

LUNG CENTER OF THE PHILIPPINES

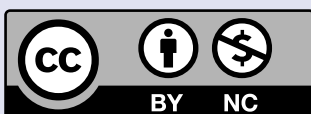
Scientific Proceedings

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WHAT'S INSIDE

Outcomes of Critically Ill COVID-19 Patients Undergoing Rapid Sequence Intubation Using Video Laryngoscope: Lung Center of the Philippines Experience

Lung Center of the Philippines
Research Agenda Setting 2023-2025



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CLINICAL RESEARCH DEPARTMENT

The Clinical Research Department (CRD) oversees all research projects at the Lung Center of the Philippines (LCP). It receives, evaluates and coordinates all research activities. It establishes policies and guidelines for the development, writing, presentation and approval of research proposals. Thru its Technical Review Board (TRB), it provides guidance and technical expertise on protocol development, including sample size calculation and statistical analysis plan. It spearheads institutional researches and coordinates with other national and international agencies for clinical trials, student undergraduate and graduate research, and collaborative research. It runs the TB Research Team at the LCP's National Center for Pulmonary Research (NCPR) as well as spearheads the Lung Cancer Registry to gather and collate the comprehensive local data on pulmonary tuberculosis and lung cancer, respectively. It maintains the Clinical Research Facility (CRF), an establishment that provides room, space and storage facilities for clinical trials and research.

The CRD publishes the Scientific Proceedings, the official journal of the LCP, to share local relevant educational material in the field of pulmonary medicine. The Scientific Proceedings Journal publishes original clinical investigations, epidemiological studies, case reports, review articles, evaluation of diagnostic and surgical techniques, and latest updates on management guidelines.

In 2019, the CRD started to align with the vision and strategic direction of the LCP on research. The current challenges involve providing resources to support priority programs and projects with other departments to undertake institutional research on advanced procedures to support new clinical pathways, programs and policies and contribute to impact healthy lungs and healthy environment.

The department likewise is aligned with the National Unified Health Research Agenda 2021–2025 on [1] responsive health system [2] research to enhance and extend healthy lives [3] holistic approaches to health and wellness [4] health resiliency [5] global competitiveness and innovation in health and [6] research in equity and health.

In order to achieve these proposed strategic directions, the CRD reviews its accomplishment using the perspectives of the Balanced Scorecard in [1] learning and growth [2] internal business processes [3] customer satisfaction and [4] financial perspective. From these perspectives, the CRD hopes to monitor the outcomes of all action plans and to evaluate the implementation of such plans.

LISTING AND BRIEF DESCRIPTION OF AVAILABLE SERVICES

Registration of researches to be conducted at the LCP : processes all applications for Institutional Research, Clinical Trials, Student Undergraduate Research, Graduate Research and Collaborative Research.

Technical Review Board (TRB) : provides review of research protocols based on its technical merits.

Clinical Research Facility: provides rental for room space, investigational product storage and archiving of completed research.

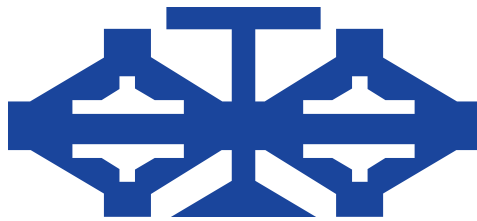
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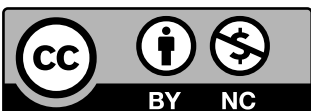


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LUNG CENTER OF THE PHILIPPINES

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This is a program that caters to adult afflicted with TB since early 2000 and children with TB in 2007. The Lung Center of the Philippines DOTS clinic is the first public health facility engaged implementing Programmatic Management for Drug resistant TB in 2005 as a satellite treatment center under the Green Light Committee. In 2008, it became one of the ten (10) treatment centers implementing the DOH guidelines on PMDT as issued by DOH Administrative Order 2008-0018.



SERVICES OFFERED

CONTACT TRACING



DSTB/DRTB SCREENING (GENEXPERT)



HIV COUNSELING AND TESTING FOR ENROLLED TB PATIENTS (15 YEARS OLD AND ABOVE)



PROVISION OF ANTI TB MEDICATIONS (DSTB/DRTB) FOR ADULT AND CHILDREN FOR FREE

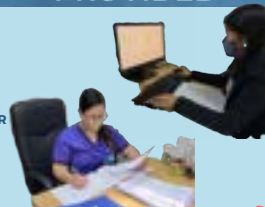


DIRECT SPUTUM SMEAR MICROSCOPY TEST FOR ENROLLED PATIENTS



OTHER SERVICES PROVIDED

- CONDUCTS TB EDUCATION
- REFERRING AND PROVIDING CENTER FOR PRESUMPTIVE DSTB/DRTB PATIENTS
- ACT AS TREATMENT PARTNER
- FOLLOW UP CASES WHO FAILED TO REPORT FOR TREATMENT
- SUBMITS ACCOMPLISHMENT REPORTS TO LCP/NTP/QCHD



OUR OBJECTIVES

TB-FREE PHILIPPINES

ENSURE THAT TB DOTS SERVICES ARE AVAILABLE, ACCESSIBLE, AND AFFORDABLE IN COLLABORATION WITH THE LGUS AND OTHER PARTNERS.

TO REDUCE PREVALENCE AND MORTALITY FROM TB.



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The **Scientific Proceedings**, the official journal of the Lung Center of the Philippines, is an open-access, English language, medical science journal, published biannually by the Lung Center of the Philippines. The journal intends to share local relevant scientific findings in the field of respiratory medicine through publication of high quality original clinical investigations, epidemiological studies, case reports, review articles, evaluations of diagnostic and surgical techniques, and the latest updates on management guidelines. The journal's target audience are clinicians, surgeons, specialists, laboratorians, scientists, and researchers working on pulmonary medicine. The Scientific Proceedings does not charge any subscription, review, or manuscript processing fees.

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LUNG CENTER OF THE PHILIPPINES





NAVIGATING THE RESEARCH WORLD

Not everyone is comfortable with research. It has always been synonymous with a "requirement" that may be necessary for graduation or promotion. This uncomfortable concept has been a nagging issue that can potentially gnaw at an individual's (or even an institution's) core being. If a center has not enough mechanisms or systems in place to make research conducive, then the negative impacts are even magnified.

Certainly, as the premiere institution that focuses on respiratory diseases and lung health, Lung Center is expected to craft and churn out research outputs at a regular pace. These investigations and scientific undertakings may be considered not just relevant and responsive to the local setting, but may probably even be game changers. These may affect the general approach to certain diseases, current and future policies, and even have implications on implementation of certain regulations. Potentially, these outputs may even ripple to regional or even global healthcare.

This expectation (or even responsibility) goes beyond the individual and the traditional requirements. Definitely, these realities elevate and channel the main responsibility back to the institution.

Critical dilemmas need to be addressed. What do we want from research? What are our priorities in terms of areas for investigation? We cannot take on all lung problems that we may think of. Do we have the resources to address this priority list? Do we have the manpower to do these? We could not just be always dependent on trainee-initiated research all the time. Can we do it? These questions seem to be overwhelming and even daunting. Doubts may linger. Odds seem insurmountable. Queries may continue once we are able to grapple with and address some initial issues. However, I think that is "putting the cart before the horse". We will crave for a framework that can guide us as we navigate the research landscape.

The Editorial Staff is honored to publish our LCP Research Agenda in this issue of Scientific Proceedings. This was made possible through the guidance of the Department of Research, headed by Dr. Norberto Francisco, and the meticulous and conscientious work of Dra. Racquel Ibañez and her group.

Everyone will have access to the details of the development of this very important document. The methodology utilized was indeed quite rigorous and a consultative approach was adopted. This ensured that stakeholders were involved



*Jubert P. Benedicto, MD, FPCCP
Editor-in-Chief*

from the very start and throughout the whole process. Several dialogues and sessions were undertaken to really narrow down the topics to just settle on what can be considered as priorities. This will unquestionably focus our available resources to these key areas. Accountability was also addressed through a series of meetings. Who will be responsible to ensure that what is written and contained in our agenda gets done on time? Fortunately, this delicate issue was also handled in a professional manner. The resulting document is a research roadmap that everyone can be proud of. Easy to understand, easy to follow.

This Research Agenda is a huge positive step. A very valuable guide to assist us as a center in navigating through the research world which can be intimidating and unpredictable with its unique set of challenges and uncertainties. This can provide the stability that we will need as an institution.

Moving forward, the main challenge will be to monitor and ensure that "what is written will actually happen". Hopefully, this Research Agenda will encourage us to bravely take the "initial baby steps" before we can leap forward... This makes our research journey as Lung Center very interesting and exciting.

I truly look forward to the research outputs which will be published in our journal. Ahhhhh, this scenario will indeed be doubly exciting!



ABOUT THE JOURNAL

The **Scientific Proceedings**, the official journal of the Lung Center of the Philippines, is an open-access, English language, medical science journal, published by the Lung Center of the Philippines. Its policies are guided by the latest version of the International Committee of Medical Journal Editors (ICMJE) "**Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals.**"

FOCUS AND SCOPE

The **Scientific Proceedings** intends to share local relevant scientific findings in the field of respiratory medicine through publication of high quality original clinical investigations, epidemiological studies, case reports, review articles, evaluations of diagnostic and surgical techniques, and the latest updates on management guidelines. The journal's target audience are clinicians, surgeons, specialists, respiratory therapists, laboratorians, scientists, researchers working on pulmonary medicine, and policy makers.

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ADENOSINE DEAMINASE (ADA)

Is a protein that is produced by cells throughout the body and is associated with the activation of lymphocytes, a type of white blood cell that plays a role in the immune response to infections. Conditions that trigger the immune system, such as an infection by *Mycobacterium tuberculosis*, the bacteria that causes tuberculosis (TB), may cause increased amounts of ADA to be produced in the areas where the bacteria are present. This test measures the amount of adenosine deaminase present in pleural fluid in order to help diagnose a tuberculosis infection of the pleurae.



1 WHY GET TESTED?

ADA tests helps to detect or rule out *Mycobacterium Tuberculosis* infection in Pleural Fluid. This may also be detected in other body fluids such as Cerebrospinal Fluid (CSF).

2 WHEN TO GET TESTED?

- Upon doctor's request
- Consult your Attending Physician before the tests. Your doctor may guide you for further instructions specifically if a particular medication might need to stop.

3 SAMPLE COLLECTION

Required sample: **PLEURAL FLUID**

A volume of Pleural Fluid is collected by a Physician using a procedure called THORACENTESIS and placed on a sterile container. This shall be sent to the laboratory as soon as possible without delay.

Volume: At least 5-10 mL in sterile container

Sample Handling: Room temperature

Sample Processing: Freshly collected or frozen sample (4 or -20°C)

LABORATORY GUIDELINES

Sample Preparation / Receiving of Samples:

1. Freshly collected samples: must be sent to the laboratory within 2 hours at room temperature
2. For send in referrals: call the LCP Patient Laboratory Service (02-89246101 loc. 1196) for more details : specimen preferably frozen or kept at controlled temperature 4 or -20°C

Time of collection is indicated on the request form

Processing Day: Mondays, Wednesdays and Fridays

Cut off Time: 10:00AM

Releasing of result: Same day, 4:00PM

Price: Php 2,700.00



For more information, please contact us:
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Thoracic Oncology Department



The

AMBULATORY MEDICAL ONCOLOGY UNIT

of the Thoracic Oncology Department will transfer at the 3rd floor of the Radiotherapy Building.

This time with bigger space to better serve our cancer patients.

See you there very soon!



