, diarrhea, nausea, vomiting, GI bleeding and ulceration

**Table 4 Pharmacologic Options for Management of Colds**

Drug	Dose	Expected Effect	Precaution and Side Effects
Oxymetazoline	As 0.05% spray: 1-2 sprays twice daily into each nostril as needed. Max duration of therapy: 3 days.	Decongestion	Prolonged use may cause vascular insufficiency exacerbation, risk of narrow-angle glaucoma, rebound rhinitis and nasal congestion; nasal discomfort.
Pseudoephedrine	As conventional tab: 60 mg every 4-6 hours. Max: 240 mg/day. As extended release tab: 120 mg every 12 hours or 240 mg every 24 hours.	Decongestion	Contraindicated in patients with hypertension, ischaemic heart disease, occlusive vascular disease, severe renal impairment, diabetes mellitus, angle-closure glaucoma, hyperthyroidism, prostatic enlargement, and pheochromocytoma.

Mometasone	As nasal spray: 2 actuations (50 micrograms/actuation ) in each nostril twice daily (total daily dose of 400 micrograms).	Decongestion for patients with allergic rhinitis	Contraindicated in patients with infections or wounds involving the nasal mucosa. Side effects include epistaxis, candida infections, nasal septum perforation, glaucoma, and cataracts.
Phenylpropa nolamine	As 15mg tablet in combination with bromphineramine: 1 tablet every 12 hours	Decongestion	Contraindicated in patients with hypertension, ischaemic heart disease, occlusive vascular disease, severe renal impairment, diabetes mellitus, angle-closure glaucoma, hyperthyroidism, prostatic enlargement, and pheochromocytoma.

**Table 5 Pharmacologic Options for Management of Cough – all not recommended**

Drug	Dose	Expected Effect	Precaution and Side Effects
Acetylcysteine	200 mg 2-3 times daily 600 mg once daily	Mucolytic	Most common side effects are abdominal pain, diarrhea, nausea, vomiting, GI bleeding and ulceration
Carbocisteine	500mg 3 times daily	Mucolytic	Contraindicated in patients with a history of GI bleeding or ulceration. Most common side effects are abdominal pain, diarrhea, nausea, vomiting, GI bleeding and ulceration
Ambroxol	As conventional preparation: 30 mg 3 times daily. As extended-release cap: 75 mg once daily.	Mucolytic	Care should be taken for patients with severe hepatic and renal impairment.
Guaifenesin	As conventional preparation: 200-400 mg every 4 hours. As extended-release tab: 600-1,200 mg every 12 hours. Max: 2,400 mg daily	Expectorant	Care should be taken for patients with severe hepatic and renal impairment.
Butamirate	50mg 3 times daily	Cough suppression	Do not take in conjunction with expectorants Side effects include drowsiness.
Levodropizine	As 30mg/5ml syrup: 10 ml 3 times daily for 7 days	Cough suppression	Care should be taken for patients with serious renal insufficiency. Do not take in conjunction with expectorants Side effects include drowsiness.



## Non-pharmacologic Intervention

Combating COVID-19 entails a holistic approach. Successful interventions need to be implemented and coordinated at the individual, family, local community, national and global levels. While it is important to develop/discover/administer the most effective drugs and vaccines for treatment of the disease itself, non-pharmacologic or non-pharmaceutical interventions are crucial in mitigating the overall impact of the disease on society as a whole.

### Patient-Centered Intervention

#### *Health Education*

The best way to prevent and slow down the transmission of COVID-19 is to be well-informed about the virus, the disease it causes, and how it spreads. **(WHO, 2020)** However, there has been an upsurge of false, inaccurate and misleading information about COVID-19, enough to qualify as an infodemic, i.e., an excessive amount of information concerning a problem such that the solution is made more difficult. Infodemic can be as dangerous to human health and security as the pandemic itself. We need to counter this with scientific, evidence-based information and facts. **(United Nations, 12 June 2020)** It is our responsibility as physicians to sift through all the available information and transmit reliable and up-to-date facts to our patients. As family physicians, we must be able to practice active listening skills and educate our patients better by focusing on emotionally critical misperceptions brought about by the deluge of misinformation regarding COVID-19.

