2020 CARE PH ANNUAL REPORT

BEATRICE TIANGCO
RAMONITO NUIQUE
JOJO FLORES

Every preventable cancer averted.
Every screenable cancer detected.
Every cancer patient counted.

CEO'S CORNER and EXECUTIVE SUMMARY

Dear CARERS:

Whew! We made it!

Last year will be remembered by the next generation the way the Plague and Spanish Flu are remembered today – with a bit of detachment and some interest, perhaps, but with not much emotion.

But for those of us who lived and are still living through it, the stories of heroism and grit will be the ones we will tell our children and grandchildren, and when they are faced with their own version of unexpected and unprepared-for events that will end up killing millions of human lives and test humanity's will and capability to survive, these stories are the ones from which they will get wisdom and strength, and the heart to move forward.

CARE PH did play a role in the 2020 COVID pandemic. One of our major projects was the Unity in Isolation. This was a project of a Group of Companies, which raised enough funds to build thirteen (13) Safe Test Isolation Tents in provinces as far North as NKTI, and as far South as Carmen, Davao. We used the administrative fees we received from the donations to this project to buy computers which we have started giving to new CARE PH member hospitals in need of such.

We were also able to document through our registry the dip in new registrants from April thru August, and the very slow rise to beyond the previous years' numbers from September to December. The total number of registrants for 2020 is 9880. This higher number compared to 8559 in 2019 is no surprise, as a pandemic will not decrease the number of patients diagnosed with cancer. What it may do is increase the number of cancer patients diagnosed in the advanced stage. Capturing the stage of cancer upon diagnosis is one of the challenges to our hospital-based cancer registry system, and I hope we are all up to this challenge this 2021.

Another reason for the higher number of registrants in 2020 vs 2019 is the continuous improvement in individual hospitals' processes capturing registrants from their catchment areas. Congratulations to Philippine General Hospital, National Kidney and Transplant Institute, The Medical City Pasig, Chinese General Hospital and Dagupan Doctors Villaflor Memorial Hospital for topping the list of 18 hospitals that contributed to our central database!

We also have a new logo reflecting our new official name: Cancer CARE Registry and Research Philippines Foundation, Inc. The conduct of ethical research is one of our "reasons for being". In the past year, we have received funding for the creation and administration of new epidemiologic research projects and we will continue to do this to advance cancer research in the country.

We welcome into our Board of Trustees two new members: Dr. Dennis Sacdalan and Dr. Claire Soliman, as well as two new hospital members and 37 new individual members. Thank you for sharing your time and energy with us!

This 2021, we continue to move ***Towards Better Healthcare for The Filipino Cancer Patient***. We will do this until ***every preventable cancer is averted, every screenable cancer is detected, and every cancer patient is counted***.

We ask each and every CARE PH hospital to please continue your good work and take care of your hospital cancer registry with diligence and passion – and please don't forget to SHARE your data weekly!

Yours in the service of the Filipino cancer patient,

Trixie
11 April 2021

Table of Contents

List of Figures

List of Tables

CANCER IN THE PHILIPPINES: Burden of Disease

GLOBOCAN 2020

In December 2020, CANCER TODAY website was updated with GLOBOCAN 2020 database version 2.0. In it we find data sourced from the Cebu Cancer Registry, Manila Cancer Registry and Rizal Cancer Registry weighted/sample average of the most recent local rates, applied to the 2020 population of 109,581,085 Filipinos (Source: GLOBOCAN Observatory | IARC | "Cancer Today" | link >>https://gco.iarc.fr/). In that same update, the estimated number of new cases of cancer for 2020 is 153,751, or a nine percent increase from 2018 new cases of 141,021; while the number of cancer deaths for the same period showed a seven percent increase to 92,6060 from 86,337 in 2018.
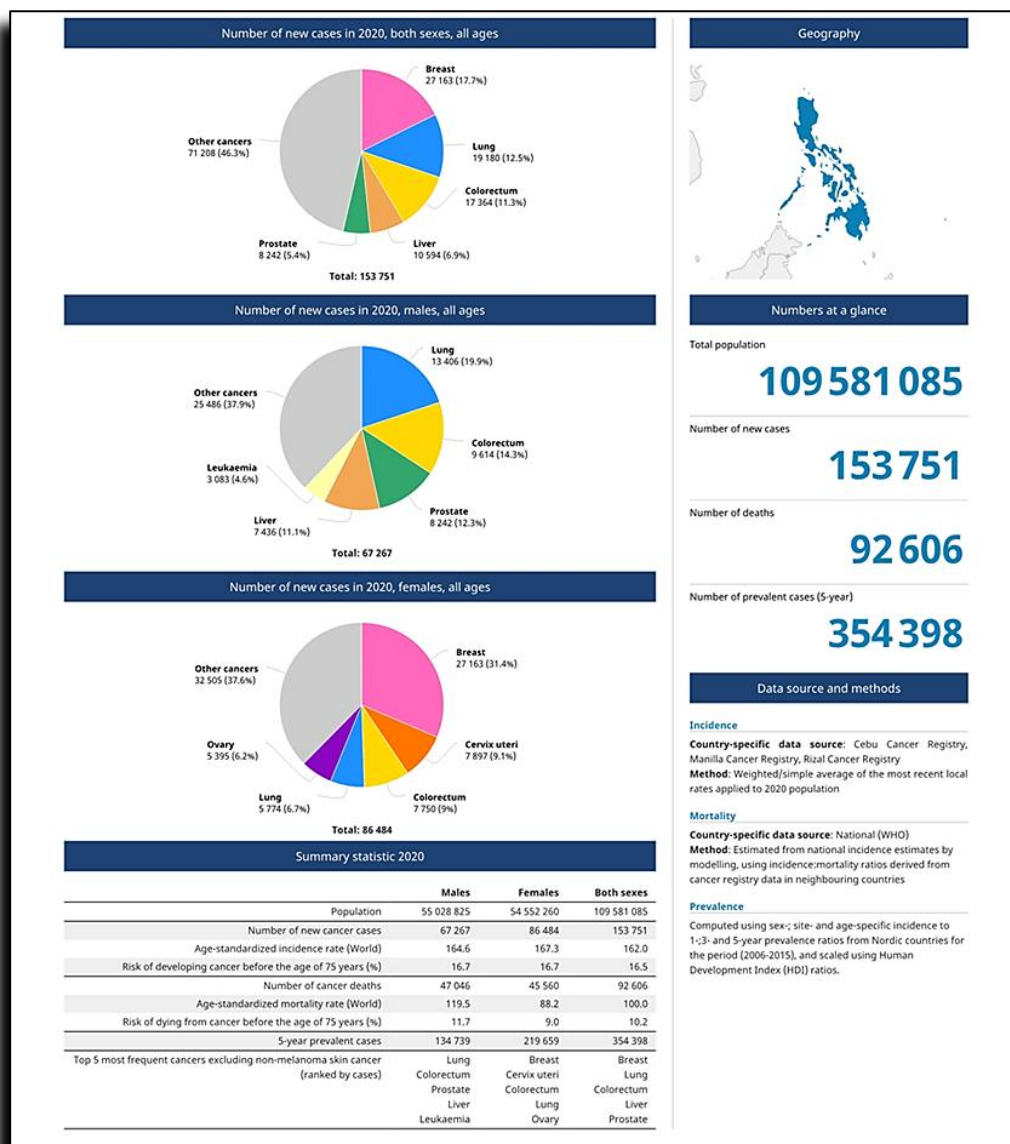
Incidence, Mortality and Prevalence by cancer site