OUTCOMES OF CRITICALLY ILL COVID-19 PATIENTS UNDERGOING RAPID SEQUENCE INTUBATION USING VIDEO LARYNGOSCOPE: LUNG CENTER OF THE PHILIPPINES EXPERIENCE

Bienvenido Y. Chu, MD, James M. Monje, MD, Lizbeth G. Jacaban, MD

ABSTRACT

Background. Rapid sequence intubation (RSI) is a technique that produces immediate loss of consciousness and muscle relaxation to facilitate optimum laryngoscopy. In times of pandemic such as COVID-19, RSI has been included in the Lung Center of the Philippines Intubation Protocol, based on recommendations from several societies abroad. However, these recommendations were only based on experience and best practices of anesthesiologists and critical care physicians. During the study period, there were no published studies existing to validate its safety and effectiveness.

Objective. This study was done to determine the outcome of rapid sequence intubation using video laryngoscope in critically ill COVID-19 patients and to determine if the use of a video laryngoscope is safe with no serious adverse effects during RSI.

Methodology. Charts of COVID-19 patients were retrieved from the central medical records of Lung Center of the Philippines who underwent rapid sequence intubation using a video laryngoscope for the period of six months (March–August 2020). Primary endpoints or outcomes of interest were to determine following rapid sequence intubation using video laryngoscope under propofol and non-propofol sedation: 1) first pass success rate, 2) decrease in oxygen saturation $\geq 5\%$ and systolic blood pressure $\geq 10\text{mmHg}$ within thirty minutes, 3) rate of pneumothorax within two hours, 4) rate of cardiac arrest within thirty minutes, and 5) all cause two-hour mortality

Results. A total of 102 charts were retrieved and analyzed. Only 40 of which were included for analysis. The mean age of the patients was 58 years old with male gender predominance at 62%. During video laryngoscopy, a 100% first pass success rate was achieved. There was no decrease in oxygen saturation within thirty minutes following intubation. In 10% of patients ($n=4$), systolic blood pressure dropped $\geq 10\text{mmHg}$ within thirty minutes following intubation. None of the 40 patients had pneumothorax within two hours as confirmed by chest radiography. No cardiac arrest and all cause two-hour mortality recorded regardless of the sedation technique used.

Conclusions. Endotracheal intubation in critically ill COVID-19 patients using video laryngoscope via rapid sequence intubation was safe with minimal adverse effect regardless of the inducing agent used. Moreover, the use of a video laryngoscope has an excellent first pass success rate with minimal complications in the study population. Except for hypotension, other outcomes recorded for oxygen saturation, pneumothorax, cardiac arrest, and mortality immediately after endotracheal intubation were all absent. Further studies with larger sample size are needed to confirm and validate these preliminary results.

Keywords: rapid sequence intubation, video laryngoscope, first pass success rate, oxygen saturation, pneumothorax

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INTRODUCTION

Data from the World Health Organization shows that 80% of COVID-19 infections were mild or asymptomatic, 15% were severe, and 5% were critical, warranting intubation and mechanical ventilation.¹ In order to prevent further deterioration of the critically ill patient, first pass success in intubation is crucial and lifesaving. This poses a significant challenge to the critical care physicians, especially to the anesthesiologists. By means of rapid sequence intubation (RSI) using a video laryngoscope, not only is the airway secured promptly, but the intubation procedure is also more optimized. Several studies show that there is improved first pass success² with reduced risk of complications. Recent journals advised the use of video laryngoscope for patients with SARS-CoV-2 disease³ for its advantage of having a separate screen benefits the airway team to share laryngoscopy images with the team that allows greater distance from the patient and greater anatomical view compared to conventional laryngoscopy. Also, it allows intubation team to see the whole process for which assistance may be done quickly if needed.⁴

At the start of the pandemic, the Lung Center of the Philippines was designated by the Department of Health as one of the first three referral hospitals for COVID-19 patients. The Division of Thoracic Anesthesia created a COVID-19 Intubation Protocol using RSI and a video laryngoscope. This protocol was based on recommendations from several societies abroad.

OBJECTIVES

This study aims to determine the outcome of rapid sequence intubation using video laryngoscope in critically ill COVID-19 patients.

Specific objectives were to determine following rapid sequence intubation using video laryngoscope under propofol and non-propofol sedation: 1) first pass success rate; 2) decrease in oxygen saturation $\geq 5\%$ and systolic blood pressure $\geq 10\text{mmHg}$ thirty minutes following intubation; 3) rate of pneumothorax within two hours following intubation; 4) rate of cardiac arrest within thirty minutes following intubation; and 5) all-cause mortality rate within two hours following intubation.

METHODOLOGY

Study Design and Site

This study is a retrospective cohort of adult COVID-19 patients of Lung Center of the Philippines who underwent rapid sequence intubation using a video laryngoscope for the period of six months (March–August 2020).

Study Population and Sample Size

The computed sample size was determined in reference to a study by Grendelmeier, et al., where periprocedural

adverse event of hypotension after induction was compared between midazolam and propofol.²⁴ Using the sample size calculator (Gpower), with alpha of 0.05 and beta of 0.95, the computed sample size for one arm is 19, aiming for the 1:1 correspondence, a total of at least 38 subjects for the specific comparison of propofol and midazolam was generated. All patients referred for intubation from March–August 2020 were reviewed.

Study Procedure

Charts of all adult COVID-19 patients who underwent endotracheal intubation using a video laryngoscope and RSI referred to anesthesiologist-on-duty were included in the study, retrieved from the Central Medical Records of the hospital. Incomplete data (vital signs, diagnostic exams, and anesthesia notes) of patient's chart, patients who are in cardiorespiratory arrest before intubation, and COVID-19 patients for reintubation were excluded from the study.

Variables that may cause possible bias such as operator factor was eliminated since anesthesiologists who intubated these patients have fulfilled the required years of accredited training in anesthesia in their respective hospitals/institution as approved by the Philippine Board of Anesthesiologists and all are qualified and certified to intubate patients using a video laryngoscope.

All critically ill COVID-19 patients prior to intubation were oxygen supplemented using regular nasal cannula, simple face mask, or high flow nasal cannula. Appropriate sedative drugs were used for rapid sequence intubation that tailored the patient's pre-intubation condition. After one arm-brain circulation time (40–60 seconds),⁵ a suitable size of endotracheal tube was inserted using a video laryngoscope. Confirmation of endotracheal tube placement was by auscultation over chest and abdomen and a portable chest X-Ray.⁶

Statistical Analysis

All adult COVID-19 patients included in the study were tabulated and analyzed using Microsoft Excel. Statistical analysis of the demographics included computation of the mean, standard deviation, and t-test for equal variances, while z-test for the gender. Dichotomous variables were interpreted based on percentages.

Ethical Considerations

This research was approved by the Technical Review Board and the Institutional Ethics Review Board of the Lung Center of the Philippines. Individually identifiable research data are replaced with randomized numbers and were not shared with others outside of the research team and the research protocol adhered to the Data Privacy Act of 2012.

RESULTS

A total of 102 charts were retrieved from the central medical records of the hospital inclusive for the months of March 2020 to August 2020. Among the retrieved charts, 62 were excluded. A total of 40 cases were analyzed in this study, demographic data of which are enumerated in Table 1.

Table 1. Demographic data of 40 patients

Characteristic	Propofol based (n = 37)	Non-propofol based (n = 3)	Total (n = 40)	p-value
Age (years)	59 ± 14	54 ± 17	58 ± 14	0.561
Male	24 (65%)	1 (33%)	25 (62%)	0.312
Female	13 (35%)	2 (67%)	15 (38%)	
Oxygen Saturation (%)	81 ± 14	91 ± 12	82 ± 14	0.253
Systolic Blood Pressure	142 ± 26	117 ± 6	140 ± 26	0.104
Diastolic Blood Pressure	81 ± 13	73 ± 6	81 ± 13	0.292

NOTE: Data are presented as means ± SD or numbers of patients (percentage).

Clinical Characteristics of the 40 patients

The mean age was 58 (SD=14) ranging between 44 to 72 years of age. Majority of patients who underwent propofol-based sedation technique had ages ranging from 45 to 73 (M = 59, SD = 14) while the majority of patients who underwent non-propofol based sedation technique had ages ranging from 37 to 71 years of age. Using t-test for equality of variances indicated that there was no significant difference in the mean age between propofol based and non-propofol based groups of patients, $t(38) = 0.587$, $p = 0.561$.

In terms of sex, 15 of the 40 patients were females (38%). Considering the propofol based sedation treatment, 13 of 37 patients (35%) and 2 out of 3 patients (67%) under non-propofol based were females. Using z-test for proportions indicated that there was no significant difference in the proportion of females between propofol based and non-propofol based groups of patients, $z = -1.098$, $p = 0.312$.

Patients' status before intubation

Hypoxia (oxygen saturation <94%)⁷ was observed in 80% (n=32) of patients with mean baseline oxygen saturation by peripheral oximetry of 82% (SD ± 14). Considering the type of sedation technique, for propofol based, the majority of the patients had oxygen saturation of 67% to 95% compared to non-propofol based that ranges from 79% to 100% (M = 91, SD = 12). Using t-test for equality of variances indicated that there was no significant difference on the oxygen saturation between the two groups of sedation technique $t(38) = -1.162$, $p = 0.253$.

Considering the blood pressure reading, the majority of the 40 patients have systolic blood pressure (SBP) reading that ranges from 114 mmHg to 166 mmHg while the diastolic blood pressure (DBP) reading ranges from 68 mmHg to 94 mmHg. For patients who underwent propofol-based sedation technique, the majority of the patients had SBP reading ranging from 116 mmHg to 168 mmHg while the DBP reading ranges from 68 mmHg to 94 mmHg. Patients who underwent non-propofol based sedation technique; the majority of the patients had SBP reading ranging from 111 mmHg to 123 mmHg while the DBP reading ranges from 67 mmHg to 79 mmHg. Using t-test for equality of variances, there were no significant differences both on the SBP reading, $t(38) = 1.667$, $p = 0.104$ and DBP reading, $t(38) = 1.068$, $p = 0.292$ between the two groups.

In determining the first pass success rate, all 40 patients regardless of sedation technique used had 100% first pass success rate as shown in table 2. All 40 patients (100%) regardless of sedation technique used, had no decrease in Oxygen Saturation >5% within 30 minutes following intubation as shown in table 2. Hypotension was found in 4(10%) of patients given propofol (OR 0.85, CI 95% 0.04 to 19.50, P value 0.3478) as shown in table 2. None of the 40 patients regardless of sedation techniques used experienced pneumothorax within 2 hours following intubation as shown in table 2. All 40 patients regardless of sedation technique did not experience cardiac arrest within 30 minutes following intubation as shown in table 2. Of all the 40 patients, there was no mortality within 2 hours following intubation recorded regardless of sedation technique used as shown in Table 2.