Aside from information about the virus itself and the pathophysiology of the disease, we must educate our patients on infection prevention and control measures. For mild suspected or confirmed cases of COVID-19, quarantine in a community-based isolation facility or at home is recommended, whichever is more feasible. Modeling studies included in a rapid review showed that quarantine of people exposed to confirmed or suspected cases averted 44% to 81% incident cases and 31% to 63% of deaths compared to no measures based on different scenarios. **(Nussbaumer-Streit B, et al, 2020).**

The global campaign against SARS-COV2 virus transmission is centered around three main practices, i.e. physical distancing, wearing of face mask, and handwashing. A systematic review and meta-analysis of 172 observational studies across 16 countries reported that transmission of viruses was lower with physical distancing of 1 m or more, with an increase in protection as distance increases. Moreover, face mask use could result in a large reduction in risk of infection, with stronger protection with N95 or similar respirators compared with disposable surgical masks or similar reusable cotton masks. In the same manner, eye protection was also associated with less infection **(Chu, et al, 2020)**. Handwashing is a universally accepted method for the prevention of infection, including COVID 19. One trial in a village in China compared intensive education and training on hand hygiene while the other group received general hygiene education. The hand hygiene group resulted in better knowledge, improved practice, and reduced incidence of hand-foot-and-mouth disease. **(Guo N et al, 2018)**. Soap used need not be of the antibacterial type. Plain soap is effective at inactivating enveloped viruses such as the COVID-virus due to the oily surface membrane that is dissolved by soap, killing the virus **(Sickbert-Bennett E, et al, 2005 in WHO, 2020)**. The mechanical action itself during handwashing helps to remove germs. In situations where soap and water cannot be readily accessed, an alcohol-based rub containing at least 60% alcohol may also be used. The recommended duration for hand hygiene using alcohol or soap and water is 20-30 seconds and 40-60 seconds, respectively. **(WHO, 2020)**. In addition to hand hygiene, we must also educate our patients on proper cough

etiquette. Advise patients to cover nose and mouth with a tissue when coughing or sneezing, dispose of the tissue and wash hands. **(DOH, 2020)**.

Similar to other viral illnesses, proper nutrition and hydration are vital for recovery from COVID-19. We must advise patients to drink 8-10 cups of water daily, eat fresh and unprocessed food, eat less salt and sugar, and moderate amounts of fat and oil, with a preference for unsaturated over saturated fats. **(WHO, 2020)**. Some important points to remember when educating a patient and family members; avoid scientific jargon, use an analogy in explaining to patients, do not hesitate to use anecdotes or testimonies, and be keen to address psychosocial factors rather than focusing only on the biologic factors. Patients remember best the first instruction presented, and the fewer the instruction is given, the greater will the proportion remembered **(Eraker, 1984)**.

### *Psychological Support*

The fear, anxiety, worry, isolation, and economic devastation brought by the COVID-19 have taken their toll on the mental health of individuals and families. In a web-based survey done among 7,236 respondents from the general public during the COVID-19 outbreak in China, the overall prevalence of generalized anxiety disorder and depressive symptoms were 35.1% and 20.1%, respectively. **(Huang Y & Zhao N, 2020)**. A meta-analysis of 13 studies globally showed a pooled prevalence of 23.2% for anxiety and 22.8% for depression among health care workers during the COVID-19 pandemic. **(Pappa S, et al, 2020)**. With this in mind, we must be able to provide basic mental health and psychosocial support for patients with suspected or confirmed COVID-19. Patients should be screened for anxiety and depression, in particular. It is recommended to initiate psychological support, stress management, relaxation training, and cognitive-behavioral therapy. Family Physicians must put to full use various communication and counseling skills to better address the needs of COVID-19 patients and their families.

### **Family-focused Intervention**

Health education advice was given to the index patient on self-care, physical distancing, handwashing, use of face mask, and cough etiquette discussed previously must also be provided to individual family/household members. Studies involving the family in health interventions have been conducted and its effectiveness has been established. For instance, the provision of psychoeducation for family caregivers has reduced morbidities, perceived burden, negative caregiving experiences, and expressed emotions which translates to the prevention of relapses and improved compliance of persons they take care of **(Sin, J et al., 2017)**. The Philippine Academy of Family Physicians developed consensus statements on a family-focused home care plan during a COVID 19 pandemic for family physicians and community practitioners to use for patient care.

