

## HUMAN RESOURCES FOR TREATING NEW CANCER CASES IN PHILIPPINES

### Executive Summary

The purpose of this report is to describe the human resources needed in Philippines to treat new cancer patients. The population of Philippines is approximately 96.47million (48.37 million men and 48.1 million women) and the estimated number of new cancer cases in Philippines for the year 2012, based on GLOBOCAN data for Philippines as a whole (<http://globocan.iarc.fr/>) was 98249 (43058 in men and 55191 in women) (Table A).

The five most common cancers in Philippines are (1) breast, (2) lung, (3) gynecological (cervix uteri, corpus uteri and ovary), (4) head and neck (lip, oral cavity, nasopharynx, other pharynx, larynx and thyroid) and (5) colorectal.

Table A: The ten most frequently occurring cancers in Philippines for men and women based on 2012 GLOBOCAN data.

Cancer	BOTH SEXES		MEN		WOMEN	
	Incidence	Rank	Incidence	Rank	Incidence	Rank
All cancers excl. non-melanoma skin cancer	98249		43058		55191	
Breast	18327	1			18327	1
Lung	12074	2	8822	1	3252	6
Gynecological	11317	3			11317	2
Head and Neck	9737	4	5126	4	4611	3
Colorectal	8553	5	4675	5	3878	4
Liver	7734	6	5441	3	2293	7
Urological	7059	7	6382	2	677	11
Hematological	6858	8	3564	6	3294	5
Stomach	2415	9	1408	7	1007	8
Brain, nervous system	2017	10	1090	8	927	9
Pancreas	1682	11	834	9	848	10
Esophagus	715	12	519	10	196	12

Gallbladder	342	13	154	12	188	13
Melanoma of skin	298	14	157	11	141	14
Kaposi sarcoma	16	15	6	13	10	15

Newly diagnosed cancer patients need pathology, surgery, chemotherapy and/or radiation therapy. The number of oncologists needed is based, therefore, on the number of patients requiring pathology, surgery, chemotherapy and radiation therapy (Table B). This number is estimated from the percentage of patients requiring surgery, chemotherapy and/or radiation therapy for the top ten cancers in both men and women.

For developing countries the International Atomic Energy Agency (IAEA) recommends training Radiation/Clinical Oncologists who can prescribe both radiation and chemotherapy for the common solid cancers, instead of separate medical and radiation oncologists. Hematological malignancies are treated primarily by hematologist-oncologists. The number of specialists needed is based upon the number of cancer patients but each city, in order to ensure coverage if one person leaves or goes on vacation, must have at least 2 surgical oncologists, 2 radiation/clinical oncologists, 2 hematologist oncologists, etc.

Table B: Number of Oncologists needed for Philippines's 2 most populous cities based on 2010 population estimates (<http://citypopulation.de/>) and 2012 GLOBOCAN data for new cancer cases.

	Population	New Cancer Cases	Hematologist Oncologists	Surgical Oncologists	Radiation / Clinical Oncologists	Urologic Oncologists	Gynecologic Oncologists	Neuro-Oncologists	Pathologists
Quezon City	2761720	2813	2 <sup>¥</sup>	3	15	2 <sup>¥</sup>	2 <sup>¥</sup>	2 <sup>¥</sup>	6
Manila	1652171	1683	2 <sup>¥</sup>	2	9	2 <sup>¥</sup>	2 <sup>¥</sup>	2 <sup>¥</sup>	4

<sup>¥</sup>At least 2 are needed in each city.

In addition to oncologists, support staff such as onco-pharmacists, pharmacy technicians, oncology nurses and palliative care specialists is also needed. Many cancer patients require hospitalization for diagnosis, treatment and/or complications, therefore an adequate number of oncology beds will be needed. The number of oncology nurses, onco-pharmacists and pharmacy technicians needed is based upon the number of beds occupied daily by cancer patients while the number of palliative care specialists is based on the number of new cancer cases per year (Table C). The oncology nursing staff for each 24-bed oncology unit (operating 24 hours a day, 7 days a week) comprises of one head nurse and a nurse specialist as well as 13 nurses working 8 hour shifts, 5 days per week.

Table C: Number of Oncology Units, Nursing and Pharmacy Staff needed for Philippines's 2 most populous cities based on 2010 population estimates and 2012 GLOBOCAN data for new cancer cases.

	<b>New Cancer Cases</b>	<b>Maximum# of beds/day</b>	<b># of 24 bed oncology wards</b>	<b>Onco-Pharmacists</b>	<b>Onco-Pharmacy Technicians</b>	<b>Palliative Care Specialists</b>	<b>Oncology Nursing Staff other than Radiation Oncology Nurses</b>
Quezon City	2813	52	3	12	18	6	45
Manila	1683	31	2	8	12	4	30

Since many cancer patients require radiotherapy, appropriately equipped facilities will be needed along with radiation oncology staff (Tables D and E). Radiation oncology staff includes radiation therapy technicians, medical physicists, Linac engineers and radiation oncology nurses in addition to radiation/clinical oncologists. The minimum radiation therapy equipment requirements are at least one of each: Linac, brachytherapy unit, CT simulator, treatment planning computer and dosimetry/quality assurance package.

Table D: Radiation Therapy Staff needed for Philippines's 2 most populous cities based on 2010 population estimates and 2012 GLOBOCAN data for new cancer cases.

	<b>New Cancer Cases</b>	<b>Radiation / Clinical Oncologists</b>	<b>Radiation Therapy Technicians</b>	<b>Medical Physicists</b>	<b>Linac Engineers</b>	<b>Radiation Oncology Nurses</b>
Quezon City	2813	15	20	7	2	7
Manila	1683	9	12	4	2 <sup>y</sup>	4

<sup>y</sup>At least 2 are needed in each city.

Table E: Radiation Therapy Equipment needed for Philippines's 2 most populous cities based on 2010 population estimates and 2012 GLOBOCAN data for new cancer cases.

	<b>New Cancer Cases</b>	<b>Linacs / Co 60 Megavolt Units</b>	<b># of Brachytherapy units</b>	<b># CT simulators</b>	<b># of treatment planning computers</b>	<b># of dosimetry/ QA package</b>
Quezon City	2813	4	2	2	2	2
Manila	1683	2	1	1	1	1

NOTE: Guidelines from the IAEA of the United Nations were used to calculate the radiation therapy equipment and staff needed in the setting of a developing country. Guidelines from the Oncology Nursing Society were used to calculate the number of nurses needed. Several other specialty societies were also

requested to provide guidelines but in most cases there were none, therefore colleagues active in those fields were consulted for estimating the number of staff needed.