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# Ukraine : Papillary Thyroid Cancer

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# UKRAINE

PUBLIC HEALTH BRIEF (PUBH 100)

ELIZABETH PARIS



## Quick Facts:

Location: Eastern Europe; neighboring Russia, Poland, Belarus, among others; borders the Black Sea

Population: 44.82 million

Ethnic Makeup: 78% Ukrainian, 17% Russian, 5% misc. Eastern European

Info: Heath-Brown, 2017

Image: Beten International, 2011

Government: Ukraine gained its independence in December of 1991, after the Communist party was banned, and has since developed into a unified and sovereign state led by a semi-presidential republic (CIA, 2017). The current Ukrainian government is composed of a president, who serves for 5 years and is directly elected by the population, a 450-member parliament, also directly elected for 4-year terms, a prime minister, appointed by the parliament, and an 18-member constitutional court. The complex governmental structure works coherently to guarantee each individual his/her civil rights and ensure that the nation is governed justly by the law (Heath-Brown, 2017).

Religion: Of the 44+ million citizens of Ukraine, the majority are Ukrainian and nearly the entire population consists of Eastern Europeans. While there is no nationally enforced religion, most of Ukraine's population (83.8%) identifies as Orthodox Christian (Heath-Brown, 2017). The Orthodox Church is split into three factions, however, not everyone chooses to follow one over another. Nearly 15% of the population is religiously unaffiliated, and the remaining individuals identify as either Muslim or Jewish (CIA; Heath-Brown, 2017).

National Challenges Faced: Ukraine, not unlike other nations, must address ongoing internal challenges and relations with neighboring countries. Problems faced within the nation include an unemployment rate of 7.9%, the 71/102 country ranking for criminal justice, and over 100,000 citizens living in slavery (Heath-Brown, 2017). One major external issue that attacks Ukraine is the War in Donbass, a political war that originated in March of 2014 with the Russian annexation of Crimea. Ukrainian armed forces continue to fight against Russians and anti-government/pro-Russian Ukrainian rebels (CNN, 2017).

Primary Public Health Issues: Another nationwide challenge faced by Ukraine is the aftermath of the 1986 Chernobyl power plant accident, specifically the health outcomes. The greatest health impact since the accident is a rise in the prevalence of papillary thyroid cancer (Thomas, Tronko, Tsyb, & Tuttle, 2011). Papillary thyroid cancer, in this case, was caused by the slightly elevated levels of radioiodine released from the power plant found in the air, ground, and water that is taken up by victims' thyroid tissues (Thomas et al., 2011). The location of the thyroid and a visual representation of thyroid cancer is shown below (Yale School of Public Health, 2017).

**Risk Factors and Outcomes:** The Chernobyl accident evidently hit the immediate surrounding region the hardest, however geographic location was not the only risk factor of contracting thyroid cancer from ionizing radiation. The most notable determinant is hypothesized to be age at the time of the accident; childhood and adolescent thyroids are more susceptible to radiation than fully developed, adult thyroids (Thomas et al., 2011). Overall, the thyroid cancer frequency in Ukraine after the accident is an increase from 0.9 to 1.6 per 100,000 males and from 2.7 to 6.2 per 100,000 females. Additional studies have concluded that, regardless of age, female incidence exceeds that of male's (Fuzik et al., 2011).