### *Formulate a Family-focused Home Care Plan*

Family-focused behavioral interventions are effective in preventing complex health problems with social and behavioral components. Such interventions can be face-to-face delivered by a family doctor or a trained allied health worker or over the internet and other forms of digital communication. **(Prado G et al, 2019)** A standard face-to-face family-focused intervention consists of a single or several family meeting sessions that discuss with the family the care plan, treatment goals, and preferences, and advance directives for terminal illness on palliative care. **(Dallas RH et al, 2016)** The capacity of the family to comply with the care plan can be assisted by indigenously developed and pretested, culturally sensitive, instructions, flyers, and simple audio-video tools. **(Verma A et al, 2017)** The care

plan can also be facilitated and sustained if the plan includes home visits by trained allied health workers. **(Walker N et al, 2015)**

#### *Identify a Family Caregiver*

Family caregivers (FCG) play a vital role in the direct and supportive care to patients in the family. This strategy is used on patients with chronic infections like tuberculosis (treatment partner) and patients with cancer. The hospice strategy in cancer care is supportive of the family caregiver's involvement in care planning. They are encouraged to take a leadership role in facilitating the implementation of the care plan and conduct of family affairs. **(Parker et al, 2017)** The importance of FCG will further be emphasized in the Universal Health Care reform as there is a shift from hospital care to outpatient and home-based care. **(Ferrell B and Wittenberg E, 2017)**

In the context of the COVID-19 epidemic, there is a need to encourage the cooperation of all the family members to sustain their adherence to the family plan. The effectiveness of FCG in this aspect has been reviewed in several publications. In families dealing with a terminal illness, FCG was able to engage the other family members into decisions and cooperation. In one randomized controlled trial, FCGs were able to engage family members into discussion and agreement on the care plan. After the care plan was agreed, FCGs were also able to have a continuing discussion, modification, and implementation of the plan. **(Schubart JR et al, 2018)** However, FCGs may struggle with a complicated medical management plan. There may be a need for structured training. Such training can be a series of face-to-face meetings, web-based, or use of other digital technology. Face-to-face training has been used to improve the FCG's ability to decrease the inappropriate use of medications in patients with dementia. **(Thorpe JM et al, 2012)** Because of the grave task given to them, some FCG develop stress and anxiety during the course of caregiving. A web-based training program has been successfully used to address the FCG's anxiety and distress. **(Kales HC et al, 2018)**

#### *Identify high-risk family members*

The elderly and people with underlying diseases are susceptible to infection and prone to serious outcomes. **(Guo YR et al, 2019)** They should be identified in the family. **(Jernigan DB, 2020)** It is recommended that higher-risk individuals because of age or has a serious long-term health problem should take extra effort to reduce the risk of getting sick with the disease. They should keep space between themselves and others, at least 2 meters. Avoid going out in public unless necessary. **(CDC, 2020)**

#### **Community-oriented Interventions**

The Philippine Academy of Family Physicians developed consensus statements on community-oriented care during a COVID 19 pandemic. A community-based response to control an outbreak has been used in previous experiences like Ebola or Dengue. In one experience, the program led to a reduction in reported Dengue cases. **(Song et al, 2016)** Such programs usually involve collaboration between the health care workers and the community. **(Stein-Zamir et al, 2019)** Strategies of such programs usually involve 1) avoidance of infection, 2) awareness of the need for rapid diagnosis, and 3) awareness of the benefits of mask use and environmental sanitation control. **(Takahashi et al, 2017)**

## *Community Health Plan*

Community health planning is about the community explicitly developing strategies and activities toward the achievement of health objectives. COVID-19 exposed the need for a more collaborative and community-oriented pandemic preparedness and response. Family physicians must provide their patients and families access to community health resources by conducting a quick community health resource mapping; creating a list of contact information to facilitate coordination and referral to their respective barangay health emergency response teams (BHERTs) for disease surveillance, outbreak investigations, isolation precautions, expanded testing, community health education, and advocacy; and referring patients with mild symptoms and inadequate space or room for isolation at home to community facilities (**PAFP, 2020**).

### *Coordination with Local Authorities*

In our current health system, the LGU has a local health board at the province, city, municipal, and barangay level. They have varying levels of function and activity. Under ordinary conditions, the health board is organized. Under emergency or disaster situations, the barangay health emergency response team (BHERTS) is activated. Recently, the DILG advised the LGUs to organize their COVID TASK FORCE. In some situations, the presence of civil society organizations or faith-based organizations is strong and might also perform a similar function. It would depend on the community as to which of these existing structures needs to be organized to achieve this goal.

