

HUMAN RESOURCES FOR TREATING NEW CANCER CASES IN POLAND

Executive Summary

The purpose of this report is to describe the human resources needed in Poland to treat new cancer patients. The population of Poland is approximately 38.31 million (18.47 million men and 19.84 million women) and the estimated number of new cancer cases in Poland for the year 2012, based on GLOBOCAN data (<http://globocan.iarc.fr/>) for Poland as a whole was 152216 (77710 in men and 74506 in women) (Table A).

The five most common cancers in Poland are (1) lung, (2) urological (bladder, kidney, prostate and testis), (3) colorectal, (4) breast and (5) gynecological (cervix uteri, corpus uteri and ovary).

Table A: The ten most frequently occurring cancers in Poland 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	152216		77710		74506	
Lung	26230	1	17905	2	8325	4
Urological	25173	2	21135	1	4038	5
Colorectal	19438	3	11072	3	8366	3
Breast	17259	4			17259	1
Gynecological	13881	5			13881	2
Head and Neck	9436	6	6485	4	2951	7
Hematological	8107	7	4145	5	3962	6
Stomach	6105	8	3936	6	2169	10
Pancreas	5004	9	2549	7	2455	8
Brain, nervous system	4467	10	2086	8	2381	9
Melanoma of skin	2583	11	1192	9	1391	12
Gallbladder	2296	12	618	12	1678	11

Liver	1998	13	1071	11	927	13
Esophagus	1506	14	1147	10	359	14
Kaposi sarcoma	18	15	9	13	9	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 Poland's 2 most populous cities based on 2013 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
Warszawa	1724404	6851	2 [¥]	8	35	3	2	2 [¥]	14
Kraków	758992	3016	2 [¥]	4	16	2	2 [¥]	2 [¥]	7

[¥]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 Poland's 2 most populous cities based on 2013 population estimates and 2012 GLOBOCAN data for new cancer cases.

	New Cancer	Maximum# of	# of 24 bed	Onco-	Onco-	Palliative Care	Oncology Nursing Staff
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	Cases	beds/day	oncology wards	Pharmacists	Pharmacy Technicians	Specialists	other than Radiation Oncology Nurses
Warszawa	6851	132	6	24	36	14	90
Kraków	3016	59	3	12	18	7	45

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 Poland's 2 most populous cities based on 2013 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
Warszawa	6851	35	50	17	5	17
Kraków	3016	16	22	8	2	8

Table E: Radiation Therapy Equipment needed for Poland's 2 most populous cities based on 2013 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
Warszawa	6851	9	5	5	5	5
Kraków	3016	4	2	2	2	2

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.