Table 2. Outcomes of RSI using video laryngoscope

Outcomes	Result	Propofol-based	Non-propofol based	Total
Video Laryngoscopy first pass success	Yes	37	3	40
Decrease in Oxygen Saturation >5% within thirty minutes ff intubation	No	37	3	40

Decrease in SBP>10mmHg within 30 minutes following intubation	Yes	4	0	4
	No	33	3	36
Pneumothorax within two hours following intubation	No	37	3	40
Rate of cardiac arrest thirty minutes following intubation by using propofol-based sedation compared to non-propofol sedation.	No	37	3	40
All cause two hour-mortality	N/A	37	3	40

DISCUSSION

Patients were predominantly males (n=25, 62%) with a median age of 58. The likely explanation for male predominance for COVID-19 infection is the prevalence of cardiopulmonary disease and smoking, heightened systemic inflammation, multi-organ dysfunction, and cardiac injury.⁸ Old age played a key factor in acquiring COVID-19 infection as well because there is an age-related decline in the clearance of inhaled particles,⁹ moreover; increasing age for both gender, and that male has greater upper airway collapsibility than females.¹⁰

Most patients in this study were in the severe state of COVID-19 (n=32, 80%) with median oxygen saturation of 78%, and it has been recommended to do an emergency tracheal intubation to prevent further complications.^{11,12}

In this study, no hypotension was noted prior to inducing patients for tracheal intubation, instead hypertension was observed in some patients. This could be attributed to the presence of hypertensive cardiovascular disease in the older age group.

This study showed 100% first pass success rate which was almost identical to one study during the pandemic (96.4% vs 82.9%, P <0.1).¹³ Our result was also quite similar with the study done by Kriege and Noppens, where they showed videolaryngoscopy has improved first pass success rate.¹⁴ Potential factors contributing to the high success rate was the use of video laryngoscope. The video laryngoscope itself is used the same way as a standard direct laryngoscope to intubate the trachea by direct vision. However, it offers a significant advantage over a laryngoscope because of a wider angle of view (67 degrees angle of view) provided by the video camera at the tip of the video laryngoscope (Image 1.0).¹⁵ Hence, the healthcare worker performing the intubation has a broader view of the airway anatomy that makes the intubation of the trachea easier and faster. With the advent of video laryngoscope, experienced anesthesiologists are very familiar with the airway anatomy that allows them to use the technique without additional training.^{16,23} It is worth noting that if the intubation time was

shortened and success rate was higher, the adverse events were reduced which may prove crucial for managing the airway in critically ill patients.^{17,18}

There was no noted decrease of >5% in oxygen saturation following intubation. This could be attributed to the early supplemental oxygen by the attending physician to COVID-19 patients by face mask or high flow nasal cannula prior to RSI and tracheal intubation.

Indeed, video laryngoscopy improves the laryngoscopic view of airway and oral anatomy which minimizes injury to the surrounding structures and prevents traumatic intubation. Most likely this is the reason why no pneumothorax within two hours following intubation was recorded.

Ideally, inducing agent should provide a very rapid onset and a rapid offset that allows a quick recovery from effects of the drug with minimal cardiovascular and systemic effects.¹⁹ One of the most widely used inducing agent is propofol because of its fast onset and duration of action. However, at higher doses, propofol is known to induce hypotension through inhibition of the sympathetic nervous system, impairment of the baroreceptor reflex regulatory mechanism, and enhancement of the nitric oxide system.²⁰ Propofol in this study only caused hypotension or decreased in SBP >10mmHg within 30 minutes following intubation, in 10 % (OR 0.85, 95% CI P value 0.3478) of the cases, we can confer that there is no significant difference whether propofol or non-propofol was used. This is much less compared to the findings in the study by Yao et.al, where a decrease in SBP is noted in 28% of the patients following intubation.¹¹

In our study, the low percentage of hypotension could be attributed to bolus infusion of a 250ml crystalloid if not contraindicated and the prophylactic use of cardiovascular stimulating agents before intubation. In this study propofol was used in the LCP Intubation Protocol for COVID-19 patient because of its protective effect on the lung, as well as its antioxidant and anti-inflammatory property.²¹ Likewise, no cardiac arrest was recorded thirty minutes

following intubation for different recommendations were considered to minimize hypoxemia and hypotension which are the predictors of cardiac arrest in critically ill.

There was no mortality recorded within two hours following intubation in this study. One study by Yao et al, 24-hour mortality was 10.4% following tracheal intubation. Although no death was recorded within two hours in retrospective study, perhaps the rate might change if follow-up was extended up to twenty-four hours as well.

LIMITATIONS OF THE STUDY

This is a retrospective study on the safety and success of video laryngoscopy rapid sequence intubation among adult COVID-19 patients and all intubations were done in emergency situations. Only the immediate outcomes (within two hours) following intubation were included in this study.

RECOMMENDATIONS

Propofol was the most common sedative agent used for rapid sequence intubation. While there were agents other than propofol used in this study, only among those patients given propofol had hypotension. Considering the critical nature of COVID-19 cases analyzed, it was difficult to ascertain if the hypotension was secondary to deranged physiologic status or the solitary pharmacologic effects of the administered propofol. The results of this study may be used to standardize COVID-19 intubation protocol with the use of RSI and video laryngoscope in intubating critically ill COVID-19 patients in other health care facilities in the country. A prospective study with a larger sample size and longer follow-up duration is recommended to determine whether propofol-based or non-propofol-based inducing agents are safer to use prior to intubating critically ill COVID-19 patients. In addition, a randomized-controlled study comparing video laryngoscope to the standard direct laryngoscopy is also recommended to further validate this study.

CONCLUSIONS

This study showed that even during the early months of the COVID-19 pandemic, endotracheal intubation via video laryngoscopy showed excellent first pass success as managed by anesthesiologists in a tertiary specialty hospital. This finding aligns well with several recommendations of health organizations on the use of VL at the start of this pandemic.²²

Except for hypotension, other outcomes recorded for oxygen saturation, pneumothorax, cardiac arrest, and mortality immediately after endotracheal intubation were all absent. Several charts were excluded due to incomplete chart entries and some of these complications might have been missed. Therefore, further studies with larger sample sizes are needed to confirm and validate these preliminary results.

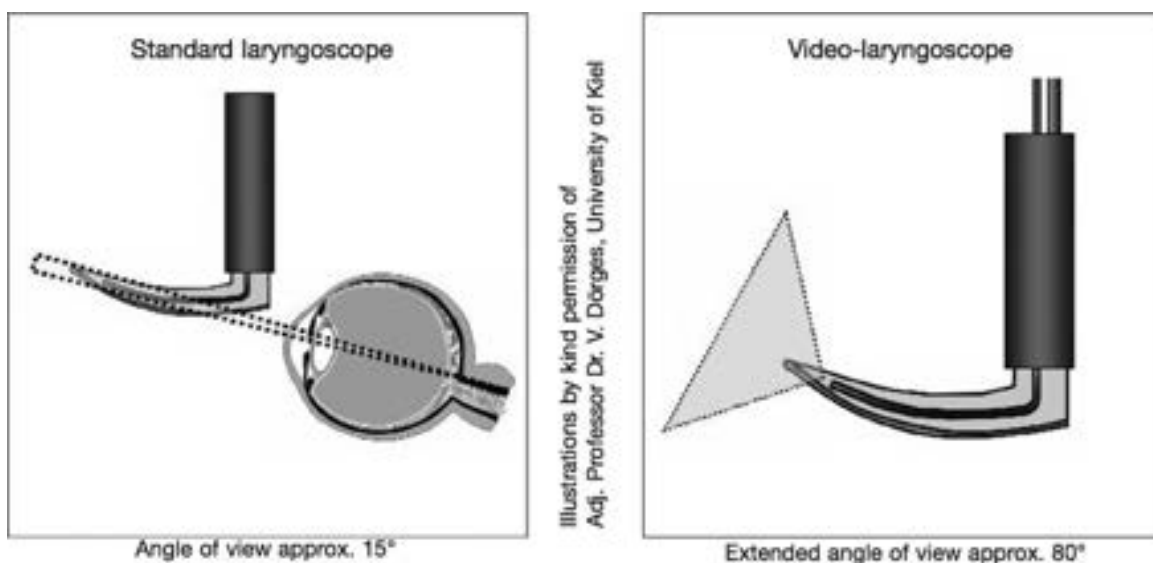



Figure 1. Angle view comparison between standard laryngoscope and video laryngoscope.

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RADIOLOGY DEPARTMENT NUCLEAR MEDICINE SECTION

Nuclear Medicine is a specialized area of radiology that uses very small amounts of radioactive substance, called a radionuclide (radiopharmaceutical or radioactive tracer) to diagnose, evaluate or treat a variety of diseases. Nuclear medicine imaging procedures are non-invasive, with the exception of intravenous injections, they are usually painless.

Scans are used to diagnose many medical conditions and diseases. Some of the most common tests include the following:

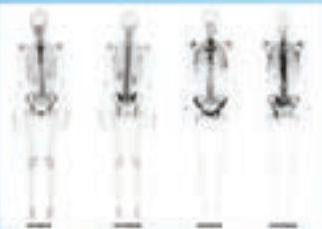


GENITOURINARY SYSTEM (Renal Cortex Scintigraphy)

- To diagnose acute and chronic pyelonephritis (kidney function)
- To evaluate renal cortical scarring
- For the diagnosis of renal agenesis/ ectopia.

GASTROINTESTINAL SYSTEM (Liver and Spleen Scintigraphy)

- Assessing the size, shape, and position of the liver and spleen.
- Detecting, measuring and monitoring masses of the liver and/or spleen.
- Differentiating hepatic hemangiomas and focal nodular hyperplasia from other liver lesions.
- Evaluating hepatic function in acute or chronic liver disease.
- Evaluating suspected functional asplenia.

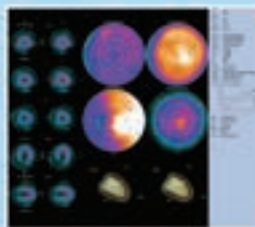
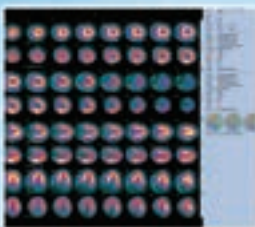


SKELTAL SYSTEM (Bone Scintigraphy)

- For the detection of bone metastasis from a primary extraskelatal malignancy
- Follow-up study after metastatic cancer therapy
- For the evaluation of musculoskeletal trauma and infections
- For the evaluation of primary benign and malignant bone lesions
- For diagnosis of reflex sympathetic dystrophy
- For evaluation of heterotrophic ossifications

ENDOCRINE SYSTEM (Thyroid Scintigraphy)

- To assess general thyroid configuration and function
- To determine degree of function of a palpable thyroid nodule
- To differentiate thyroiditis from Graves' disease and other forms of hyperthyroidism
- To locate ectopic thyroid tissue or evaluate a neck or substernal mass
- To assist in the evaluation of congenital hypothyroidism



CARDIAC SYSTEM (Myocardial Perfusion Scintigraphy - MPS)

- To diagnose coronary artery disease (CAD)
- To evaluate patency of the coronary artery bypass grafts (CABG) or percutaneous transluminal coronary angioplasty (PTCA)
- For post myocardial infarction (MI) viability assessment or risk stratification
- For pre-operative risk assessment
- For evaluation of patients with abnormal or equivocal stress electrocardiogram (ECG)

RESPIRATORY SYSTEM (Lung Perfusion/Ventilation Scintigraphy)

- To diagnose and quantify pulmonary function
- To diagnose pulmonary embolism, even after anti-coagulant therapy
- To assess perfusion change secondary to lung tumour
- For pre-operative evaluation post pneumonectomy, post-operative assessment