Cancer	New cases				Deaths				5-year prevalence (all ages)	
	Number	Rank	(%)	Cum.risk	Number	Rank	(%)	Cum.risk	Number	Prop.
Breast	27 163	1	17.7	5.66	9 926	3	10.7	2.02	85 206	0
Lung	19 180	2	12.5	2.56	17 063	1	18.4	2.30	20 625	0
Colon	11 315	3	7.4	1.39	6 109	4	6.6	0.65	25 916	0
Liver	10 594	4	6.9	1.30	9 953	2	10.7	1.23	10 964	0
Prostate	8 242	5	5.4	2.30	3 164	9	3.4	0.41	26 942	0
Cervix uteri	7 897	6	5.1	1.61	4 052	6	4.4	0.88	19 933	0
Thyroid	6 345	7	4.1	0.65	743	21	0.80	0.08	19 260	0
Rectum	5 846	8	3.8	0.75	2 982	10	3.2	0.36	14 577	0
Leukaemia	5 795	9	3.8	0.47	4 370	5	4.7	0.38	16 835	0
Ovary	5 395	10	3.5	1.13	3 379	7	3.6	0.77	13 667	0
Corpus uteri	4 374	11	2.8	1.01	1 306	15	1.4	0.31	12 417	0
Non-Hodgkin lymphoma	4 140	12	2.7	0.46	2 415	12	2.6	0.27	11 065	0
Stomach	3 381	13	2.2	0.40	2 860	11	3.1	0.32	4 531	0
Pancreas	3 349	14	2.2	0.40	3 283	8	3.5	0.40	2 804	0
Nasopharynx	3 006	15	2.0	0.33	1 947	13	2.1	0.24	8 370	0
Kidney	2 384	16	1.6	0.29	1 229	16	1.3	0.14	5 785	0
Brain, central nervous system	2 037	17	1.3	0.19	1 752	14	1.9	0.18	5 311	0
Bladder	1 714	18	1.1	0.21	996	19	1.1	0.09	4 391	0
Lip, oral cavity	1 561	19	1.0	0.19	870	20	0.94	0.10	3 902	0
Larynx	1 550	20	1.0	0.21	1 020	18	1.1	0.13	4 124	0
Oesophagus	1 144	21	0.74	0.14	1 122	17	1.2	0.14	1 228	0
Multiple myeloma	766	22	0.50	0.10	649	22	0.70	0.09	1 754	0
Salivary glands	578	23	0.38	0.07	244	25	0.26	0.03	1 641	0
Hodgkin lymphoma	514	24	0.33	0.04	152	27	0.16	0.02	1 632	0
Oropharynx	465	25	0.30	0.06	272	23	0.29	0.03	1 106	0
Melanoma of skin	418	26	0.27	0.05	251	24	0.27	0.03	1 131	0
Testis	358	27	0.23	0.06	74	30	0.08	0.01	1 157	0
Gallbladder	286	28	0.19	0.03	215	26	0.23	0.03	355	0
Anus	203	29	0.13	0.03	92	29	0.10	0.01	495	0
Hypopharynx	184	30	0.12	0.03	107	28	0.12	0.02	284	0
Vulva	158	31	0.10	0.04	61	31	0.07	0.01	423	0
Penis	126	32	0.08	0.03	45	34	0.05	0.01	345	0
Vagina	97	33	0.06	0.02	49	33	0.05	0.01	249	0
Mesothelioma	63	34	0.04	0.01	57	32	0.06	0.01	69	0
Kaposi sarcoma	11	35	0.01	0.00	5	35	0.01	0.00	31	0
All cancer sites	153 751	-	-	16.50	92 606	-	-	10.22	354 398	0

Age-standardized (World) incidence rates per sex, top 10 cancers

Males — Females

Cancer	Males	Females
Breast		52.7
Lung	33.6	11.3
Colorectum	23.7	15.1
Liver	17.8	6.1
Prostate	23.4	
Cervix uteri		15.2
Thyroid	3.0	9.2
Leukaemia	6.5	5.1
Ovary		10.4
Non-Hodgkin lymphoma	5.1	3.7

ASR (World) per 100 000
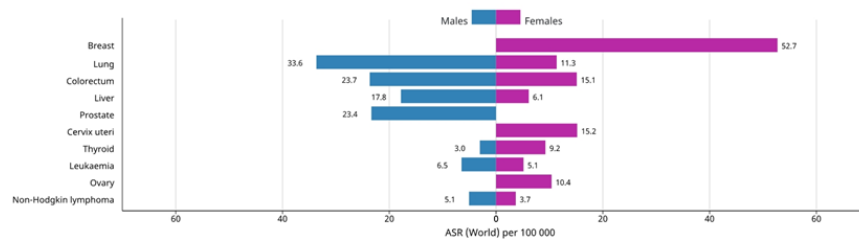
Age-standardized (World) incidence and mortality rates, top 10 cancers

Incidence — Mortality

Cancer	Incidence	Mortality
Breast	52.7	19.3
Prostate	23.4	10.8
Lung	21.1	18.8
Colorectum	18.8	10.1
Cervix uteri	15.2	7.9
Liver	11.4	10.8
Ovary	10.4	6.6
Corpus uteri	8.7	2.6
Thyroid	6.2	0.81
Leukaemia	5.7	4.3

ASR (World) per 100 000

Page 2
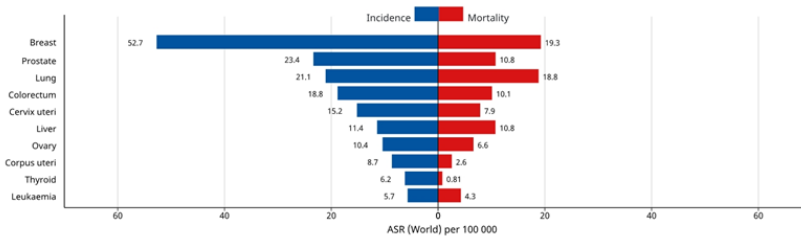
Figure 1. GLOBOCAN 2020 estimates of incidence and mortality for 35 cancers in PH.

The top ten **incident** cancers in the Philippines, based on the 2020 GLOBOCAN data presented in Figure 1 are: Breast Cancer, Lung Cancer, Colon Cancer, Liver Cancer, Prostate Cancer, Cervical Cancer, Thyroid Cancer, Rectal Cancer, Leukemia, and Ovarian Cancer.

The top ten most common cause of cancer **death** in the Philippines, based on the 2020 GLOBOCAN data presented in Figure 1 are: Lung Cancer, Liver Cancer, Breast Cancer, Colon Cancer, Leukemia, Cervical Cancer, Ovarian Cancer, Pancreatic Cancer, Prostate Cancer and Rectal Cancer.

CARE PH HOSPITAL-BASED CANCER REGISTRY

2020 Consolidated Cancer Census

Twenty-three (23) member hospitals have completed sharing their data as of 22 Mar 2021, for a total of 9,160 new registrants last 2020. Breakdown of primary cancer sites are shown in figure 2.

**CANCER CENSUS 2020
(N = 9,880; 23 HOSPITALS; DATA SHARED AS OF END-MARCH 2021)**

Neuroendocrine Tumors, 24, 0%
Esophageal Cancer, 64, 1%
Bone Cancer, 99, 1%
Pancreatic Cancer, 117, 1%
Non Melanoma and Melanoma Skin Cancer, 121, 1%
Gastric Cancer, 136, 1%
Urinary Bladder Cancer, 138, 1%
Soft Tissue Cancer, 152, 2%
Occult or Unknown Primary, 158, 2%
Central Nervous System Cancer, 174, 2%
Hepatobiliary Cancer, 186, 2%
Kidney Cancer, 265, 3%
Lymph Node Cancer, 272, 3%
Ovarian Cancer, 280, 3%
Thyroid Cancer, 409, 4%
Lung Cancer, 441, 4%
Prostate and other Male Genital Cancer, 455, 5%
Blood Dyscrasia, 478, 5%

Omentum or Peritoneum, 21, 0%
Orbit or Eye, 21, 0%
Multiple primaries, 16, 0%
Anal Cancer, 13, 0%
Thymomas, 9, 0%
Small intestine, 6, 0%
OTHERS, 261, 3%

Breast Cancer, 2591, 26%
Colorectal Cancer, 1071, 11%
Cervical Cancer, 722, 7%
Head and Neck Cancer, 657, 7%
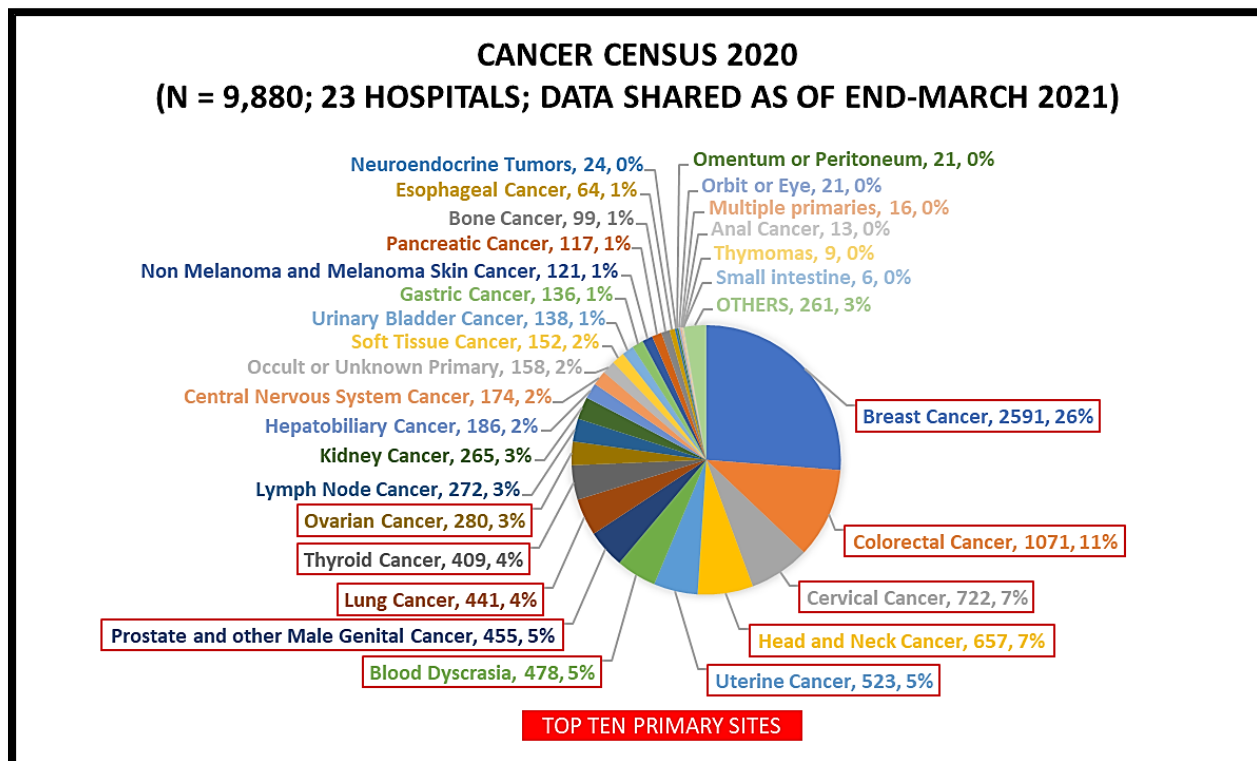Uterine Cancer, 523, 5%

TOP TEN PRIMARY SITES

Figure 2. Frequency of primary cancer sites in CARE PH cancer census 2020.