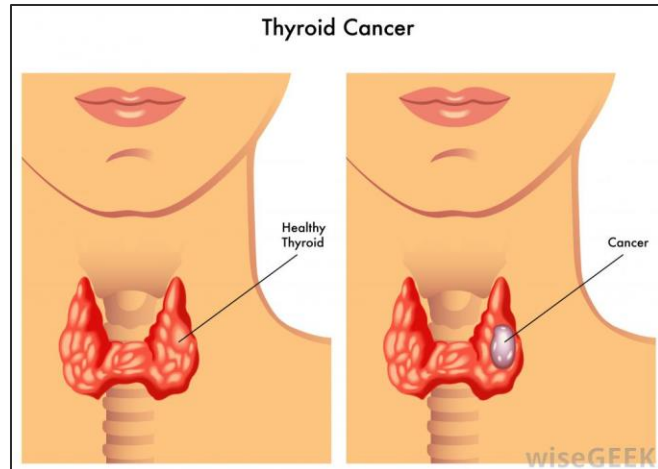


Image: Yale School of Public Health, 2017

**Identification of the Problem:** The steep increase in thyroid cancer was identified through the Ukrainian cancer registry and subsequent cohort and case-control studies. Many radiation-induced thyroid cancer cases were not reported until 4 years after the Chernobyl accident, when the malignancy developed (Fuzik et al., 2011). The cohorts studied range from power plant workers (Boehm et al., 2009), children aged 1-18 at the time of the explosion, and evacuees at varying distances from the accident site (Fuzik et al., 2011).

**Public Health Intervention:** While the cancer registry provides significant details about the age of the individual at the time of the explosion and the age which they reported their cancer, other methods have been taken to identify the cancer presence. This includes physical examination of thyroid size, ultrasonography, and lab analyses of hormones and antibodies (Boehm et al., 2009). There is not a significant number of successful health interventions because of the size of the population affected and the individual effect and latency period vary (Fuzik et al., 2011). Additionally, there is a psychological component associated with the accident; there is general fear that the entire population was exposed to radioiodine and a belief that future generations may suffer the consequences (Thomas et al., 2011). An intervention for the entire population would be difficult to perform, but based on this fear, I would suggest that one way to address the problem is to determine those who have thyroid cancer and/or those who were most at risk (i.e. children aged 1-18 at the time who lived near the power plant, and potentially females prioritized over males) and perform thyroid cancer screenings on their children (i.e. those who now may be more susceptible to contracting thyroid cancer). This may extinguish the fear, ease psychological unrest, and potentially identify additional cancer cases.

#### References

- Beten International. (2011). Beten International: FAQ [Image]. Available from <http://www.beteninternational.com/>
- Boehm, B. O., Steinert, M., Dietrich, J. W., Peter, R. U., Belyi, D., Wagemaker, G., Rosinger, S., Fliedner, T. M., & Weiss, M. (2009). Thyroid examination in highly radiation-exposed workers after the Chernobyl accident. *European Journal of Endocrinology*, 160, 625-630. DOI:10.1530/EJE-08-0492
- Cable News Network [CNN]. (2017). Ukraine: Everything you need to know about how we got here. Retrieved from <http://www.cnn.com/>
- Central Intelligence Agency [CIA]. (2017). The World Factbook: Europe: Ukraine. Retrieved from <https://www.cia.gov/index.html>
- Fuzik, M., Prysyazhnyuk, A., Shibata, Y., Romanenko, A., Fedorenko, Z., Gulak, L., Gorah, Y., Gudzenko, N., Trotsyuk, N., Khukhrianska, O., Saenko, V., Yamashita, S. (2011). Thyroid cancer incidence in Ukraine: trends with reference to the Chernobyl accident. *Radiation & Environmental Biophysics*, 50, 47-55. DOI: 10.1007/s00411-010-0340-y
- Heath-Brown, N. (2017). Ukraine. In Heath-Brown, N., *The Statesmen's Yearbook 2017* (153rd ed.) (pp. 1216-1222). London: Macmillan Publishers Ltd.
- Thomas, G. A., Tronko, M. D., Tsyb, A. F., Tuttle, R. M. (2011). What Have We Learnt from Chernobyl? What Have We Still to Learn? *Elsevier Clinical Oncology*, 23, 229-233. DOI: 10.1016/j.clon.2011.02.001
- Yale School of Public Health (Yale University). (2017). Thyroid Cancer [Image]. Available from <http://publichealth.yale.edu/>