SERVICES OFFERED

A. Scintigraphic (Diagnostic) Procedures

- 1. Genitourinary system**
 - 1.1 GFR scan
 - 1.2 Renal scan
 - 1.3 Diuretic scan
 - 1.4 Renal Cortex scan
- 2. Gastrointestinal system**
 - 2.1 Liver / Spleen scan
 - 2.2 Hepatobiliary scan
 - 2.3 Meckels Diverticulum
 - 2.4 Gastrointestinal Bleeding
- 3. Endocrine system**
 - 3.1 Thyroid scan and Uptake (Tc99m / I-131)
 - 3.2 Parathyroid scan (Dual Phase / Dual Isotope)
- 4. Skeletal system**
 - 4.1 Bone scan
- 5. Cardiac system**
 - 5.1 Myocardial Perfusion Imaging (Treadmill / Dipyridamole)
 - Thallium - 201
 - Tc99m Sestamibi
 - 5.2 MUGA scan
- 6. Respiratory system**
 - 6.1 Lung VQ scan (Perfusion / Ventilation)
- 7. Oncology**
 - 7.1 Whole Body Scans (I-131, Ga-67, Tl201, MIBG I-131)
- 8. Lymphatic System**
 - 8.1 Lymphoscintigraphy
 - 8.2 Sentinel Node scan
- 9. Infectious / Inflammation**
 - 9.1 WBC Imaging with or without Bone Marrow Imaging
 - 9.2 Three-Phase Bone scan (Bone infection)
- 10. Others**
 - 10.1 Scintimammography
 - 10.2 Salivary scan
 - 10.3 Testicular scan
 - 10.4 Dacryoscintigraphy

B. Therapeutic Procedures

1. Low Doses I-131 RAI Therapy
2. High Doses I-131 RAI Therapy

C. Radioimmuno Assay Test (RIA)

C.1 Thyroid Functions

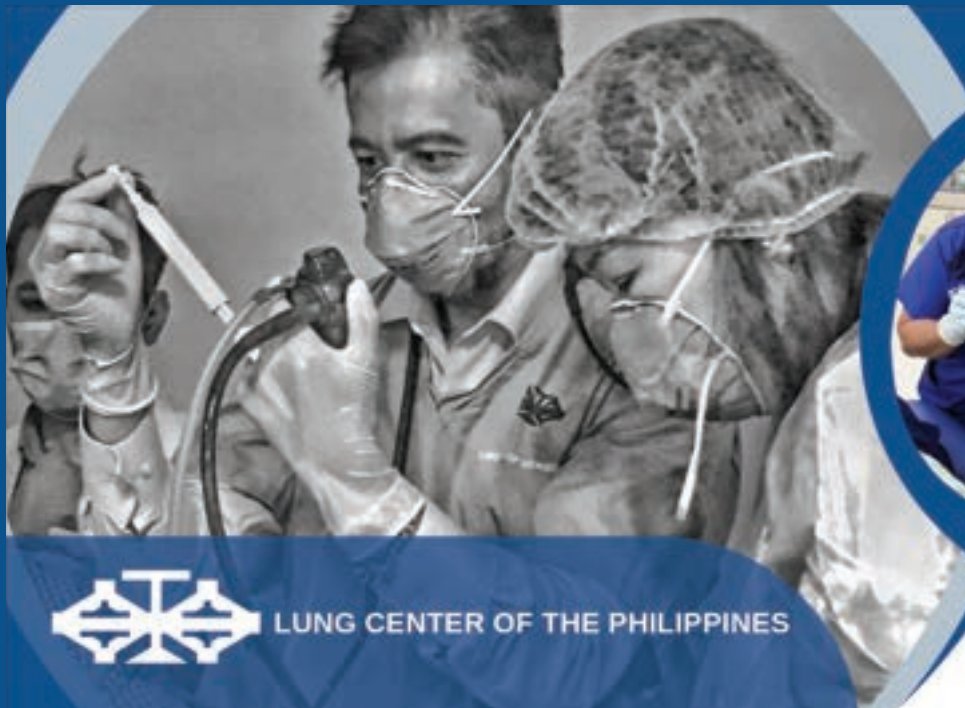
- Anti-Thyroglobulin
- Thyroglobulin
- TSH
- FT4
- FT3

C.2 Tumour Markers

- CA 19-9
- CA 125

D. Bone Densitometry Procedures

- D.1 L-spine + Hips (routine)
- D.2 Routine + Forearm
- D.3 Routine + Wholebody
- D.4 Routine + FA + WB

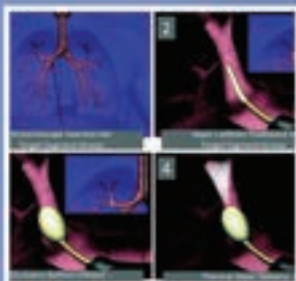


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- NAVIGATIONAL BRONCHOSCOPY
- BALLOON BRONCHOPLASTY
- ENDOBRONCHIAL STENT PLACEMENT
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LUNG CENTER OF THE PHILIPPINES RESEARCH AGENDA SETTING 2023–2025

The Lung Center of the Philippines' (LCP) vision is to become a regionally competitive and locally responsive premier institution for lung and other chest diseases providing quality healthcare through excellent service, training, and research. The Department of Health (DOH) has also designated LCP as the National Apex Center for the treatment and prevention of lung and chest diseases.

Research is identified as one of the core processes in the LCP strategic roadmap that will be critical as it navigates its goal of being an Apex Center and the realization of its unique vision. A health research priority or research agenda setting was initiated in order to help set a palpable direction on this crucial matter.

Research agenda setting involves identification of health research studies with the greatest impact and relevance for implementation and funding (Philippine National Health Research System, PNHRs). It shall facilitate proper prioritization procedure involving stakeholders, alignment with the objectives and target impact of the LCP strategic roadmap, enhancement of the research capacity of the hospital. This may also provide less duplication of efforts, more collaborative framework among stakeholders, and better utilization of resources. Health research priority setting is a comprehensive process that consists of three phases: preparatory, implementation, and post-implementation/dissemination (Figure 1).



Figure 1. Steps in Health Research Prioritization (PNHRs)

To properly conduct the prioritization, key groups were identified. The initiative to proceed with this endeavor came from the leadership group, composed of its executive director, Dr. Vincent Balanag and its deputy director for medical services, Dr. Sullian Naval.

A technical adviser from the Department of Clinical Epidemiology of the University of the Philippines–Manila was invited to guide the LCP in this activity. This position was given to Professor Cynthia Cordero, a clinical epidemiologist and one of the initiators of the PNHRs Health Research Agenda Setting.

The leadership group then mandated the formation of the research agenda technical working group (TWG) to organize and facilitate this activity. Stakeholders were also identified to form the third group. Each group has designated responsibilities and members (Table 1).

Table 1. Research agenda groups and summary of responsibilities

GROUP	RESPONSIBILITIES/TASKS	MEMBERS
Leadership	<ol style="list-style-type: none"> 1. Commitment to establish a health research agenda 2. Commitment to the post-agenda duties 3. Sustain stakeholder participation 	<ol style="list-style-type: none"> 1. Dr. Vincent Balanag — Executive Director 2. Dr. Sullian Naval — Deputy Director for Medical Services
Technical Working Group	<ol style="list-style-type: none"> 1. Define contextual factors 2. Plan for monitoring and evaluation 3. Plan for transplant dissemination 4. Collect all relevant information 5. Process and integrate this information 6. Determine equitable stakeholder composition 7. Ensure broad stakeholder inclusion 	<ol style="list-style-type: none"> 1. Dr. Norberto Francisco — Department Manager, Clinical Research Department 2. Dr. Zenaida Mariano — Department Manager, Education and Training Department 4. Dr. Racquel Ibanez 5. Dr. Miriam Lalas 6. Dr. Portia Tanyag 7. Dr. Mary Claire Orden 8. Dr. Jessica Catalan 9. Ms. Emma Bautista 10. Ms. Monica Barcelo <p>Technical Adviser: Professor Cordero (UPM DCE, PNHRs)</p>
Participants	Demonstrate active engagement at all stages of the process	<p>Pulmonary, Critical Care and Sleep Medicine Department</p> <ol style="list-style-type: none"> 1. Dr. Virginia Delos Reyes 2. Dr. Dennis Teo 3. Dr. Joven Roque Gonong 4. Dr. Lawrence Raymond 5. Dr. Glynn Cabrera 6. Dr. Marie Charisma Laborte – Dela Trinidad 7. Dr. Paul Rilhelm Evangelista 8. Dr. Maria Francia Caparas–Manlagnit 9. Dr. Romancita Pujalte <p>Thoracic Surgery and Anesthesia Department</p> <ol style="list-style-type: none"> 1. Dr. Edmund Villaroman 2. Dr. Randy Melendres 3. Dr. James Monje 4. Dr. Stephanie Balaoing 5. Dr. Dominador San Andres 6. Dr. Liz Jacaban <p>Emergency Room/Out-Patient Department</p> <ol style="list-style-type: none"> 1. Dr. Eileen Aniceto 2. Dr. Randy Castillo 3. Dr. Pamela Dionisio 4. Dr. Clarizze Francesca Moje–Tapang (Employees' Clinic) <p>Radiology Department</p> <ol style="list-style-type: none"> 1. Dr. Joseph Obusan 2. Dr. Asela Barroso 3. Dr. John Michael Opena <p>Thoracic Oncology Department</p> <ol style="list-style-type: none"> 1. Dr. Guia Ladrera

		<p>Pediatric Pulmonary and Critical Care Department</p> <ol style="list-style-type: none"> 1. Dr. Anjanette De Leon 2. Dr. Jean Jamero 3. Dr. Gladys Gillera <p>Public Health and Domiciliary Department</p> <ol style="list-style-type: none"> 1. Dr. Jubert Benedicto <p>Pathology Department</p> <ol style="list-style-type: none"> 1. Dr. Gloria Lim-Tan 2. Dr. Dario Defensor 3. Dr. Treah Sayo 4. Dr. Sienna Dimayacyac 5. Dr. Rex Santiago 6. Dr. Michelle Encinas - Latoy 7. Dr. Gerald Tejada <p>Infection Control Committee</p> <ol style="list-style-type: none"> 1. Dr. Rosally Zamora
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PREPARATORY PHASE

1. Contextualization

The overall context of the research agenda was defined by the technical working group and was approved by the leadership group. The time frame covered the research priorities for 2023 to 2025 to align with the LCP strategic roadmap. The geographic scope was both institutional and national. The intended audience were the hospital consultants and researchers and the management. Certainly, it is envisioned that patients and the hospital will benefit from the resulting improved patient care services and new guidelines and policies arising from the priority research studies.

This research prioritization process was guided by the following underlying values and principles: equitable, cost-effective, and no political or commercial affiliations. Research study designs were dependent on the formulated research question (not limited to prevalence studies, disease registries, prospective and retrospective analytical studies, randomized controlled trials, program evaluation research, and quality of care studies).

The Lung Center of the Philippines has the manpower, structural, and financial resources and capabilities to carry out this activity. The context of the research agenda was summarized in a context map, which is an overarching framework and map of the Lung Center of the Philippines research agenda setting (Figure 2). Five clusters of priority research were identified: (1) Emerging and Re-emerging Diseases (which include COVID-19), (2) Lung Cancer Screening, Diagnosis, and Treatment, (3) Pneumonia, COPD, PTB (may include other lung disease such as pleura), (4) Pulmonary, Critical Care, and Advance Lung Disease, and (5) Lung Health Promotion.



Figure 2. Context map of the LCP Research Agenda Setting

2. Preparation of documents

2a. Monitoring and Evaluation Plan

Upon completion of the implementation phase and identification of the priority research studies, the research agenda TWG shall designate a team or committee and a point person to implement each research study. Research timelines for each research study shall be collected from each team for the guidance in monitoring of the research TWG. Dissemination which includes scientific publications and presentations in conferences or public for and translation which includes health policies, practice guidelines, utility models, patented products, and copyrighted health technologies, will also be monitored. To minimize duplication of research projects, the hospital researchers will be informed of on-going research studies.