The top ten most frequently diagnosed cancers in the CARE PH Registry System are: Breast Cancer, Colorectal Cancer, Cervical Cancer, Head and Neck Cancer, Uterine Cancer, Blood Malignancies, Prostate and other Male Urogenital Cancers, Lung Cancer, Thyroid Cancer, and Ovarian Cancer.

Note that GLOBOCAN incidence and mortality data separates Colon cancer from Rectal cancer (although their pie chart unites these two cancer sites). Nasopharyngeal, Lip and Oral Cavity, and Laryngeal Cancers are also separated in the GLOBOCAN incidence and mortality reports. At present, Colorectal and Head and Neck Cancers are still lumped into single categories (single slices in the pie chart) and CARE PH plans to separate Colorectal cancer into colon and rectal cancer and Head and neck cancer into nasopharyngeal, lip and oral cavity and laryngeal cancer in our 2021 Annual Report.

The CARE PH Hospital-Based Cancer registry system seems to capture less Lung cancers, Liver Cancer, Thyroid and Lymphoma patients than the Population-Based Cancer Registry System, as captured by the Global Cancer Network. In response to this observation, CARE PH plans to

expand our catchment areas (see Challenges and Updates below) to include Liver Centers, Cytology Pathology Sections, Bone marrow transplant centers, aside from treatment areas like Chemotherapy units, Radiation oncology units and Surgical Pathology sections of Pathology departments. Imaging areas like liver ultrasound, MRI and CT scan sections with electronic databases will also be searched for liver cancer diagnosed in these imaging facilities, prioritizing Member Hospitals with the said electronic databases but with low liver cancer census.

2020 CARE PH Member Hospitals

The following CARE PH hospitals have signed Memoranda of Agreement between their hospital and CARE PH. The table also so shows number of new registrants per hospital and date of last sharing of data. Those with no entries or minimal entries are either new members or have had re-organizations in their hospital or have not been able to share data due to COVID-related concerns:

Table 1. Number of new registrants and date of last sharing of data of CARE PH hospitals.

Institution	Last Shared Date	2020 Entries
Baguio Medical Center	3/16/2021 11:23	2
Batangas Medical Center	--	--
Bicol Medical Center	3/12/2021 16:56	347
Bicol Regional Training and Teaching Hospital	1/15/2021 14:31	1
Cardinal Santos Medical Center	3/17/2021 17:27	669
Chinese General Hospital	3/05/2021 16:25	1,096
Cotabato Regional & Medical Center	3/20/2019 15:39	0
Dagupan Doctors Villaflor Memorial Hospital	2/23/2021 14:47	802
Davao Doctors Hospital	3/19/2021 14:14	74
East Avenue Medical Center	2/26/2021 10:59	456
Makati Medical Center	3/12/2021 23:23	442
Mary Mediatrix Medical Center	--	--
Medical Center Manila	3/05/2021 08:25	499
Metro Davao Medical and Research Center	8/23/2019 12:01	0
Naga Imaging Center Cooperative Doctors Hospital	--	--
National Kidney & Transplant Institute	1/05/2021 07:49	1,346
Northern Mindanao Medical Center	--	--
Palawan MMG-PPC	2/26/2021 13:23	60
Philippine General Hospital	3/16/2021 14:10	2,583
Southern Philippines Medical Center	--	--
St. Paul Hospital of Tuguegarao	2/11/2021 12:02	20
The Medical City Pasig	3/16/2021 07:55	1,231
The Medical City Clark	2/22/2021 11:37	50
The Medical City Pangasinan	3/18/2021 10:41	19
The Medical City South Luzon	2/18/2021 10:36	18
The Medical City Iloilo	3/05/2021 14:01	92
Zamboanga City Medical Center	1/16/2020 11:42	0
Zamboanga Del Sur Medical Center	3/16/2021 09:02	73
		9,880

The following hospitals have the highest contribution to the total number of new registrants for CARE PH 2020:
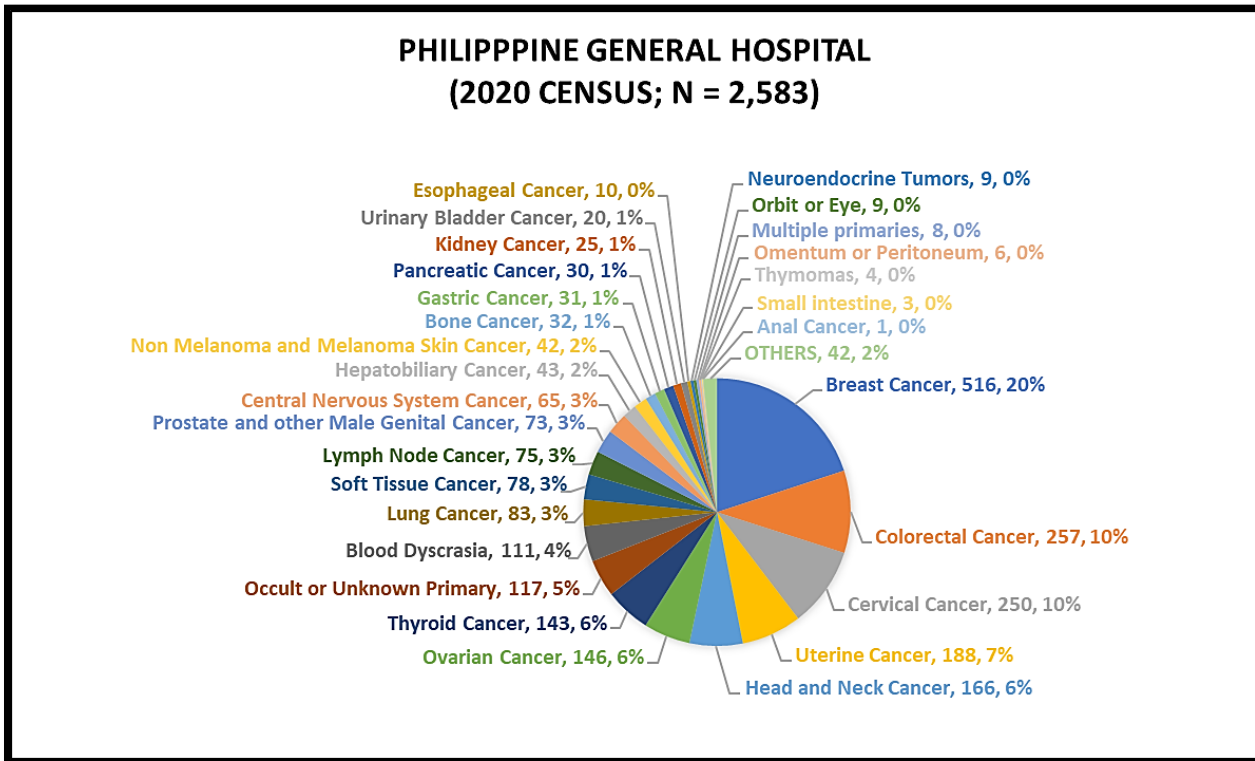

