

# Cancer Staging

## What is Stage at Diagnosis?

Cancer staging is important in prognosis and treatment determination.<sup>1</sup> Cancers can be diagnosed at different stages in their development, and staging describes the severity of the cancer and the extent to which it has or has not spread in the body. Stage of cancer diagnosis may be expressed as numbers (for example, I, II, III, or IV) or by terms such as “in situ”, “localized,” “regional,” and “distant.”<sup>2</sup> Detecting cancers at an early stage may increase long-term survival and can lead to a reduction in mortality.<sup>3</sup>

Cancer diagnosed in the *in situ* and localized stages are generally referred to as **early-stage** tumors, whereas regional and distant tumors are referred to as **late-stage** tumors.<sup>3</sup> There are also some cancers that are either unstaged or the stage is unknown. The following definitions describe different stages at diagnosis.<sup>1</sup>

- ***In situ***: Abnormal cells are present only in the layer of cells in which they developed.
- **Localized**: Cancer is limited to the organ in which it began, without evidence of spread.
- **Regional**: Cancer has spread beyond the primary site to nearby lymph nodes or organs and tissues.
- **Distant**: Cancer has spread from the primary site to distant organs or distant lymph nodes.
- **Unstaged/Unknown**: There is not enough information to determine the stage.

## Why is tracking Stage at Diagnosis important?

People who do not have access to health care, do not receive regular, recommended cancer screening tests, or experience a delay in following up on abnormal screenings are at highest risk of being diagnosed with late-stage cancer.<sup>2</sup>

Tracking rates of late-stage cancer may be a good way to monitor the impact of cancer screening. For cancer types that can be found early (with established recommend screening guidelines), it is hoped that if more are detected in early stages, then fewer would be detected in late stages.<sup>2</sup> A lower rate of diagnosis at late stages is a potential sign of the effectiveness of cancer screening efforts. These lower rates can be expected to occur before decreases in death rates are seen. For example, a drop in new cases of late-stage breast cancer may likely be an early indicator of the lower death rates for this disease.<sup>2</sup>

Important differences among racial and ethnic groups in the percentage of cases diagnosed at a late stage contribute to disparities in cancer mortality.<sup>2</sup> An example of this is in breast cancer where differences in stage at diagnosis make up a large part of the racial difference in survival. Because African American women tend to be diagnosed with more advanced cases (when breast cancer is not as easily treated), chances for survival are lower. Access to good care and a lack of health insurance make it more likely women of some ethnic groups and those with low income will be diagnosed at more advanced stages. Efforts to improve breast cancer screening rates among women with low income and those who lack insurance, by addressing the barriers to screening, may help improve breast cancer survival.<sup>4</sup>

One of the national Healthy People 2020 goals is to reduce late-stage female breast cancer to 41.0 new cases per 100,000 females. This number comes from the national late stage diagnosis rate of

43.2 cases per 100,000 females in 2007.<sup>5</sup> The current late-stage breast cancer diagnosis rate is 47.1 per 100,000 females for Cuyahoga County, and 49.3 per 100,000 females for the City of Cleveland.

### **Which cancers are assessed for stage at diagnosis in this report?**

There were 8 cancer sites/types where stage at diagnosis (early, late, and unknown) was assessed. These include female breast, cervix, colon and rectum, lung and bronchus, melanoma of the skin, oral cavity and pharynx, prostate, and testicular cancer. Currently, there are only recommended screening guidelines for breast, cervical, and colon cancer; however, there are some potential screening methods available for melanoma of the skin, oral cavity and pharynx, prostate, and testicular cancer.<sup>6</sup> There is not a standard screening method for lung and bronchus at this time; however the National Lung Cancer Screening Trial is currently being analyzed and guidelines may be developed in the near future.<sup>7</sup> Talking with a physician is important in determining individual screening recommendations, as a patient's medical history may play a role in these discussions.

### **What are the current recommend screening guidelines for these selected cancers?**

The American Cancer Society and the U.S. Preventive Services Task Force current screening recommendations for the early detection of cancer are included in this section, with both agencies differing slightly in their guidelines. Please visit the American Cancer Society [www.cancer.org](http://www.cancer.org) and U.S. Preventive Services Task Force [www.uspreventiveservicestaskforce.org](http://www.uspreventiveservicestaskforce.org) for more information and talk with your doctor regarding individual recommendations.