The evaluative component should assess whether the research is increasing scientific knowledge, producing useful policies, and making a significant impact on health. The research agenda TWG shall be guided by the research impact framework to ensure that research studies are targeted and have realized the specific impact designated by the institution.

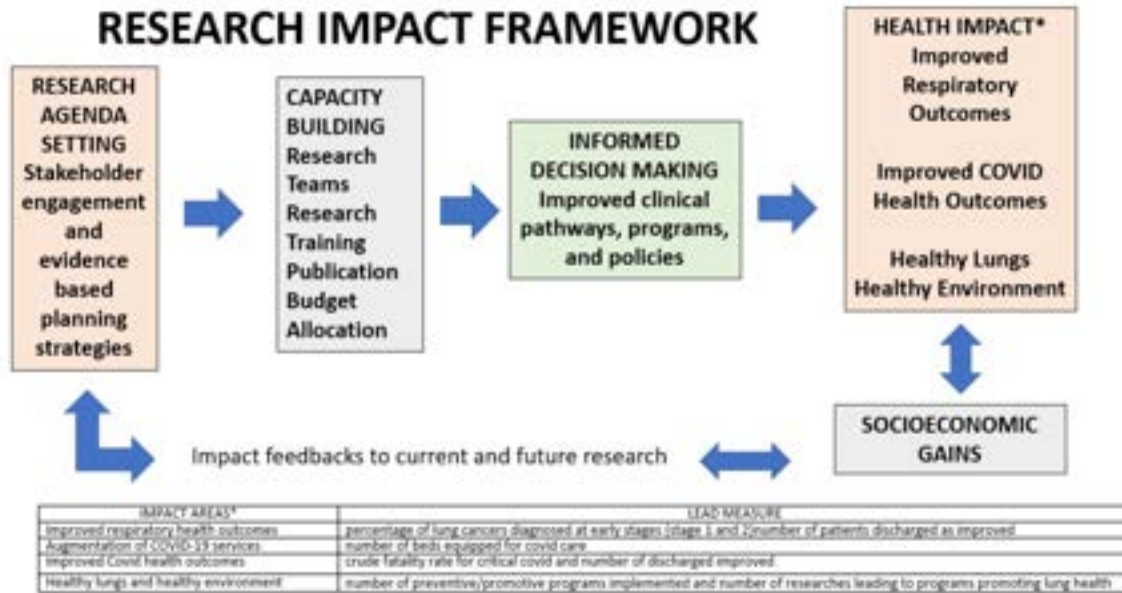


Figure 3. Research Impact Framework of the LCP Research Agenda

An electronic file shall be created to serve as a research agenda monitoring and evaluation database and shall be maintained by the Clinical Research Department. The monitoring and evaluation plan will allow for identification of changing research priorities, changing epidemiological and socio-economic landscapes, political leadership, and health policy environment. The Clinical Research Department shall be monitoring the aforementioned changes and shall convene should the research agenda be updated earlier than planned.

2b. Implementation Plan

The implementation plan has basically two parts: plans on how the prioritization activities will be carried out and plans to carry out the topics identified in the agenda. The following were identified to ensure feasibility of implementation of the research agenda.

1. Funding sources and mechanisms

The LCP has a research trust fund allocated to fund priority research projects. The medical social service section may also assist in funding necessary services needed by patients. Other sources of funds are: the Philippine College of Physicians (PCCP), the Department of Science and Technology (DOST-PCHR), the Metro Manila Health Research and Development Consortium, and the Department of Health (DOH).

2. Governance mechanisms

The LCP follows the Performance Governance System (PGS) which ensures all strategic deliverables, such as the setting of research agenda, will push through and subsequent monitoring of implementation, outcome, and impact will be done. The Clinical Research Department shall oversee the activities of the research agenda under the oversight of the LCP Executive Management and the LCP Office of Strategy Management.

3. Research Systems

The LCP has been considered both a national LCP and local research hub for it caters to a number of patients with lung and chest diseases. It maintains a pool of government employed physicians, nurses, and allied medical professionals and

visiting consultants who are encouraged to engage in research. Research teams may also be formed per department or per hospital committee. The LCP also has a clinical research facility located in the LCP compound to serve as research offices to accommodate both institutional and sponsor- initiated multinational research studies.

Furthermore, the LCP has a Technical Review Board under the Clinical Research Department that handles the assessment and approval of all research studies for technical quality and feasibility. There is also a level III Institutional Ethics and Review Board that ensures compliance of the institutional research studies with the international and national ethical guidelines for health research studies. The Philippines also has the Single Joint Review and Ethics Board (SJREB) that handles ethical approval of multicenter studies.

The mechanisms are in place to provide a fertile ground for research ideas and a conducive research environment.

2c. Dissemination Plan

Plan for a transparent dissemination to ensure that all stakeholders are made aware of the research agenda in a timely manner shall be done. Formal launching of the research agenda was set in August 2022 and was one of the highlights of the LCP Lung Month Celebration. The whole process of this initiative shall be documented as one special issue of the in-house publication, the LCP Scientific Proceedings, and will be distributed to each department. It will also be made available online in the LCP website. A dissemination plan shall be made by the research agenda TWG to ensure and facilitate the whole process.

3. Information Gathering

Review of our national morbidity and mortality data of 2019 and 2021 from the DOH and Philippine Statistics Authority (PSA) was done. It is noteworthy that common respiratory tract infections dominated the national morbidity data and neoplasms (i.e. lungs), COVID-19, pneumonia, tuberculosis, and other chronic respiratory tract infections dominated the national mortality data (Figure 4-5, Table 2-3).

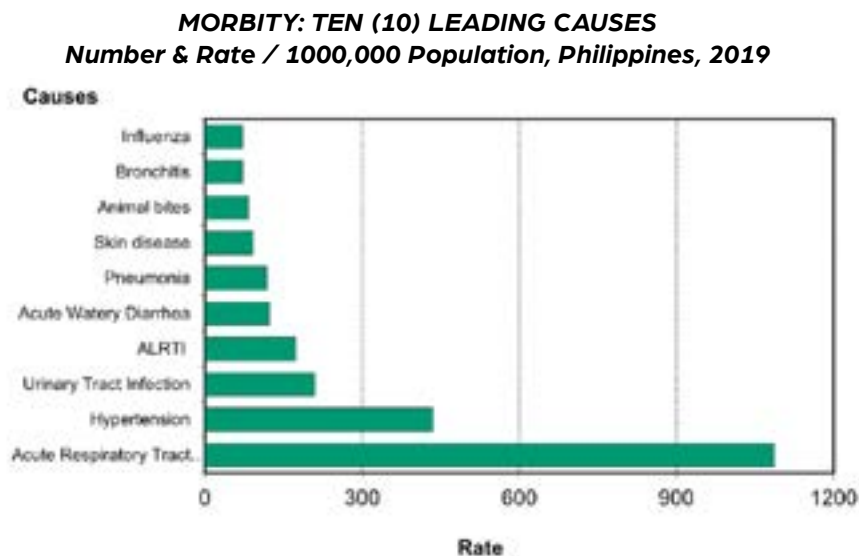


Figure 4. Top 10 Causes of Morbidity, Philippines, 2019
2019 Philippines Health Statistics. Epidemiology and Health Bureau

Table 2. Top 10 Causes of Morbidity, Philippines, 2019
2019 Philippines Health Statistics. Epidemiology and Health Bureau

Cause	Number	Rate
1 Acute Respiratory Tract Infection (J22)	1,164,944	1,085.8
2 Hypertension (I10)	466,383	434.7
3 Urinary Tract Infection (N39.0)	224,859	209.6
4 Acute Lower Respiratory Tract Infection (J20-J22)	185,945	173.3
5 Acute Watery Diarrhea (A09)	132,025	231.1
6 Pneumonia (J12-J18)	126,491	117.9
7 Skin Disease	98,578	91.9
8 Animal bites	89,082	83.0
9 Bronchitis (J40)	77,702	72.4
10 Influenza (J10-J11)	76,718	71.5

**MORBITY: TEN (10) LEADING CAUSES
Percent Distribution, Philippines, 2019**

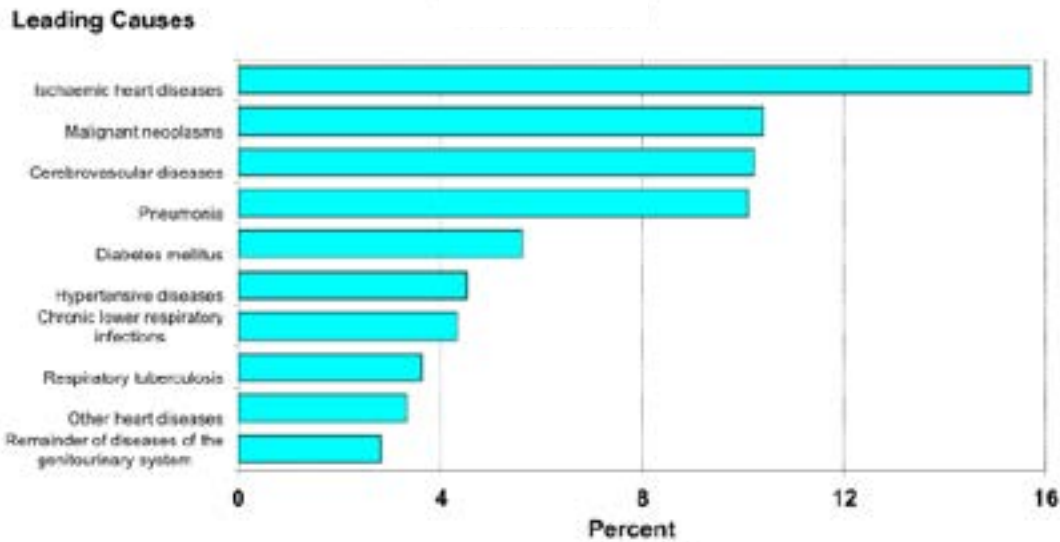


Figure 5. Top 10 Causes of Mortality, Philippines, 2019
2019 Philippines Health Statistics. Epidemiology and Health Bureau

Table 3. Top 10 Causes of Mortality, Philippines, 2019
2019 Philippines Health Statistics. Epidemiology and Health Bureau

**MORBITY: TEN (10) LEADING CAUSES BY SEX
Number & Rate / 1000,000 Population and Percent Distribution, Philippines, 2019**

Cause of Death	Male	Female	Both Sexes		
	Number	Number	Number	Rate	Percent*
1 Ischemic Heart Disease (I20-I25)	58,233	39,242	87,475	90.9	15.7
2 Malignant neoplasms (C00-C97)	30,279	34,086	64,815	60.4	10.4
3 Cerebrovascular diseases (I60-I69)	36,199	27,349	63,548	59.2	10.2
4 Pneumonia (J12-J18)	31,440	31,279	62,719	58.5	10.1
5 Diabetes Mellitus (E10-E14)	17,060	17,510	34,570	32.2	5.6
6 Hypertensive diseases (I10-I13)	14,997	12,767	27,764	25.9	4.5
7 Chronic lower respiratory infections (J40-J47)	18,937	7,639	26,676	24.8	4.3
8 Respiratory tuberculosis (A15-A16)	15,775	6,793	22,568	21.0	3.6
9 Other heart diseases (I26-I51)	10,837	9,579	20,416	19.0	3.328
10 Remainder of diseases of the genitourinary system (N17-N98)	10,115	7,100	17,215	16.0	

* percent share from total deaths, all causes, Philippines (N=620,414)

Interestingly, a survey done by the Institute for Health Metrics and Evaluation (Figure 6) revealed tobacco (behavioral risk) and air pollution (environmental risk) belong to the top 10 risk factors that drive the most death and disability in 2009 and 2019.