Figure 3. Frequency of primary cancer sites in Philippine General Hospital cancer census 2020.
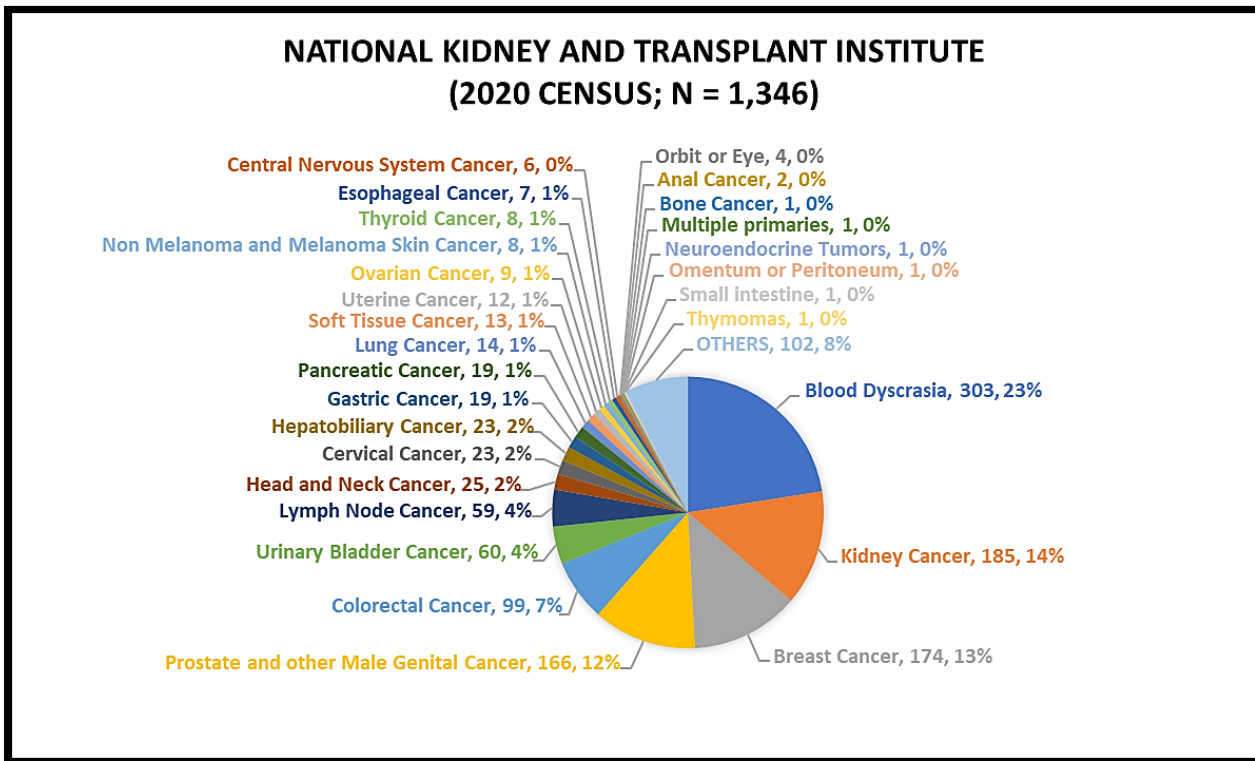

Figure 4. Frequency of primary cancer sites in National Kidney and Transplant Institute cancer census 2020.
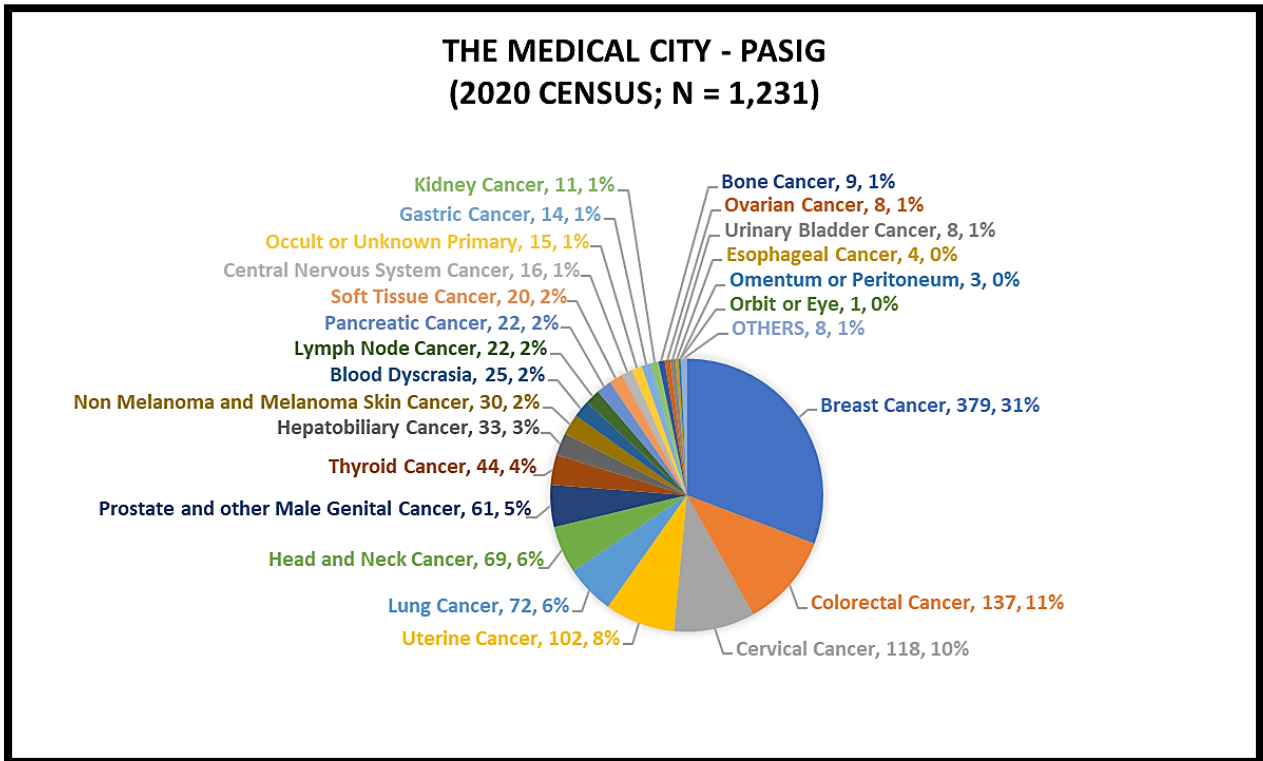
Figure 5. Frequency of primary cancer sites in The Medical City - Pasig cancer census 2020.
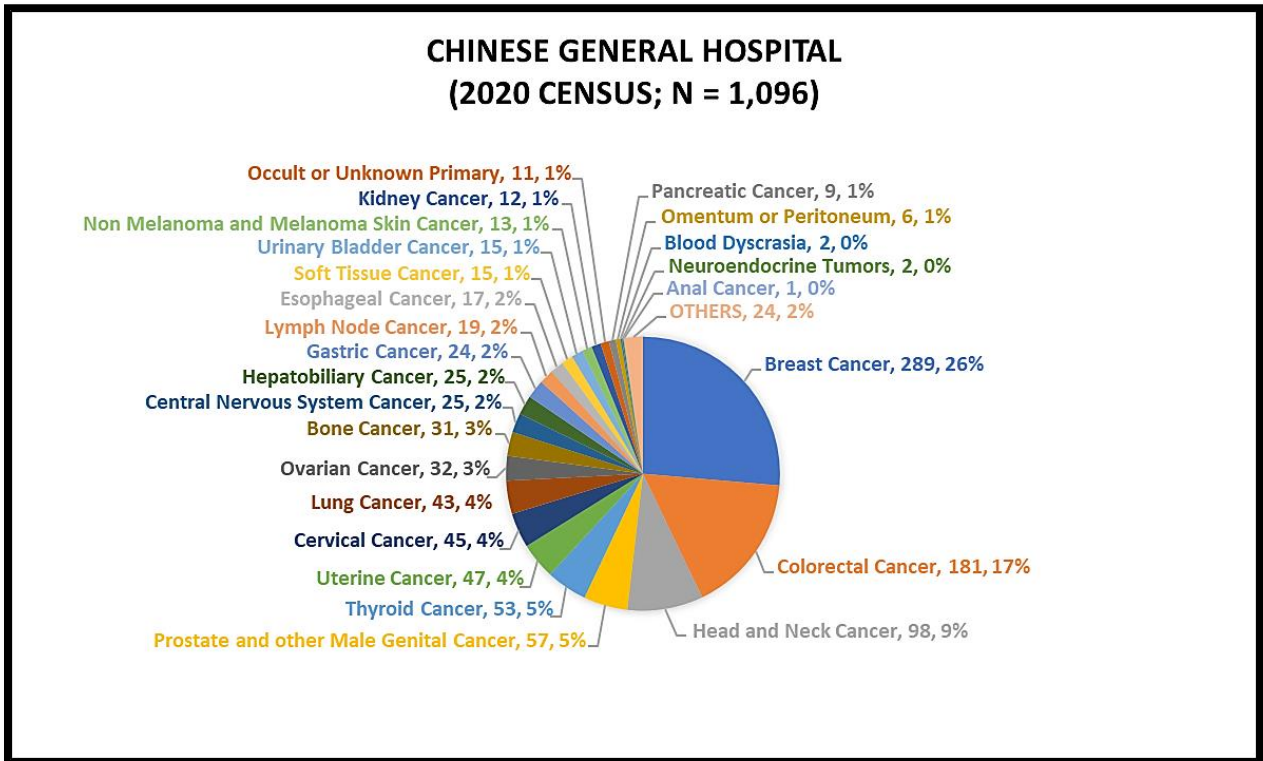