### **Establishing Telemedicine Monitoring and Follow-Up**

The circumstances surrounding the current pandemic has necessitated the employment of alternative platforms for administering care to patients and families, one of which is telemedicine. Telemedicine is the practice of medicine over a distance, in which interventions, diagnoses, therapeutic decisions, and subsequent treatment recommendations are based on patient data, documents, and other information transmitted through telecommunication systems. (**World Medical Association, 2018**). Both providers and recipients of care alike are just starting to learn the ropes of setting up, utilizing and maximizing a telemedicine platform in the context of COVID-19, while taking to mind ethical and legal issues associated with the practice. Setting up a telemedicine consult would entail the availability of the necessary hardware (computer, phone, tablet, digital medical equipment, remote monitoring devices), software (teleconsult or audio/video conferencing applications), internet connectivity, as well as the degree of technical know-how and capability of the users (Table 6).

The postulated benefits and uses of telemedicine in the context of COVID-19 include the following: (**CDC, 2020**)

- Screen patients who may have symptoms of COVID-19 and refer as appropriate
- Provide low-risk urgent care for non-COVID-19 conditions, identify those persons who may need additional medical consultation or assessment, and refer as appropriate
- Access primary care providers and specialists, including mental and behavioral health, for chronic health conditions and medication management
- Provide coaching and support for patients managing chronic health conditions, including weight management and nutrition counseling
- Monitor clinical signs of certain chronic medical conditions (e.g., blood pressure, blood glucose, other remote assessments)
- Engage in case management for patients who have difficulty accessing care (e.g., those who live in very rural settings, older adults, those with limited mobility)
- Deliver advance care planning and counseling to patients and caregivers to document preferences if a life-threatening event or medical crisis occurs

- Provide education and training for healthcare practitioners through peer-to-peer professional medical consultations (inpatient or outpatient) that are not locally available, particularly in rural areas
- Personal hygiene education and training can also be delivered using video and digital media. This strategy is acceptable to parents and caregivers. **(Verma A et al, 2017).**

The use of telemedicine by and for Family Physicians has a huge potential both for COVID and non-COVID cases, especially during follow-up and monitoring of the patient and family after an initial face-to-face encounter. The table below shows the available options for telemedicine. We also have a basic step-by-step recommendation on how to set-up a platform using free applications in smartphones or computers. Choose the platform based on your competencies to practice telemedicine. Ensure that you have the minimum requirements for telemedicine such as the communication device, stable internet connection, and proper location.



**Table 6 Currently Available Applications for Telemedicine**

Considerations	Virtual Applications				
	Medifi	Serious MD	Konsulta MD	PPD ePrescription	Facebook Messenger
Cost	No subscription fee but Medifi gets 20% of PF	Subscription fee for the PRO version (unlimited number of patients) Serious MD gets 50 Php plus 5% of PF per consult	Subscription fee, either weekly or monthly	Free to download, no subscription fee 10% service fee from PF	Free app
Technology	Mobile app for patients, a web app for doctors No integration with EMR	Separate mobile & web app for doctors and patients. EMR integrated	Mobile app recently launched. Able to store patient histories, previous consults	Available as a mobile app and web app	Facebook available as a mobile app and web app Audio and Video calls allowed only thru FB profile
Security Privacy	Third party has no access to patient information HIPAA compliant	HIPAA compliant Advanced data encryption	Terms & conditions adhere to data privacy	Protected by multilevel encryption schemes	Not encrypted by default but can be enabled via its settings. Still plagued with security issues
Usability	User friendly, simplified format	User friendly, user guides	User friendly (i.e. infographics, simple step-by-step instructions)	User friendly	User friendly
Clinical Validation	Consultation histories & tallies number of consults	Patient satisfaction and feedback. Can tally number of consults, follow-ups, top chief complaints, top diagnosis		Allows easy access to patient database	

For the purpose of this pathway, a platform that could be used is a free app, common to both the physician and patient such as the Viber or Facebook Messenger.

#### *Facebook Messenger*

- Use messenger app in your phone/tablet/laptop
- Advise patient to add YOUR NAME on his/her messenger using YOUR (MD's) name in FB
- Set your day and time of teleconsultation
- On the day of consultation, if patient is not connected or in the list of friends of MD's FB go to upper left corner to see OPTIONS
- Click message request tab
- Once YOU accepted patient, you may begin consultation
- Set follow up date and time
- Apply recommended guidelines for teleconsultation

#### *Viber*

- Set a date of consultation with the patient
- On the day of consult, conduct pre-consultation preparation as recommended
- Connect with the patient on the scheduled time
- You may begin consultation
- Set Follow up date and time
- Apply recommended guidelines for teleconsultation

#### Patient Outcome

##### *Awareness of COVID 19*

Knowledge about the disease and treatments influences patient decisions. The patient must be fully aware of his or her condition and its management. Patients must both have knowledge and understanding of the physician's recommendations to comply with the treatment and management. A considerable amount of noncompliance may be involuntary, due to disparity in patient and physician understanding (**Eraker, 1984**)

Increasing health literacy to COVID 19 is the degree to which individuals can obtain, process, and understand basic health information and services about COVID 19. Health literacy includes a set of skills needed to make appropriate health decisions and successfully navigate the health care system. These skills include reading, writing, numeracy, communication, and, increasingly, the use of electronic technology.