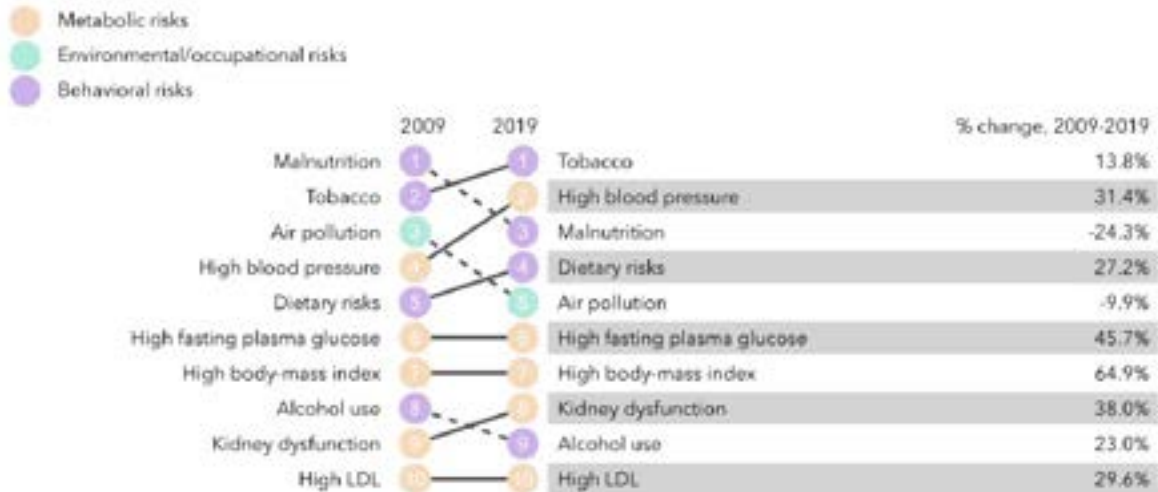


Figure 6. Risk Factors that drive most death and disability combined
Institute for Health Metrics and Evaluation

In LCP, pre-pandemic data from the 2019 annual report showed that lung cancer, pneumonia, tuberculosis, and chronic obstructive pulmonary disease (COPD) were among the leading causes of mortality and morbidity. The gross numbers have not changed for 3 years, from 2017 to 2019. During the pandemic, from the 2020 annual report, COVID-19 deaths and thoracic malignancies dominated the top causes of mortality.

Review of the National Unified Health Research Agenda (NUHRA 2017–2022), Regional Unified Health Research Agenda — National Capital Region (RUHRA–NCR, 2017–2022), and the Philippine College of Chest Physicians (PCCP, 2019–2023) research agenda showed similar or overlapping priorities in terms of research topics on respiratory health: diagnosis and treatment and prevention of TB, early detection and control of cancer, clean ambient and indoor air, emerging and re-emerging diseases, non-communicable and lifestyle diseases, chronic airway diseases, infectious lung diseases, critical care/vascular medicine, and education and training.

The current research roadmap of the LCP (2021–2025) focused on research on COVID-19, pulmonary tuberculosis, lung cancer registry, early lung cancer screening, detection, and treatment, asthma education, smoking cessation, healthy lungs, employees' health and fitness, advance lung

disease, and randomized controlled trials in video-assisted thoracic surgery.

Review of research studies done in Lung Center for the past 10 years (2012–2021) revealed a total of 143 research studies. These research studies were limited to the ones currently archived in the LCP library. The list did not include collaborative and multinational sponsor-initiated research studies. The information of their outcome as to whether the output has been published or presented in an international conference, cited by other authors, or used to support policies and guidelines cannot be ascertained since no formal monitoring was in place except for the recent studies.

Majority of the research studies covered the following topics: Tuberculosis (14%), Peri-operative care (11.9%), Lung Cancer (11.2%), COPD (9.8%), and COVID-19 (9.1%). Only 3 departments were represented in this pool of research studies: pulmonary, critical care, and sleep medicine department (84.6%), thoracic surgery and anesthesia department (14%), and radiology department (1.4%). Majority are fellow-in-training led research studies (96.5%). Majority are observational studies (94.8%) and a small number of randomized controlled trials (2%) and systematic review and meta-analysis (3.3%). (Figure 7–10).

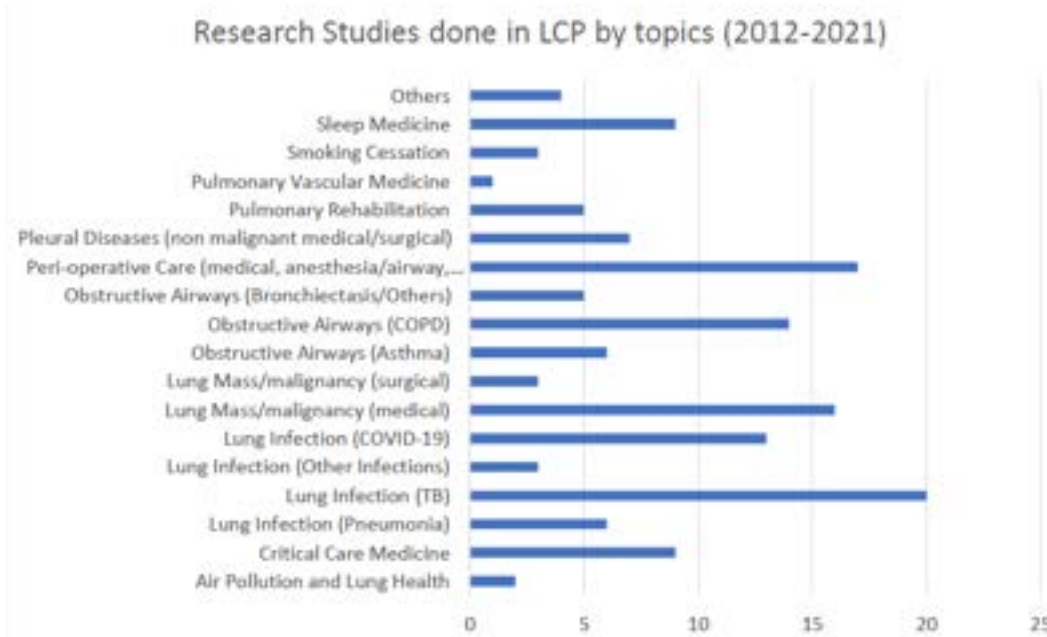


Figure 7. LCP Research Studies (2012–2021) by topic

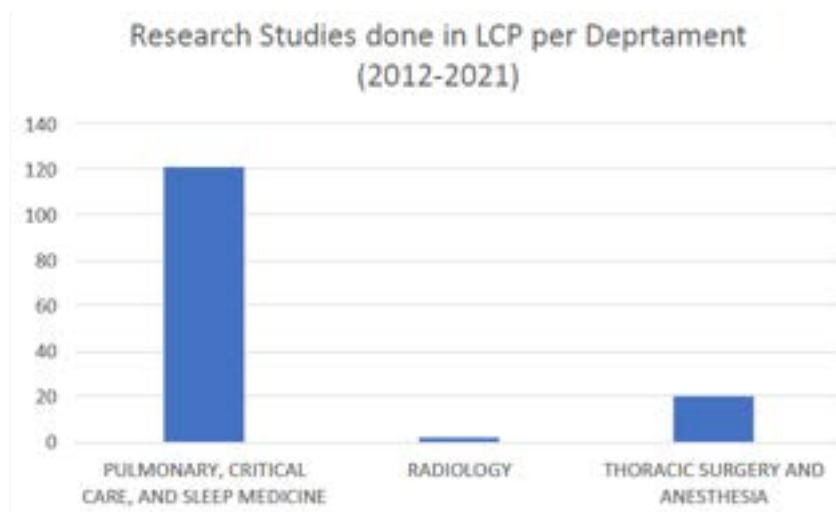


Figure 8. LCP Research Studies (2012–2021) by Department

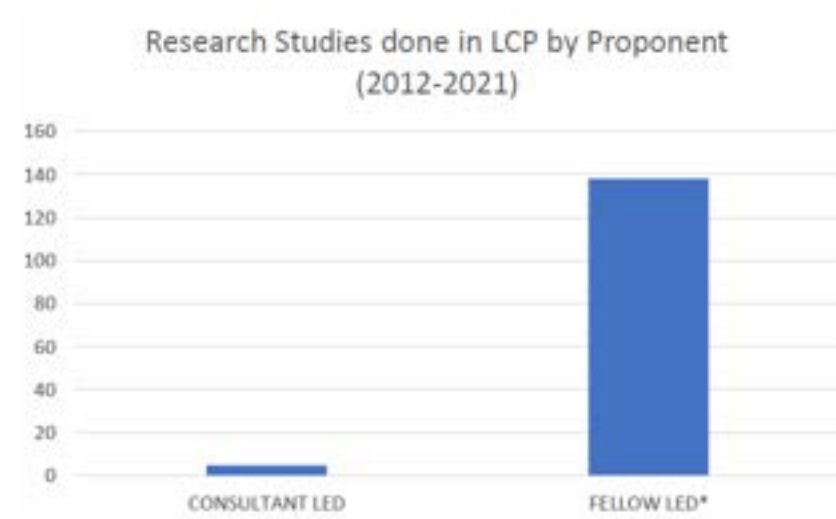


Figure 9. LCP Research Studies (2012–2021) by proponent

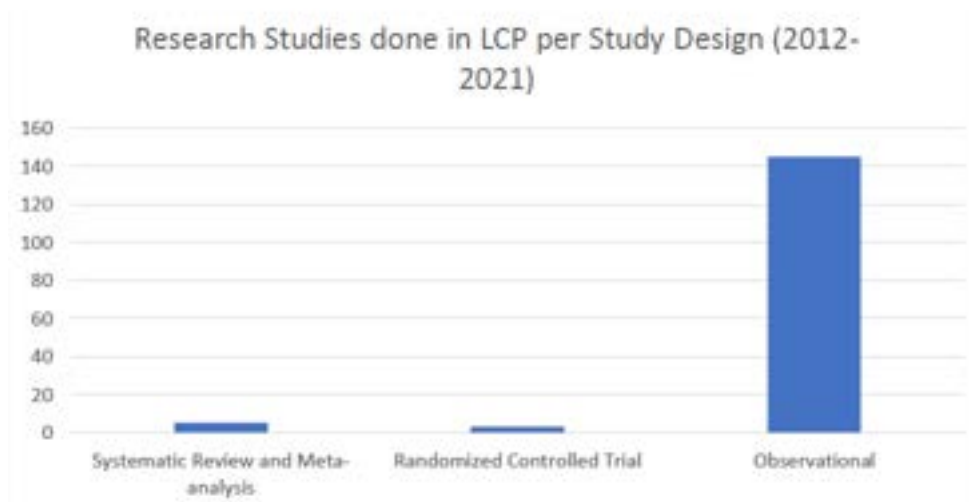


Figure 10. LCP Research Studies (2012–2021) by study design

Currently, there are LCP major programs and projects of national impact which can be materials for research: DOH Quitline, Healthy Lungs, Screening and Early Lung Cancer Detection and Treatment (SELCaDT), Disease Registries, Post COVID Clinic, linkages projects, and advance lung disease clinic. The DOH has also designated LCP as the lead developer of COPD CPG, which is a research output that could be directly translated into a source document for policy makers.

Figure 11 demonstrates the integration of the data gathered and situational analysis (Essential National Health Research Strategy).