Figure 6. Frequency of primary cancer sites in Chinese General Hospital cancer census 2020.
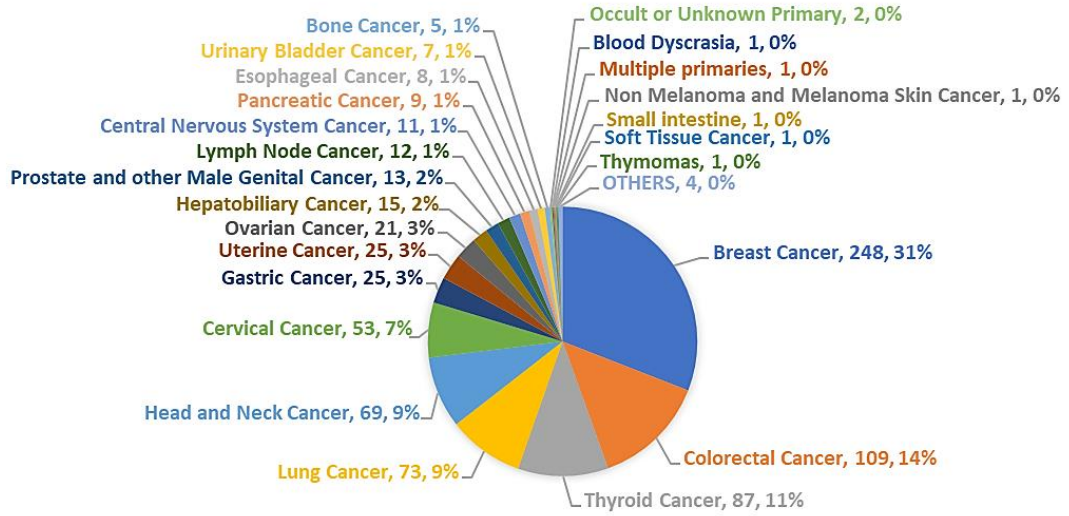
Figure 7. Frequency of primary cancer sites in Dagupan Doctors Villaflor Memorial Hospital cancer census 2020.

Figure 8. Frequency of primary cancer sites in Cardinal Santos Medical Center cancer census 2020.

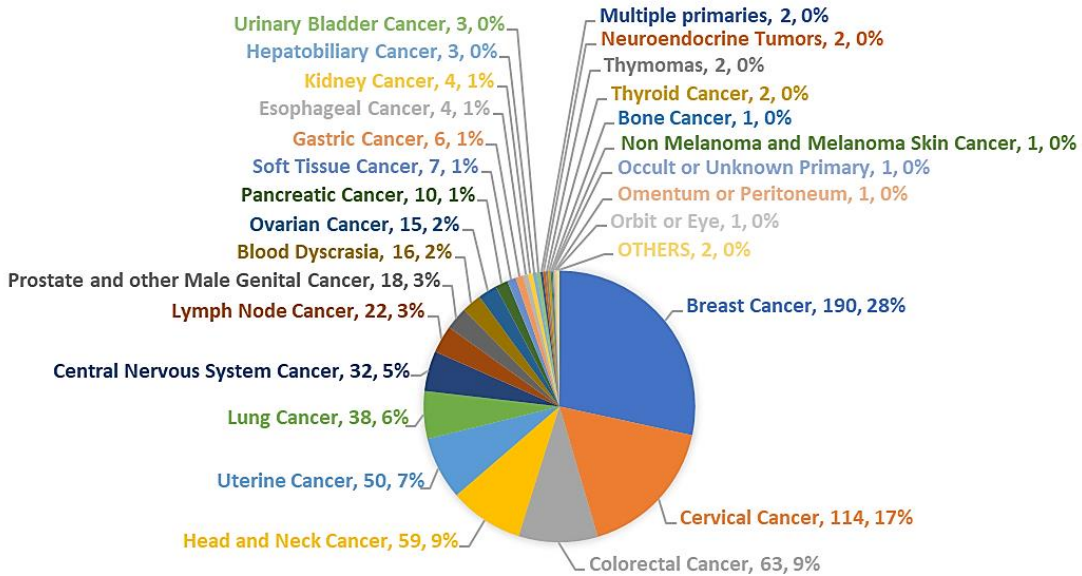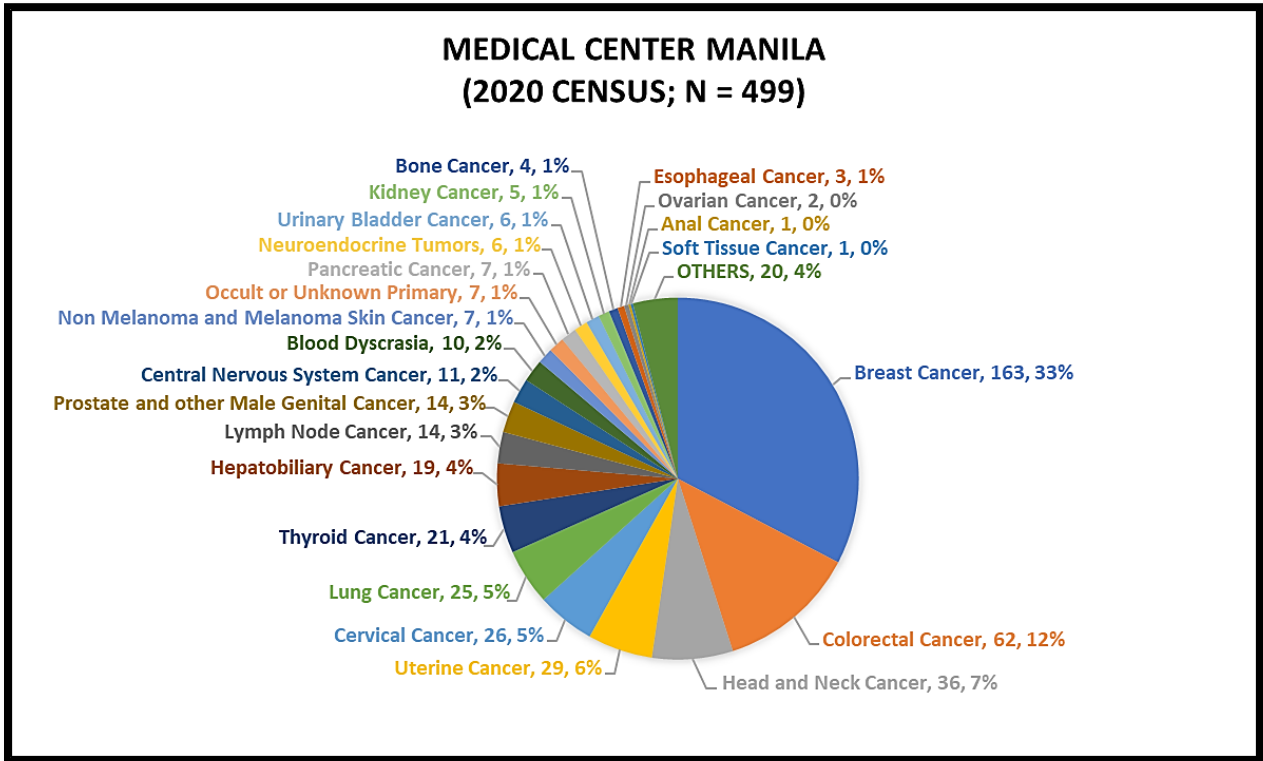Figure 9. Frequency of primary cancer sites in Medical Center Manila cancer census 2020.
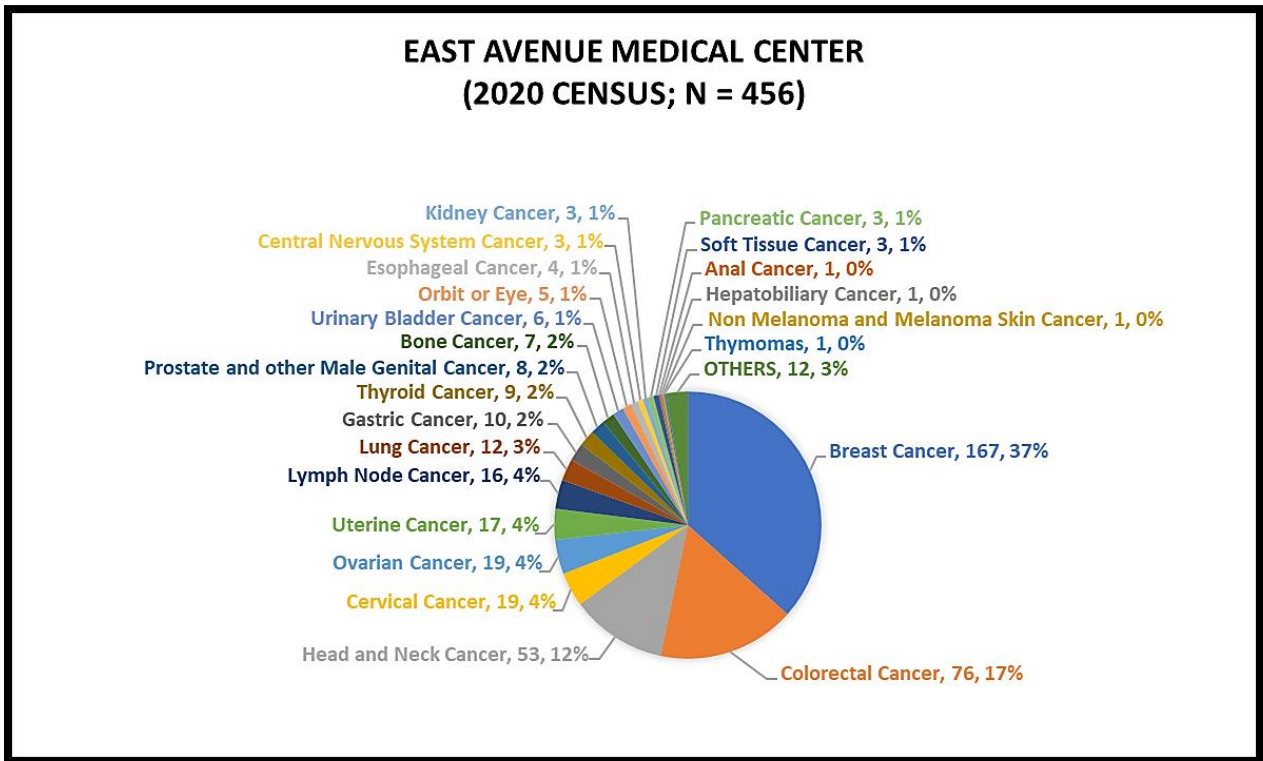