##### *Check if the Patient Understood the Health Education*

When using verbal communication one can ask the patients to explain a concept or plan in their own words (this is not a test of patient knowledge, but a reflection of how well the concept or plan was explained) or after giving each key point, stop to solicit questions and have the patient repeat the

material back. The physician can evaluate comprehension by asking the patient to repeat essential elements of the message, particularly the specific actions required by the treatment plan. As many as one-half of the physician's statements are forgotten by patients almost immediately, therefore, written instructions should be provided when possible to reinforce oral communication. **(Eraker, 1984)**

### *Agreement to Comply with Management*

In any agreement patient's autonomy should be considered. Informed consent should be sought and this involves providing patients with accurate and adequate information about the risks, benefits, and alternatives of treatment in a manner that is free from coercion. It also requires that patients have medical decision-making capacity. Medical decision-making capacity has four key elements. Patients must be able to (1) demonstrate an understanding of the benefits and risks of, and the alternatives to, proposed treatment or intervention (including no treatment); (2) demonstrate an appreciation of those benefits, risks, and alternatives; (3) show reasoning in making a decision; and (4) communicate their choice. **(Bastow, et al, 2018)**. If the patient is not able to make decisions about personal healthcare a surrogate decision maker should be sought.

## Second Visit

### Clinical History and Physical Examination

Face-to-face consultation remains to be the standard in clinical care. If the set-up for telemedicine is done, review the development of symptoms. However, telemedicine follows up consultations may be done following the format of an actual clinic visit such as monitoring of progression or resolution of symptoms. Focus on the grading of severity i.e. decreasing or worsening. Physical examination may be difficult via telemedicine, but depending on the resolution of video or camera, a family physician can determine the patient's general appearance and tell if the patient is in distress. Confirming your observation with other family members who are around will increase the reliability of your observation. Refer to the COVID-19 facility if the symptoms are worsening. If face-to-face contact is preferred by the patient or is necessary because of the disclosure of diagnosis schedule the patient for consultation with strict isolation precaution and on a suitable time i.e. when there is very low patient load. Aside from the review of symptoms and compliance with prior advice, conduct a brief physical examination focusing on the respiratory tract.

The progress of implementing the family health plan should also be evaluated, preferably in consultation with the other family members. Focus on the evaluation of the family's practices related to the use of masks, physical distancing, isolation, hand hygiene, etc. Evaluate the degree of compliance. Similarly, the progress of implementing the community-oriented plan should also be evaluated. Focus on the establishment of communication with local health workers.



## Laboratory and Ancillary Procedures

### Interpret Results of rRT-PCR

Real-time RT-PCR has a sensitivity of 78.2% and specificity of 98.8%. The positivity rate may depend on the area swabbed i.e. bronchoalveolar lavage (93%), sputum (72%), nasal swab (63%), and pharyngeal swab (32%). (Zitek, 2020) A single negative RT-PCR nasopharyngeal swab test is insufficient to rule out COVID-19. (Lippi et al., 2020; Zitek, 2020) It may be dangerous to be over-reliant on the test and the push for widespread testing may be overstated. It requires expensive equipment set up within facilities following appropriate biosafety measures by skilled laboratory technicians. (Zainol et al., 2020) Beyond financial issues, the WHO also cited a significant limitation in the absorption capacity in low- and middle-income countries which all threaten the country's ability to reduce COVID-19 transmission and economic, public health, and social impact.

### Interpret Results of RAT

Many test kits have been developed to detect SARS-CoV-2 IgM, IgG, or both. The diagnostic performance of RAT noting both IgM and IgG sensitivity ranged between 72.7% and 100%, while specificity ranged between 98.7 to 100%. (Zainol et al., 2020) However, there are some issues with the true accuracy of RAT. (PSMID, 31 March 2020) Considering the timing of antibody response to the virus which would usually appear much later in the course of the illness, these tests have limited utility for early detection of disease for purposes of isolation and slowing the community transmission.