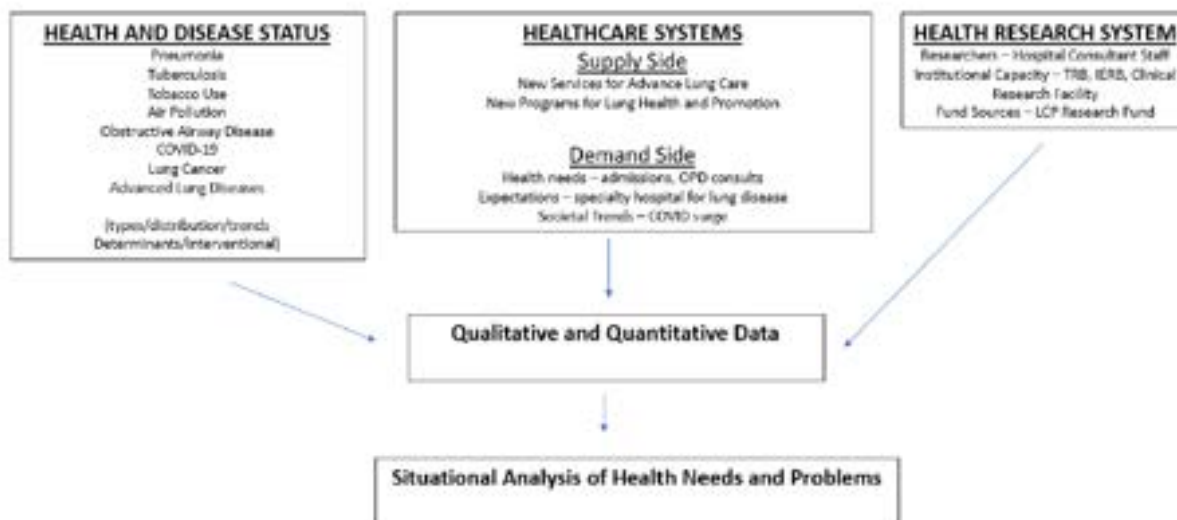


Figure 11. Integration of the data gathered and situational analysis (Essential National Health Research Strategy)

Based on the information gathered, five clusters of priority research were identified: (1) Emerging and Re-emerging Diseases (which include COVID-19), (2) Lung Cancer Screening, Diagnosis, and Treatment, (3) Pneumonia, COPD, PTB (may include other lung disease such as pleura), (4) Pulmonary, Critical Care, and Advance Lung Disease, and (5) Lung Health Promotion.

4. Identifying Stakeholders/Inclusiveness

An important tenet to emphasize in research priority setting is inclusiveness. It is the cornerstone in equitable prioritization. Stakeholders were involved in the entire process of health research, from agenda setting to utilization, monitoring, and evaluation. Stakeholders were distributed to the 5 clusters identified.

IMPLEMENTATION PHASE

The implementation phase is highlighted by the following tasks: (1) generating an initial list of health research topics; (2) determining criteria for prioritization; and (3) determining the method for deciding on the research priorities. The technical adviser was consulted and guided the whole process. Subsequently, this was approved by the leadership group prior to implementation.

Stakeholders were distributed into the 5 clusters. A cluster facilitator was assigned to facilitate the tasks for each cluster (Table 4).

Table 4. Cluster Members and Facilitators

	EREID/COVID-19	PTB, COPD, PNEUMONIA/ PLEURA AND OTHERS	LUNG CANCER	ADVANCE LUNG DISEASES	LUNG HEALTH PROMOTION
CLUSTER FACILITATOR	Dr. Miriam Lalas	Dr. Racquel Ibanez	Dr. Rogelio Velasco	Dr. Mary Claire Orden	Dr. Jessica Catalan
PULMO	Dr. Gina Delos Reyes Dr. April Caparas	Dr. Lawrence Raymond Dr. Paul Evangelista Dr. Glynna Cabrera	Dr. Joven Gonong	Dr. Dennis Teo Dr. Cham Laborte Dr. Glynna Cabrera	Dr. Ramoncita Pujalte
Thoracic Surgery/ Anesthesia	Dr. Lizbeth Jacaban	Dr. Randy Melendres	Dr. Ed Villaroman Dr. James Monje	Dr. Ed Villaroman Dr. Stephanie Balaoing	
Pathology	Dr. Dario Defensor	Dr. Gerard Tejada	Dr. Trea Sayo Dr. Sienna Dimayacyac	Dr. Trea Sayo Dr. Rex Santiago	Dr. Michelle Latoy
Radiology		Dr. Asela Barroso	Dr. John Opena	Dr. Joseph Obusan	
Pediatrics				Dr. Gladys Gillera	Dr. Anjanette De Leon
ER/OPD	Dr. Randy Castillo Dr. Eileen Aniceto	Dr. Pamela Dionisio		Dr. Pamela Dionisio	Dr. Moje Dr. Eileen Aniceto
PHDD		Dr. Jubert Benedicto			
Thoracic Oncology			Dr. Guia Ladrera		
ICC/IDS	Dr. Rosally Zamora				

1. Generating an initial list of health research topics

Each cluster had small group discussions to generate their initial list of health research topics. Sources include the existing LCP research roadmap 2021-2025, their department's on-going and proposed research studies, and the rapid scoping review of research gaps of the cluster facilitator. Each cluster was advised to limit their final list to 6 research topics. A total of 29 topics were submitted for overall prioritization (7 EREID, 6 COPD, PTB, Pneumonia, 5 Lung Cancer, 6 Critical Care and Advance Lung Disease, and 5 Lung Health Promotion).

2. Determining criteria for prioritization

The research agenda TWG discussed the criteria for prioritization. Public health benefit and feasibility and cost were the main considerations.

Under public health benefit, magnitude of the problem was given 2x weight while likelihood that results of research can influence practice, and likelihood that results of research can potentially decrease disease burden were each given 1x weight. Under feasibility and cost, feasibility in 3 years (by 2025) were given 2x weight while ethical consideration was given 1x weight (Table 5).

Table 5. Criteria for prioritization

CRITERIA				
PUBLIC HEALTH BENEFIT			FEASIBILITY AND COST	
Magnitude of the problem (based on prevalence, urgency, burden to LCP + national)	Likelihood that results of research can influence practice (hospital policy, program, protocol, clinical pathway; CPG, national impact)	Likelihood that results of research can potentially decrease disease burden (LCP)	Is the research feasible by 2025 based on existing resources of LCP? Are we willing to allot LCP resources in this research?	Can the research be ethically conducted?
SCORE 1 to 10; weight is x 2	SCORE 1 to 10; weight is x1	SCORE 1 to 10; weight is x1	SCORE 1 to 10; weight is x 2	SCORE 1 to 10; weight is x1

3. Determining the method for deciding on the research priorities.

The research agenda TWG has decided to adopt the ranking and consensus as the methods of prioritization. An electronic file containing the list of priority topics (29) with the corresponding rationale and description were distributed to each stakeholder. Each stakeholder was instructed to provide a score for each category per criteria for each research study. Each category is scored 1 to 10, and each category has corresponding weight as described in the previous section. The cluster facilitators collect the scores from each stakeholder, compute the average scores, and rank each research topic based on their average scores (Table 6).

Table 6. Overall prioritization results

TOPICS	AVERAGE	RANK
Long term effects of Covid-19 infection including long Covid on lung function	63.92	1
Pandemic preparedness: LCP best practices on Covid-19 response	62.04	2
Drug Sensitive TB/Drug Resistant TB Diagnostics and Treatment Studies	61.96	3
COPD Clinical Practice Guidelines	61.62	4
LCP protocol for preventing Covid-19 among HCWs	61.46	5
Burden of illness of Covid-19 (clinical and economic burden)	61.38	6
Outcomes of Screening and Early Lung Cancer Detection Studies (SELCADT Program)	60.88	7
Local TB Pre-employment Guidelines	60.42	8
Lung Cancer Registry	60.12	9
Antibiogram and Antimicrobial Surveillance	59.96	10
Systematic review of pandemic response across the Philippines	59.19	11
LCP experience on SARI surveillance	58.69	12
Lung Cancer Diagnostic Studies (Reflex Immunohistochemistry)	58.27	13
Outcomes of LCP Smoking Cessation Program	57.92	14
Asthma Education (i.e., Virtual vs Face to face Asthma Club workshop)	57.73	15
Consequences of Covid-19 in the immunocompromised (lung cancer, etc.)	57.65	16
Clinical and Biomarker Profiles and Outcomes of Pulmonary Malignancies among Filipinos	57.62	17
Healthy Lungs Program (i.e., community prevalence, clinical profile and level of control)	57.38	18
Palliative care for advance lung diseases	56.85	19
Sleep Medicine in the community (i.e. Community OSA Prevalence Study)	56.73	20
Evaluation of Pleural Fluid Effusion Protocol/Algorithm	56.54	21
VATS for Inflammatory Diseases (VIOLIN STUDY)	56.42	22
Air Pollution and Lung Health (i.e. correlation of Asthma Exacerbation with air quality index)	55.88	23
Socioeconomic and cultural barriers to Lung transplantation in the Philippines	55.5	24

TB prophylaxis/treatment for patients with PPD or QuantiFERON positive result with lung lesions pre-transplant	55.04	25
Knowledge, attitudes, perceptions on Lung transplant and referral process (pre and post advertisement and education)	54.5	26
Novel Techniques for lymph node localization (I.e. Indocyanine Green Tracer-Guided Sentinel Lymph Node Dissection)	53.96	27
Incidence of active tuberculosis in potential Lung transplant donors	53.81	28
Psychosocial Issues Facing Lung Transplant Candidates	53.58	29

A virtual meeting was held last July 5, 2022 where the prioritization results were presented. Each cluster was allowed to discuss and agree on the prioritization result of their clusters and to identify research studies that may be carried out for the prioritized research topic (Table 7). An updated research roadmap (Table 8) was also shown to reflect the priority research studies that will be delivered for 2023–2025 based on the prioritization activity output.