Figure 10. Frequency of primary cancer sites in East Avenue Medical Center cancer census 2020.
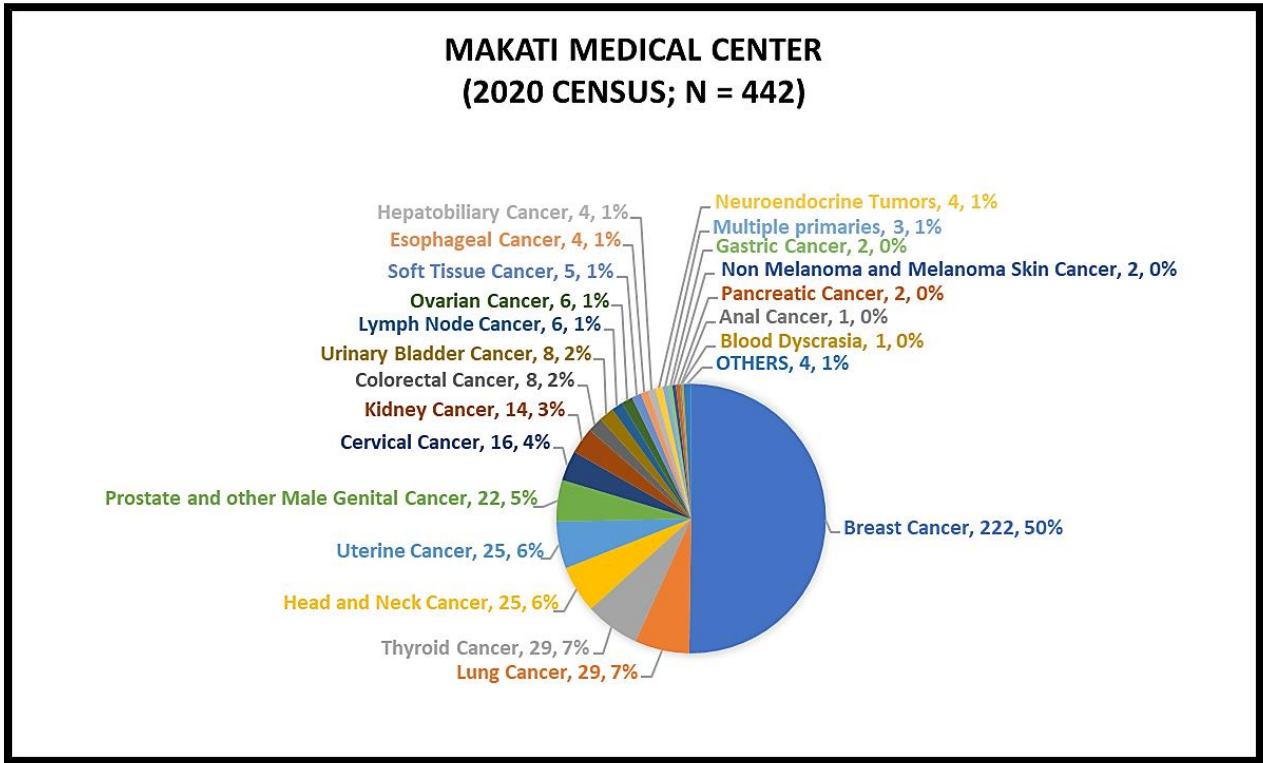
Figure 11. Frequency of primary cancer sites in Makati Medical Center cancer census 2020.
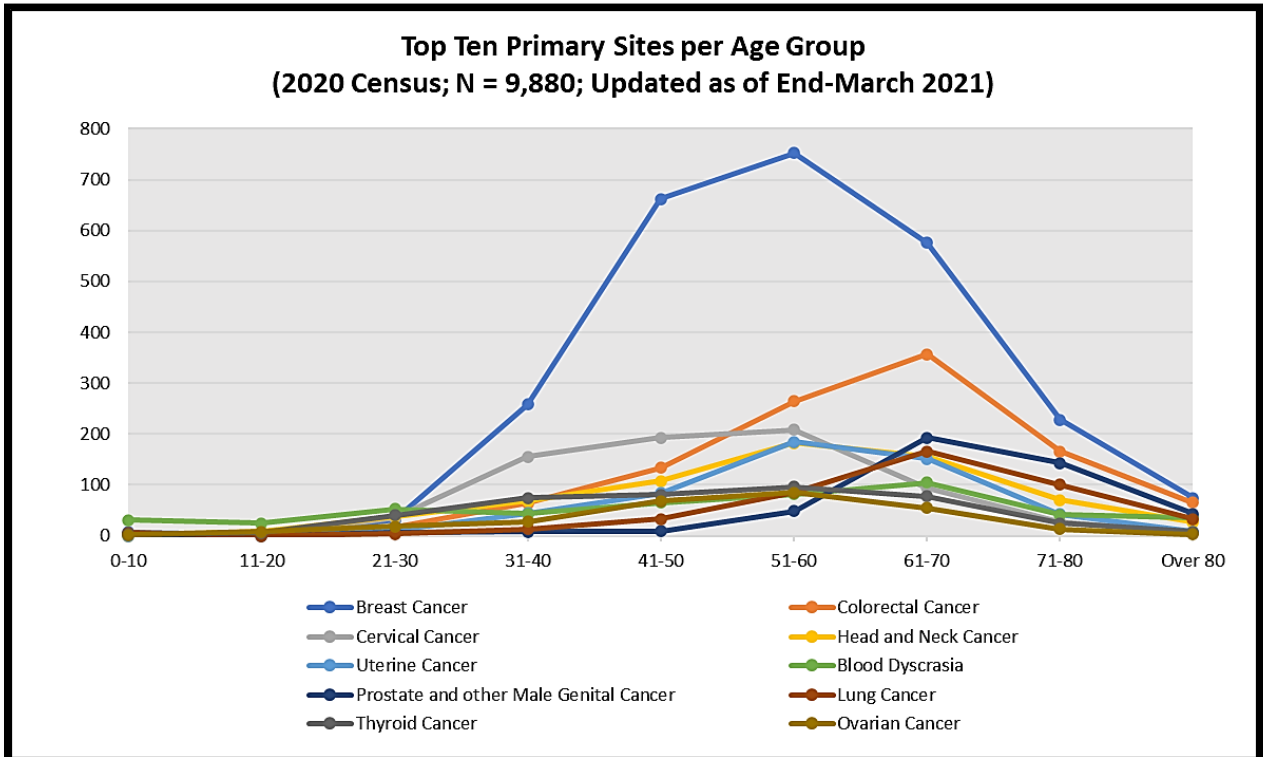

Figure 12. Top 10 primary sites by age group in 2020.

Table 2. Age distribution of top 10 CARE PH primary sites.

#	Primary Site	0-10	11-19	20-29	30-39	40-49	50-59	60-69	70-79	Over 80	Total
1	Breast Cancer	7	2	31	258	662	753	576	228	74	2,591
2	Colorectal Cancer	3	3	16	64	133	264	357	166	65	1,071
3	Cervical Cancer	2	1	35	155	193	208	94	28	6	722
4	Head and Neck Cancer	0	8	38	68	108	182	156	70	27	657
5	Uterine Cancer	0	0	10	44	84	184	151	42	8	523
6	Blood Dyscrasia	31	24	52	43	65	82	104	41	36	478
7	Prostate and other Male Genital Cancer	3	1	7	8	9	48	193	143	43	455
8	Lung Cancer	6	0	4	13	33	86	166	100	33	441
9	Thyroid Cancer	3	6	40	74	81	96	77	24	8	409
10	Ovarian Cancer	2	8	18	28	68	85	55	13	3	280
	TOTAL TOP TEN	57	53	251	755	1,436	1,988	1,929	855	303	7,627
	TOTAL OVERALL	106	121	405	940	1,741	2,485	2,486	1,166	430	9,880
	% TOP TEN of OVERALL	54%	44%	62%	80%	82%	80%	78%	73%	70%	77%

Table 2 above shows the age distribution of the **top ten** CARE PH cancer sites. Red highlighted cells show the highest number of new registrants per primary site. Yellow highlighted cells show the next highest number of new registrants per primary site. Note that the table lists the age at which the cancer patients are entered into the CARE PH Cancer Registry system. Since the registry enlists only those newly diagnosed or treated in the CARE PH site, the underlying assumption is that the patient is diagnosed in a CARE PH hospital and/or treated in a CARE PH hospital within one year of each other.