**Table 7. Recommended Interpretation of Rapid Detection Test Kits and Proposed Interventions**

Clinical Condition	Results		Interpretation
	IgM	IgG	
Symptomatic Patients with Relevant History of Travel/ Exposure	(-)	(-)	Swab for RT-PCR <ul style="list-style-type: none"> <li>• If RT-PCR (+), manage as a <b>Confirmed COVID-19 Case</b>.</li> <li>• If RT-PCR (-), not a COVID-19 Case but must complete 14-day isolation. There is no need to repeat the antibody test.</li> <li>• If RT-PCR unavailable, isolate the patient for 14 days or until asymptomatic, whichever is longer.</li> </ul>
	(-)	(+)	
	(+)	(-)	Classify the patient as a <b>Probable COVID-19 Case</b> . Swab for RT-PCR <ul style="list-style-type: none"> <li>• If RT-PCR (+), manage as a COVID-19 Case.</li> <li>• If RT-PCR (-), not a COVID-19 Case but must complete 14-day isolation. Repeat antibody test after.</li> <li>• If RT-PCR unavailable, isolate patient for 14 days or until asymptomatic, whichever is longer.</li> </ul>
	(+)	(+)	
Asymptomatic Patients	(-)	(-)	Repeat testing on Day 14 of the quarantine period. If still negative, release from quarantine.

with Relevant History of Travel/ Exposure	(+)	(+)	Classify the patient as a <b>Presumed Recovered Case</b> . The patient can be released from quarantine and there is no need to repeat the test at the end of the quarantine period.
	(-)	(+)	
	(+)	(-)	<b>Probable COVID-19 Case</b> , repeat the antibody tests on Day 14 of quarantine period <ul style="list-style-type: none"> <li>• If still IgM (+) and IgG (-), extend quarantine by 7-day increments.</li> <li>• If IgG (+), the patient may be released from quarantine regardless of IgM result.</li> </ul>

\*DOH Revised Interim Guidelines on Expanded testing for COVID-19

### Other Tests

Typically, bilateral infiltrates are seen in chest x-Rays of COVID-19 patients however chest radiography may also show unilateral patchy infiltrates, multiple small patchy shadows, and interstitial changes, remarkable in the lung periphery. (PSMID, 31 March 2020; PPS-PIDSP, 12 April 2020) In severe cases, chest radiography may even show ground-glass opacity, infiltrating shadows, pulmonary consolidation, and infrequent pleural effusion. Chest CT scans may reveal ground-glass opacities more clearly than chest X-rays alongside typical viral pneumonia patterns with or without consolidation. (PPS-PIDSP, 12 April 2020) Chest CT scans can detect pneumonia early before symptom onset. (PSMID, 31 March 2020) Complete blood count may have varying results but may show lymphopenia, leukopenia, leukocytosis, and thrombocytopenia. (PPS-PIDSP, 12 April 2020) The WHO hence recommends testing for other potential etiologies as appropriate for clinical symptoms and local epidemiology. (WHO, 27 May 2020)

### Pharmacologic Treatment

#### Antibiotics

If on follow-up, the patient is proven to have a bacterial infection, it is recommended to start the patient on empiric antibiotics in accordance with the local antibiogram. Local guidelines for community-acquired pneumonia (CAP) should be followed. Young patients with stable co-morbid diseases, should be managed as CAP-low risk.

Continuation of symptomatic treatment for the COVID-19 related symptoms and the pharmacologic treatment for other clinical condition like hypertension, diabetes, etc.

### Non-pharmacologic Intervention

On the second visit, it is expected that the test results for COVID-19 should already be available. The results must be interpreted accurately and disclosed to the patient in a patient-centered manner. A patient-centered manner gives due consideration to the patient's current psychological and emotional state. But before this, an accurate and scientific interpretation of the results of the tests is necessary as discussed in the previous section.

Disclosing a positive test result for COVID 19 brings different levels of anxiety to the patient receiving the news, depending on their current knowledge and perceptions about the disease. We recommend using the SPIKES model for breaking bad news (Baile, et al, 2000) during the disclosure of COVID 19 test results.