Table 7. Cluster Prioritization Results

CLUSTER RESEARCH TOPIC	NOMINATED PROPONENT	PROPOSED FUNDING	TARGET COMPLETION
CLUSTER ON EREID/COVID-19			
Long term effects of Covid-19 infection including long Covid on lung function	Post Covid Care Program Team	For approval (LCP Research Fund)	2024 (interim)
Consequences of Covid-19 in the immunocompromised (lung cancer, TB, etc.)	Thoracic Oncology Department PHDD	For approval (LCP Research Fund)	2025 (interim)
CLUSTER ON PTB, PNEUMONIA, OBSTRUCTIVE LUNG DISEASE, PLEURA			
DSTB Diagnostic Studies	Dr. Gerald Tejada	For approval (LCP Research Fund)	2023
COPD Guidelines	LCP lead developer Dr. Sullian Naval	DOH	2023
Local TB Pre-employment Guidelines	LCP (Dr. Benedicto) in Partnership with PCCP TB Council	For approval (LCP Research Fund, PCCP)	2024
Development of Pleural Effusion Protocol/Algorithm	Task Force on Pleural Effusion	For approval (LCP Research Fund)	2024
VIOLIN STUDY (Video-assisted Thoracoscopic Lobectomy for Inflammatory Lung Diseases, multicenter study)	TCVS Department	For approval (LCP Research Fund)	2025
CLUSTER ON SCREENING, DIAGNOSIS, AND TREATMENT OF LUNG CANCER			
Outcomes of Screening and Early Lung Cancer Detection Studies (SELCaDT Program)	LCP SELCaDT Team	For approval (Lung Cancer Fund)	2023 (Interim)
Topic 2: Lung cancer registry (2009 to 2017)	Lung Cancer Registry Team (Dr. Sullian Naval)	For approval (Lung Cancer Fund)	2023 (Interim)
Lung cancer diagnostic studies (reflex IHC)	Dr. Treah Sayo	For approval (Lung Cancer Fund)	2023
Clinical and biomarker profile and outcomes of Filipinos with NSCLC	Dr. Treah Sayo Dr. Guia Ladrera	For approval (Lung Cancer Fund)	2023 (Interim)

CLUSTER ON PULMONARY CRITICAL CARE AND ADVANCE LUNG DISEASE			
Socioeconomic and cultural barriers to Lung transplantation in the Philippines	Advance Lung Disease Team	For approval (LCP Research Fund)	2025
Advance Lung Disease Registry	Advance Lung Disease Team	For approval (LCP Research Fund)	2023, 2024, 2025 (annual interim report)
CLUSTER ON LUNG HEALTH PROMOTION			
Smoking Cessation - NRT + Quitline	Smoking Cessation Clinic/ Quitline Team	For approval (LCP Research Fund)	2023
Healthy Lungs - Asthma Prevalence Study - Asthma Inhaler Technique	Healthy Lungs Team	For approval (LCP Research Fund, Healthy Lungs Fund)	2024
Sleep Medicine - OSA Prevalence Study	Sleep Medicine Section possible collaboration specialty society	For approval (LCP Research Fund, PCCP)	2025

Table 8. Updated Research Roadmap 2023–2025

CLUSTERS	2023	2024	2025
EREID/COVID-19		Long Term effects of COVID-19 on lung function *interim report	Consequences of COVID-19 on immunocompromised patients (Cancer and TB) *interim report
PTB, OLD, Pneumonia, Pleural, Others	DSTB Diagnostic Study COPD CPG	Development of Local Pre-Employment TB Guidelines Development of Evidence Based Pleural Effusion Protocol/Algorithm	VIOLIN STUDY
Lung Cancer	SELCADT Outcomes Lung Cancer Registry Lung Cancer Diagnostics (IHC) Biomarker profiling of lung cancer patients *interim report		
Advance Lung Disease	Advance Lung Disease Registry *interim report	Advance Lung Disease Registry *interim report	Socioeconomic and cultural barriers to Lung transplantation in the Philippines
Lung Health Promotion	Smoking Cessation Program	Healthy Lungs Program (Asthma education, Community Asthma Prevalence Study)	Community prevalence of OSA

POST IMPLEMENTATION/DISSEMINATION PHASE

The post-implementation/dissemination phase includes the following tasks: (1) reporting the prioritization process and its results, (2) disseminating the research agenda, (3) monitoring and evaluation, and (4) ensuring that the agenda is dynamic.

As planned, the research agenda was disseminated during the Lung Month Celebration last August 22, 2022.

It is hoped that publication in the LCP Scientific Proceedings will provide a good platform for dissemination and better buy-in from stakeholders and the LCP community.

Monitoring and evaluation shall be facilitated by the Clinical Research Department and oversight will be done by the LCP Office of Strategy Management and the LCP Executive Management. Policies on appeals and updating of the research agenda shall be formulated by the Clinical Research Department and shall be disseminated to stakeholders for their guidance.

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11. Lung Center of the Philippines Scientific Proceedings — Library Files.
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TB LAM Ag Test

(TB Lipoarabinomannan Antigen Test)
First and only urine-based test for early TB diagnosis

PURPOSE: to assist in the rapid diagnosis of active TB infection in severely immunosuppressed HIV-infected patients.

: May also be used in aid with symptomatic patients (pediatrics and adult) having difficulty in producing sputum

: can also be used as a tool to diagnose PULMONARY or EXTRAPULMONARY TB

DESCRIPTION: Lipoarabinomannan (**LAM**) is a glycolipid found in the outer cell wall of mycobacteria.

: **LAM antigen** is released from metabolically active or degrading bacterial cells during active TB infection and passes via the kidneys into the urine.

<https://www.lancet.co.za/wp-content/uploads/2015/07/N00179-The-TB-LAM-antigen-test-A4-eng-duplex-170gsm-leo-Jun2017-Rev000.pdf>

TEST PRINCIPLE: Lateral Flow Assay is used for the detection of LAM antigen in urine

SAMPLE SPECIMEN: **FRESH URINE Sample**

VOLUME OF SAMPLE: A minimum of 1 ml

TEST SCHEDULE: **DAILY** (Monday to Sunday)

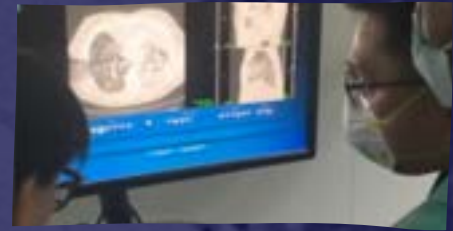
RESULTS: Within 1 hour

COST OF TEST: TO BE ANNOUNCED



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- REFERRAL FORM
- DIGITAL COPY OF CHEST XRAY OR CT SCAN



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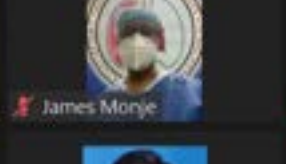
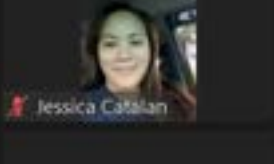

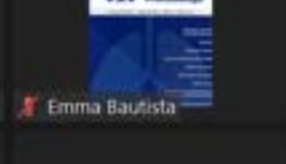





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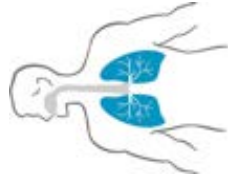
LUNG CENTER OF THE PHILIPPINES
Quezon Avenue, 1100 Quezon City

Lung Cancer Facts

☒ It is estimated that nearly

20,000

Filipinos were diagnosed with lung cancer in 2020



☒ Lung Cancer is the leading cancer killer of every ethnic group

☒

Lung Cancer

17,063 (18.4%)

Liver Cancer

9,953 (10.7%)

Breast Cancer

9,926 (10.7%)

What are the risk factors of Lung Cancer?



SMOKING

Smoking is the leading cause of lung cancer. It causes ~ 9 out of 10 cases in men and ~ 8 out of 10 cases in women

FAMILY HISTORY

People with a first-degree relative (parent, sibling or child) who is a nonsmoker with lung cancer may be twice as likely to develop the disease.



Other risk factors include exposure to secondhand smoke, asbestos, radiation and other carcinogens.



☒ Adapted from: <https://gco.iarc.fr/today/data/factsheets/populations/608-philippines-fact-sheets.pdf>

What diagnostic screening tool is being used for Early Lung Cancer Detection?



Low Dose Computed Tomography (LDCT)

Lung Cancer Screening is easier than you might expect

- Screening is fast and painless
- No preparation needed
- Process involves low radiation

Why get screened?

- Cancer screening saves lives. Getting screened allows your health care team to find cancer early, when it is most treatable.
- The best time to get screened is when you are feeling well. There have been many advances in detecting and treating lung cancer in its early stage. Be aware of your risk factors and seek preventive health care to ensure your long term health.
- Detecting and treating lung cancer early decreases the risk of death by 20%.

Who are eligible for screening?

AGE

YOU ARE 50 to 79 YEARS OLD

SMOKE



YOU ARE CURRENTLY SMOKING **OR** **HAVE QUIT ONLY WITHIN THE PAST 15 YEARS**

CALCULATE YOUR PACK YEARS



NUMBER OF CIGARETTE STICKS SMOKED PER DAY

÷ 20 ×

NUMBER OF YEARS YOU SMOKED



YOU HAVE A 20 OR MORE PACK YEARS OF SMOKING HISTORY

OR

FAMILY HISTORY



FIRST DEGREE RELATIVE (PARENT, SIBLING OR CHILD) WHO IS A NONSMOKER WITH LUNG CANCER

This is a Government Funded Program

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Chapter in Book
Meltzer PS, Kallioniemi A, Trent JM, Chromosome alterations in human solid tumors. In: Vogelstein B, Kinzler KW, editors. *The genetic basis of human cancer*. New York: McGraw-Hill; 2002. p. 93-113.

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Murray, PR, Rosenthal KS, Kobayashi GS, Pfaller MA. *Medical microbiology*. 4th ed. St. Louis: Mosby; 2002.

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Website
World Health Organization. Hospital infection control guidelines for severe acute respiratory syndrome. April 16, 2003: <http://who.int/csr/sars/infectioncontrol/en> (accessed April 24, 2003).

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March 13, 2023, 10:00 AM



INTERVIEW

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FOR INQUIRIES



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Dr. KARINA CHENG 0917 308 6350



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PULMONARY REHABILITATION



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BREATHING EXERCISES



CARDIOPULMONARY EXERCISES

Materials for Virtual Sessions

Digital Platforms Requirements

- Zoom Account
- Viber Account

For the Virtual Session

- Pedometer
- Pulse Oximeter
- Digital Blood Pressure Apparatus
- Cycle Pedometer
- Incentive Spirometer (*optional)
- Cycle Ergometer (*optional)

CONDITIONS RECOMMENDED FOR THE PROGRAM

- **CHRONIC OBRSTRUCTIVE PULMONARY DISEASE**
- **BRONCHIECTASIS**
- **POST COVID-19**
- **INTERSTITIAL LUNG DISEASE**
- **PERIOPERATIVE REHAB**
- **OTHER CHRONIC LUNG DISEASE**



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▶ Pulmonary Rehabilitation



LUNG CENTER OF THE PHILIPPINES

VISION

The Lung Center of the Philippines is regionally competitive, locally responsive premier institution for lung and other chest diseases, providing quality healthcare through excellent service, training and research.

MISSION

We provide high quality health services and state of the art facilities for the diagnosis and management of respiratory and chest diseases, and promotion of lung health for the Filipino people with excellence and compassion, regardless of creed, color, sex, socio-economic status, and political affiliation.

CORE VALUES

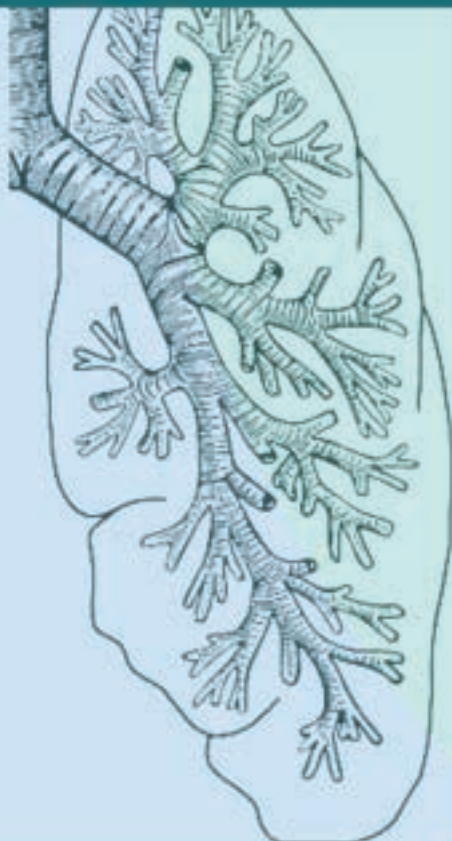
*Customer-focused
Commitment
Compassion
Creativity
Collaboration*

SHARED VALUES

*Concern and care for patients, employees and the institution
Responsibility and discipline
Commitment and dedication to excellence
Respect for individual worth
Integrity and honesty
Unity and teamwork
Creativity and innovativeness*



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