A patient with the same initials, birthday and primary site are considered to be the same person by the central CARE PH database. A close look at the 2020 CARE PH data reveals that a total of 238 patients were registered in 2 (236/238) or 3 (2/238) CARE PH hospitals (Table 3).

Table 3. Patients per Primary Site in more than 1 Hospital Cancer Registry.

Primary Site	Seen in 2 Hospitals	Seen in 3 Hospitals
Blood Dyscrasia	2	0
Breast Cancer	115	0
Cervical Cancer	14	1
Colorectal Cancer	33	0
Esophageal Cancer	2	0
Gastric Cancer	2	0
Head and Neck Cancer	18	0
Hepatobiliary Cancer	2	0
Kidney Cancer	2	0
Lung Cancer	9	1
Lymph Node Cancer	4	0
Non-Melanoma and Melanoma Skin Cancer	1	0
Occult or Unknown Primary	1	0
Orbit or Eye	1	0
Ovarian Cancer	4	0
Pancreatic Cancer	1	0
Prostate and other Male Genital Cancer	10	0
Thyroid Cancer	1	0
Urinary Bladder Cancer	2	0
Uterine Cancer	12	0
TOTAL	**236**	**2**

The following cancers are most commonly diagnosed at age 50-59 years of age (red highlights): Breast, Cervical, Head and Neck, Uterine, Thyroid and Ovarian. Note that **all Female Cancers** are diagnosed in this age group, with Breast, Cervical and Ovarian cancers **next highest in the younger 40-49 years of age** (yellow highlights). This means that Filipinas are diagnosed with cancer at a younger age than their male counterparts. The following cancers are most commonly diagnosed at age 60-69 years of age: Colorectal, Blood Dyscrasia, Prostate, and Lung Cancer. Note that the relative number of lung cancer patients diagnosed in the CARE PH Hospital-Based cancer Registry system is much lower than expected, based on the Philippine Population-Based Cancer Registry System published by GLOBOCAN in 2020.

It is unfortunate that the CARE PH Hospital-Based Cancer Registry System is not built to capture date of death of cancer patients, perhaps because cancer patients more often prefer to die at home than in a hospital. In order to be able to capture date of death, the death certificate would need to be accessible to the registry, with permission from the Philippine Statistics Authority. Either this or the family member would need to inform the hospital registry through their attending physician, who in turn should have access to and input the date of death in the registry system.

CARE PH Epidemiologic studies (see below) are looking more into survival rates of cancer patients, which may likewise give an idea of mortality rates of Blood (BLOOM Study), Male Urologic (PUMA Study), Liver (CANDLE Study) and Lung (CALMER Study) cancers.

CARE PH RESEARCH PRIORITIES AND PROGRAMS

2020 ONGOING EPIDEMIOLOGIC STUDIES AND COLLABORATORS

As the development in the registry continues to progress, cancer data grow richer and more meaningful. Its impact transcends from simple prevalence on the number of patients per type of cancer, to how to make use of the prevalence data and translate it to public health measures that can help improve the quality of care and management of cancer patients. It is for this reason that CARE PH includes in their scope research studies that would promote and enhance the holistic approach to cancer care. Through CARE PH researches, healthcare workers will be able to understand the progression of chronic hepatitis B patients to liver cancer from the CANDLE Study, identify which biomarker affects overall survival in lung cancer patients through the CALMER Study, create a clinical data reference in patients with blood malignancies from the BLOOM Study, and easily recognize COVID-19 pneumonia using artificial intelligence through the CHERISH Study.

Ongoing Studies

A. Early CANcer Detection in the LivEr of Filipinos with Chronic Hepatitis B using AI-driven integration of Clinical and Genomic Biomarkers (CANDLE Study)

Background

CANDLE Study is a big program with 2 projects under it. The first project, and the one under CARE PH, is entitled, *"Establishing a Clinical and Genomic Profile of Filipinos for Early Detection of Liver Cancer"*. This study is headed by Dr. Beatrice Tiangco, alongside Dr. Edhel Tripon, Jason Albia, and Julianne Vilela, and is being funded by the Department of Science and Technology (DOST) and being monitored by the Philippine Council for Health Research and Development (PCHRD). The main implementing agency is the University of the Philippines-Manila (UPM) under the National Institutes of Health (NIH). It aims to establish a clinical and genomic profile of the Filipino population for early detection of liver cancer. Furthermore, it aims to:

- perform whole genome genotyping of the exposed-unexposed cohorts;
- identify genetic variations contributing to liver cancer diagnosis and prognosis;
- develop a phenotyping scoring system for the early diagnosis of liver cancer in the Filipino population using readily available imaging and blood tests;
- identify HBV subtypes among participants using PCR-based techniques; and
- establish a liver cancer registry and biorepository.

Design

This study is a nested analytical cohort that recruits a total of 800 exposed-unexposed participants for a duration of 5 years. Exposed participants are categorized as HBsAg positive, with 2 reactive HBsAg values that are at least 6 months apart, be it non-cirrhotic, cirrhotic, and/or with hepatocellular carcinoma. Unexposed participants are those HBsAg negative and can be with or without hepatocellular carcinoma. Currently, the study is on its Year 2 of 5 and has recruited around 301 participants as shown in Table 4 and its distribution as shown in Figure 13.

Table 4. Total population of participants vs the accrual of participants until January 31, 2021.

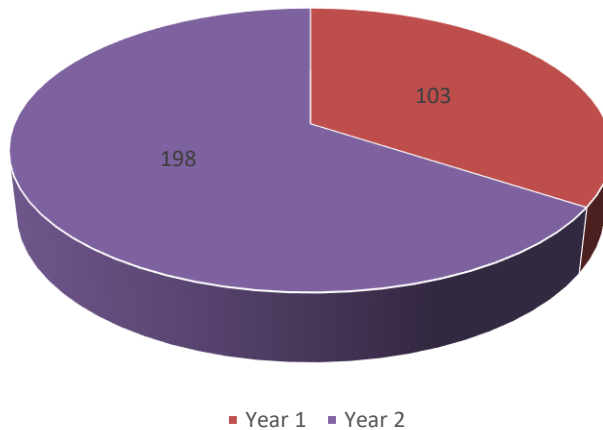| POPULATION	
TOTAL:	800
ACCRUAL:	301

Participant Distribution

Figure 13. Distribution of the accrual of participants.

B. ClinicAL and Molecular BiomarkER Profile as Predictors of Overall Survival in Filipinos with Non-small Cell, Non-squamous Lung Cancer (CALMER Study)

Background

CALMER Study is a study on lung cancer that aims to identify molecular abnormalities in Filipinos with advanced lung cancer, and to know if these biomarkers have associations to clinical biomarkers. The principal investigator is Dr. Beatrice Tiangco with Dr. Josephine Tolentino and Dr. Emily Tan-Aventura as co-investigators. This study is funded by different private companies such as Pfizer, Roche, and Boehringer Ingelheim. It is implemented at The Medical City-Pasig and it aims to establish a clinical and biomarker profile of patients with newly diagnosed stage IIIB or IV non-small cell, non-squamous lung cancer. It also aims to:

- identify the associated epidemiologic features in patients with different molecular profiles i.e., EGFR, PDL1, ALK, ROS; and
- determine the survival outcomes of patients with newly diagnosed non-small cell, non-squamous lung cancer.
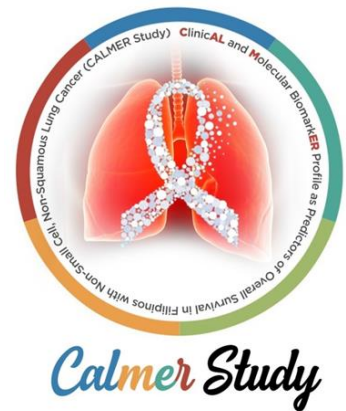
Design

This is a nested analytical (non-interventional) study that recruits a total of 385 patients in a haphazard sampling manner for 4 years. Patients recruited should have a pathology report of the biopsy procedure done upon diagnosis prior to any anti-cancer treatment or suspected to have non-small cell advanced lung cancer with a referral letter from his/her primary physician along with tissue slides/blocks from the lung mass biopsy. Currently, the study has recruited a total of 35 patients as shown in Table 5.

Table 5. Total population of CALMER Study vs accrual at the end of 2020.