S – SETTING up the interview

- Arrange for some privacy
- Involve significant others
- Sit down
- Maintain eye contact with the patient
- Manage time constraints and interruptions

P – assessing the patient’s PERCEPTION

- “before you tell, ask”
- Use open-ended questions to get a picture of how the patient perceives the medical situation (COVID 19)

I – obtaining the patient’s INVITATION

- Ask the patient what they would like to know

K – giving KNOWLEDGE and information to the patient

- Warn the patient that bad news is coming
- Start at level of comprehension and vocabulary of the patient
- Try to use non-technical words
- Avoid excessive bluntness
- Give information in small chunks and periodically check for understanding

E – addressing the patient’s EMOTIONS with empathic responses

- Recognize and empathize with the patient’s emotions

S – STRATEGY and SUMMARY

- Set out a plan of action

The SPIKES model is ideal for an actual face to face encounter. However, a variation of it may also be employed using a telemedicine platform. Some challenges in the use of telemedicine during disclosure include unexpected locations during the consult (while driving, shopping, etc.), presence of young children, the patient may be by him/herself only during the consult because of physical isolation, and interferences, delays, cuts during the consult due to technical issues. (Wolf, Waissengrin & Pelles, 2020) Here are some suggestions from other doctors on how to break bad news remotely: prepare as if you were meeting in person, explain why the consultation is happening over the phone or other remote platform, make use of video if you and the patient/family have the capability, speak clearly, and be conscious about your tone of voice because this becomes more important when unable to use non-verbal communication. (Rimmer, 2020)

## Patient Outcome

### *Awareness and Acceptance of the Diagnosis*

It may take time to assess the patient’s acceptance of the diagnosis. Acceptance may be associated with the initial reaction to the disclosure of COVID-19 diagnosis. Two unpublished studies recommended the use of a simple test to evaluate the patient’s reaction to illness. The first is the Anger Expression Type Indicator Test (AETIT) which is a tool to measure anger manifestation. (Cayubit, 2013) The other tool is the Hospital Anxiety and Depression Scale (HADS-P) which provides clinicians

with a reliable, valid, and practical screening tool to identify anxiety and depression among medically ill patients. (Lourdes et al, 2016)

## Third and Subsequent Visit

### Clinical History and Physical Examination

With telemedicine monitoring, it is expected that during the third visit, a favorable outcome for the patient may have occurred. This should be reflected in the final symptom evaluation and physical examination after 14-21 days.

### Laboratory and Ancillary Procedures

Repeat RT-PCR if previously positive is not necessary for the definition of recovered cases. Laboratory tests for other co-existing medical conditions may be done.

### Pharmacologic Treatment and Non-pharmacologic Intervention

Enhancement of the non-pharmacologic intervention and continuation of the family-focused and community-oriented intervention is necessary while the pandemic is still ongoing.

### Patient Outcome

During the last visit, it is expected that the patient is already cured. The test of cure can be based on laboratory result or symptom resolution. Laboratory-based strategy is based on 2-negative result of RT-PCR which was done more than 24 hours apart. This can be used to document recovery or virologic cure. While symptom-based strategy is based on clinical improvement for at least 3 days (e.g. no fever or use of antipyretics, no longer oxygen-requiring, improvement of respiratory symptoms) and at least 10-14 days has passed since the first symptoms appeared. However, repeat testing after a positive COVID-19 is no longer recommended at this time. A time or symptom-based strategy for discharge and return to work are preferred. (PSMID, 2020)

Based on the DOH COVID-19 Case Bulletin # 135 (July 27, 2020) the global case fatality rate is higher at 3.91% compared to 2.37% in the Philippines. Among the persons who got tested for COVID-19, 8.92% tested positive. The reproduction number is 1.044, case doubling time is 8.87 days, and the mortality doubling time is 12.72 days.

Patient satisfaction should also be measured from the perspective of out-patient consultation. There are some validated tools like the Filipino-Patient Satisfaction Scale (F-PSS) that were found to

valid and reliable. **(Palad et al, 2014)** The tool that is relevant to a particular setting and in the local language is one that is recommended.

It is also expected that because of the family physician's intervention, the other family members did not contract the disease or were managed as well as the recommendations in this clinical pathway.

