

HUMAN RESOURCES FOR TREATING NEW CANCER CASES IN THAILAND

Executive Summary

The purpose of this report is to describe the human resources needed in Thailand to treat new cancer patients. The population of Thailand is approximately 69.89 million (34.33 million men and 35.56 million women) and the estimated number of new cancer cases in Thailand for the year 2012, based on GLOBOCAN data for Thailand as a whole (<http://globocan.iarc.fr/>) was 123801 (62764 in men and 61037 in women) (Table A).

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

Table A: The ten most frequently occurring cancers in Thailand 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	123801		62764		61037	
Liver	20455	1	14739	1	5716	4
Lung	19505	2	13094	2	6411	3
Breast	13653	3			13653	1
Gynecological	12725	4			12725	2
Head and Neck	11581	5	6803	3	4778	6
Colorectal	11493	6	6437	4	5056	5
Hematological	8758	7	4691	6	4067	7
Urological	6944	8	5955	5	989	10
Stomach	2841	9	1610	8	1231	8
Gallbladder	2794	10	1590	9	1204	9
Esophagus	2308	11	1873	7	435	13
Pancreas	1920	12	982	10	938	11

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 Thailand's 2 most populous regions 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	Pathologists
Northeastern (Isan)	18966091	33595	5	31	168	4	8	68
Bangkok Metropolitan (Krung Thep Mahanakhon Lae Parimonthon)	14626225	25908	4	24	130	3	6	52

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 Thailand's 2 most populous regions based on 2010 population estimates and 2012 GLOBOCAN data for new cancer cases.

	New Cancer Cases	Maximum # of beds/day	# of 24 bed oncology wards	Onco-Pharmacists	Onco-Pharmacy Technicians	Palliative Care Specialists	Oncology Nursing Staff other than Radiation Oncology Nurses
Northeastern (Isan)	33595	558	24	96	144	68	360

Bangkok Metropolitan (Krung Thep Mahanakhon Lae Parimonthon)	25908	430	18	72	108	52	270
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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 Thailand's 2 most populous regions based on 2010 population estimates and 2012 GLOBOCAN data for new cancer cases.

	New Cancer Cases	Radiation / Clinical Oncologists	Radiation Therapy Technicians	Medical Physicists	Linac Engineers	Radiation Oncology Nurses
Northeastern (Isan)	33595	168	210	70	18	70
Bangkok Metropolitan (Krung Thep Mahanakhon Lae Parimonthon)	25908	130	162	54	14	54

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

	New Cancer Cases	Linacs / Co 60 Megavolt Units	# of Brachytherapy units	# CT simulators	# of treatment planning computers	# of dosimetry/QA package
Northeastern (Isan)	33595	35	18	18	18	18
Bangkok Metropolitan (Krung Thep Mahanakhon Lae Parimonthon)	25908	27	14	14	14	14

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.