POPULATION	
TOTAL:	385
ACCRUAL:	35

C. Diagnosis and Treatment of BLOOd Malignancies in the PHilippines (BLOOM PH)

Background

BLOOM PH aims to gather baseline epidemiologic data on the diagnosis and treatment of hematologic malignancies in the country. Dr. Beatrice Tiangco heads this study along with Dr. Rosario Torres, Dr. Priscilla Caguioa, Dr. Jay Datukan, Dr. Flordeluna Mesina, Dr. Teresita Dumagay, and Dr. Ivy Mae Escasa. It is implemented at The Medical City-Pasig and is funded by the Philippine College of Hematology and Transfusion Medicine (PCHTM) and Philippine Society of Medical Oncology (PSMO). The main goal is to create a registry containing demographic and clinical data of a cohort of patients newly diagnosed to have hematologic malignancies. It also aims to:

- determine the incidence of leukemia, lymphoma or myeloma in the Philippines;
- describe the demographic and clinical data of patients in the study;
- determine the treatment received by patients with hematologic malignancies;
- determine response to treatment and disease status at the end of 2-year ff-up;
- determine the association of demographic and laboratory parameters to the survival data of the included population; and
- determine the association of treatment received to survival data.

BLOOM PH is an observational prospective cohort study that recruits 500 adult patients who are newly diagnosed to have hematologic malignancy or treated for any newly diagnosed hematologic malignancy. Incidence, stage upon diagnosis, treatment given, time to treatment, remission rates, relapse rates and overall survival data will reveal gaps in current diagnosis and management practices that will help prioritize programs and policies, and improve quality of life and survival rates of these common dreaded diseases. To date, the study has recruited a total of 30 patients as shown in Table 6.

Table 6. Total population of BLOOM PH vs accrual at the end of 2020.

POPULATION	
TOTAL:	500
ACCRUAL:	30

Accomplished Studies

A. **A Retrospective Study on the Accuracy of AI-powered Reading of CHEst X-Rays in the DiagnosIS of COVID-19 Pneumonia in a Tertiary Hospital (CHERISH Study)**

Background

CHERISH Study is a joint venture between Domingo AI Research Center (DARC) and The Medical City-Pasig and aims to develop an application embedded with AI models to detect patients with COVID-19 pneumonia from CXR images. Dr. Beatrice Tiangco headed the investigation together with Mario Domingo, Jason Albia, Lei Rigi Baltazar, Joverlyn Gaudillo, Mojhune Gabriel Manzanillo, Dr. Ron Yebes, Dr. Christine Chavez, and Dr. Miguel Angelo Manguiat. This is funded and monitored by the Philippine Council for Health Research and Development (PCHRD) under DOST. It aims to aims to determine the diagnostic accuracy of AI-Powered CXR reading for COVID-19 pneumonia, using the clinical data of all patients admitted at a tertiary hospital during the COVID-19 pandemic from March 1, 2020 to April 30, 2020. It further aims to:

- train, test, and validate an AI algorithm that is capable of reading digital CXR images of patients with and without COVID-19 pneumonia;
- improve the diagnostic accuracy for COVID-19 pneumonia using clinical data and AI-powered reading of CXR; and
- create a screening tool using clinical data and AI-powered CXR findings that are capable of diagnosing COVID-19 pneumonia in a non-pandemic setting.

Design

In CHERISH Study, development of AI-Powered COVID-19 detection software includes three major steps: data acquisition, AI model development, and application development. It collects data of all adult patients with chest x-ray images done between March 1, 2020 to April 30, 2020 and is conducted for 4 months, from August to November, 2020, respectively. It recruited a total of 1,162 patients as shown in Table 7.

Table 7. Total population of CHERISH Study vs accrual of data gathered.

POPULATION	
TOTAL:	1,162
ACCRUAL:	1,162

2021 PLANS AND GOALS

REGISTRY PLANS and GOALS

- Continue to recruit new CARE PH hospitals, in accordance with milestones / targets of PFI funding commitment.
- Expand the catchment areas of registry patients to include Liver Centers, Chemotherapy Units, Radiation Oncology Units, Bone Marrow Transplant Centers, Surgical and Cytology Pathology Sections of Pathology Departments. Radiology CT scan, MRI and ultrasound sections' databases will also be searched for Liver cancer diagnoses.
- Pursue planned activities with ALPHA 2 project (with PCS CanCom), temporarily suspended due to COVID-19 situation (i.e., workshop on surgical outcomes), as the situation permits.
- Actively collaborate with the Cancer Control Council, if and when already completed and designated (by the President), to accelerate pertinent Sections / Programs / Activities stipulated in NICCA
- Include Stage upon diagnosis or entry into hospital cancer registry for each new regsitrant

RESEARCH PLANS and GOALS

As most researches under CARE PH are ongoing, the need for new plans and goals continue to arise. The research team has 3 major goals:

1. Increase the recruitment of all researches. Table 8 shows the intended number of new participants to be recruited per study:

Table 8. Recruitment goal of researches under CARE PH.

RESEARCH	YEAR 3 GOAL	TOTAL POPULATION
CANDLE Study	400	800
CALMER Study	150	385
BLOOM PH	200	500

2. Expand recruitment sites to different areas around the country. The following are the target CARE PH sites to open for research:
    • Palawan Medical Mission Group
    • The Medical City Iloilo
    • Vicente Sotto Memorial Medical Center
    • Zamboanga del Sur Medical Center
    • Makati Medical Center
3. Add more researches under CARE PH. Researchers who aim to include CARE PH as a collaborator will benefit from the following:
    a. Assistance in technicalities of protocol writing (GANTT Chart, Line-Item Budget, e-Case Report Form)
    b. Assistance in technical and ethical protocol submission and review.
    c. Assistance in recruitment planning.
    d. Training of personnel on recruitment process flow.

CARE PH FOUNDATION, INC.

2020 PROGRAMS and ACHIEVEMENTS

• Signed MOAs with new CARE PH member hospitals:
    - Southern Philippines Medical Center (SPMC)
    - Baguio Medical Center (BMC)

• Entered into agreement with other private groups for a project "Unity In Isolation" (https://unityinisolation.com/) whose goal is to "*build SafeTest Tents to help test patients for COVID19 and isolate them as they recover from mild symptoms of the disease.*" SafeTest tents constructed or in-progress in the following hospitals:
    - The Medical City – Pasig
    - The Medical City – South Luzon
    - Bicol Medical Center
    - Bicol Regional Training and Teaching Hospital
    - Josefina Belmonte Duran Memorial District Hospital
    - San Pedro District Hospital
    - Quirino Memorial Medical Center
    - Davao Del Norte Hospital

- Accepted the offer of the Philippine College of Surgeons Cancer Commission (PCS-CC) for CARE PH to have a seat in their Board of Directors
    - Assisted in the creation of the Manual of Operations of (virtual and face-to-face) Multidisciplinary Tumor Boards for General Surgery training hospitals of the Philippine College of Surgeons
    - Worked with the PCS-CC in the addition of data fields in the Breast, Colorectal and Liver CARE PH registry
    - Spoke at the Tumor Registrar Forum of the Philippine National Cancer Summit last February on Hospital-Based Cancer Registry

2020 Audited Financial Statement

Table 9. 2020 cash flow.

Item	Amount	Remarks
CASH, beginning	328,678	
Revenue, gains and other supports		
Contribution and grants	8,144,559	PFI, Pfizer, UNI Project (Admin Fees only), PCHTM, UP-PGH
Expenses and losses		
Program and project	6,573,140	Registry, Research Studies, UNI Project
General and administrative	367,010	5.29% of total expenses*
CASH, end	1,594,012	

Compliant to Tax Code SEC 34-H.2.c.3 *"The level of administrative expense of which shall, on an annual basis, conform with the rules and regulations to be prescribed by the Secretary of Finance, upon recommendation of the Commissioner, but in no case to exceed thirty percent (30%) of the total expenses"*

CHALLENGES FACED and Current Updates

- COVID-19 pandemic resulted to a significant reduction in CARE PH App transactions, due to minimal attendance of Tumor Registrars, Clinicians, and even cancer patients who would have otherwise normally went to their respective hospitals for check-up or treatment.

- The said pandemic also resulted to a shift in focus of nearly all medical efforts and activities, both in the private and government sectors, towards the COVID-19 disease, affecting to an extent certain efforts / projects of CARE PH.

- The Cancer Law, RA No. 11215 (or "NICCA"), now entering the first anniversary of its Implementing Rules and Regulations (IRR) in 9 August 2020, practically stagnated in 2020, but is now moving forward. Two physician-Presidential appointees of Cancer Council have been named, but 3 non-MDs are still to be appointed.

- The DOH has finalized its list of designated Advanced, Basic and Specialty Cancer Centers, and Regional Cancer Centers. These centers have also been tasked to create Practice Guidelines following AO 2021-0020 on Revised Guidelines on National Guideline Development Adoption and Dissemination.

- The Philippine Cancer Center has acquired the services of a third-party cancer registry expert who will assess the current registry situation and will assist in the setting up of the National (population-based) Cancer Registry.

CARE PH Organization Chart

Figure 14. Organization chart as of end 2020.

REFERENCES

Global Cancer Observatory (2021, March). *Philippine Population Fact Sheets.*
    https://gco.iarc.fr/today/ data/factsheets/populations/608-philippines-fact-sheets.pdf.

Unity In Isolation (2020). https://unityinisolation.com/.