## Recommendations for Implementation

### Clinic Level

The recommendations for implementation of this clinical pathway is similar to the recommended implementation of the other clinical pathways developed by the PAFP QA Committee. The committee will disseminate the clinical pathways in a form of lectures and publications. Lectures and publications will also be supplemented by generating evidence of actual practice by family physicians. At the clinic level, self-audit using the recommendations of this clinical pathway as the standard may be done. Passively delivered, complex interventions targeted at identified barriers to change had little effect in changing practice. **(Flottorp et al, 2002)**

### Organizational Level

Similarly, at the organizational level, the PAFP should establish a new model of quality improvement initiative where self-practice audits are included as part of the program. Within PAFP chapters, peer group discussions, individual feedback, and quality improvement reports are the main components. This model has been shown to improve the care process for urinary problems in one randomized clinical trial. This trial showed that prescribing of the first choice appropriate management increased in the intervention group from but remained the same in the control group. **(Lundborg et al, 1999)**

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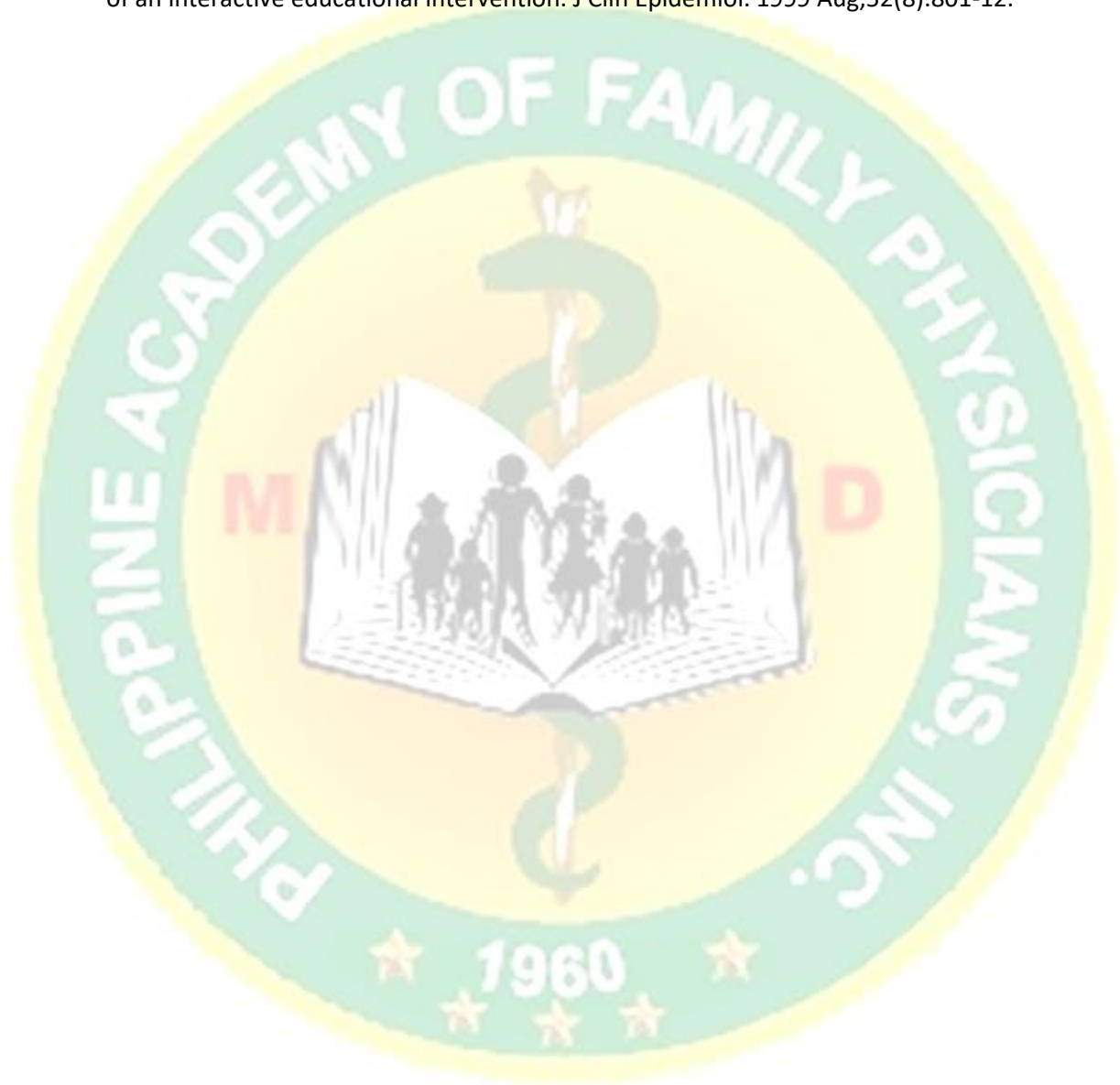
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# Philippine Academy of Family Physicians

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