### **References:**

1. National Cancer Institute. *Cancer Staging*. <http://www.cancer.gov/cancertopics/factsheet/Detection/staging>. (Accessed December 7, 2012).
2. National Cancer Institute. *Cancer Trends Progress Report-2011/2012 Update*. [http://progressreport.cancer.gov/doc\\_detail.asp?pid=1&did=2011&chid=103&coid=1021&mid=#high](http://progressreport.cancer.gov/doc_detail.asp?pid=1&did=2011&chid=103&coid=1021&mid=#high). (Accessed December 7, 2012).
3. Ohio Cancer Incidence Surveillance System, Ohio Department of Health and The Ohio State University, Columbus, Ohio, February, 2011. *Cancer Incidence and Mortality among Ohio Residents, 2003-2007*. [http://www.odh.ohio.gov/ASSETS/79F9E92E210F477D885F8EAC864E2F27/0206Monograph\\_Final.pdf](http://www.odh.ohio.gov/ASSETS/79F9E92E210F477D885F8EAC864E2F27/0206Monograph_Final.pdf).
4. Susan G. Komen for the Cure. *Distribution of Breast Cancer Stages in the Population*. October, 2012. <http://ww5.komen.org/Diagnosis/DistributionOfCancerStagesPopulation.html> (Accessed December 7, 2012).
5. Healthy People 2020. Cancer. Available at <http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=5> (Accessed December 7, 2012).
6. Ohio Cancer Incidence Surveillance System, Ohio Department of Health and The Ohio State University, Columbus, Ohio, March 2006. *Stage at Diagnosis for Selected Cancer Sites & Types in Ohio, 1998-2002*. (Accessed February 23, 2011).
7. American Cancer Society. Lung Cancer Detailed Guide. <http://www.cancer.org/Cancer/LungCancer-Non-SmallCell/DetailedGuide/non-small-cell-lung-cancer-detection>. (Accessed September, 21, 2011).

# 2005-2009 Cancer Staging Summary

## Cancers with Recommended Screening Guidelines

### Breast Cancer

- Cuyahoga County and the City of Cleveland had less breast cancer cases staged in the late stages compared to the nation, by approximately 2 to 7%.

Breast Cancer Cases and Average Annual Percent Stage at Diagnosis from 2005-2009				
	Total Number of cases	Early (%)	Late (%)	Unknown (%)
United States (2000-2009)	not available	61.3	36.1	2.6
Cuyahoga	6,688	67.9	28.9	3.2
Cleveland	1,609	62.7	33.9	3.4

- 40 of 94 City of Cleveland neighborhoods or suburban municipalities had late staging that is >30%.
  - Of those areas, 13 were higher than 40%, and 5 were higher than 50% late staged.

### Cervical Cancer

- Cuyahoga County was approximately 3% higher than the nation for late stage cervical cancer diagnoses and the City of Cleveland was approximately 9% higher than the nation.

Cervical Cancer Cases and Average Annual Percent Stage at Diagnosis from 2005-2009				
	Total Number of cases	Early (%)	Late (%)	Unknown (%)
United States (2000-2009)	not available	47.7	47.0	5.3
Cuyahoga	66	44.5	50.2	5.2
Cleveland	31	39.9	55.6	4.6

- 44 of 94 City of Cleveland neighborhoods or suburban municipalities had late staging that was >40%.
  - Of those areas, 27 were higher than 50% late staged.

### Colon Cancer

- Cuyahoga County and the City of Cleveland had less (7%) numbers of late staged colon cancer cases than the nation.

Colon and Rectum Cancer Cases and Average Annual Percent Stage at Diagnosis from 2005-2009				
	Total Number of cases	Early (%)	Late (%)	Unknown (%)
United States (2000-2009)	not available	39.9	54.1	5.9
Cuyahoga	4,061	42.6	47.2	10.1
Cleveland	1,278	41.3	47.3	11.3

- 68 of 94 City of Cleveland neighborhoods or suburban municipalities had late staging that was >40%.
  - Of those areas, 33 were higher than 50% late staged.

## Cancers with Available Screening Methods (without specific recommendations)

### Lung Cancer

- Cuyahoga County and the City of Cleveland both had less late staged lung cancer cases (approximately 5 to 7%) than the nation.

Lung and Bronchus Cancer Cases and Average Annual Percent Stage at Diagnosis from 2005-2009				
	Total Number of cases	Early (%)	Late (%)	Unknown (%)
United States (2000-2009)	not available	16.9	74.8	8.5
Cuyahoga	5,764	18.0	67.5	14.5
Cleveland	2,032	15.4	69.6	15.1

- 94% of the City of Cleveland neighborhoods or suburban municipalities had late staging that is >50%.

### Melanoma of the Skin

- Cuyahoga County had less (3%) late staged melanoma cancer cases than the nation, but the City of Cleveland had more melanoma (2%) late staged melanoma than the nation.

Melanoma of the Skin Cancer Cases and Average Annual Percent Stage at Diagnosis from 2005-2009				
	Total Number of cases	Early (%)	Late (%)	Unknown (%)
United States (2000-2009)	not available	83.7	12.1	4.2
Cuyahoga	1,892	87.6	9.0	3.4
Cleveland	219	80.8	14.2	5.0

- 30 of 94 City of Cleveland neighborhoods or suburban municipalities had late staging that was >10%.
  - o Of those, 11 were higher than 20% late staged.

### Oral Cavity and Pharynx Cancer

- Cuyahoga County and the City of Cleveland had higher numbers of oral cancers staged late compared to the nation by approximately 7 to 12%.

Oral Cavity and Pharynx Cancer Cases and Average Annual Percent Stage at Diagnosis from 2005-2009				
	Total Number of cases	Early (%)	Late (%)	Unknown (%)
United States (2000-2009)	not available	34.0	59.1	7.0
Cuyahoga	836	27.9	65.8	6.3
Cleveland	305	22.6	71.5	5.9

- 70 of 94 City of Cleveland neighborhoods or suburban municipalities had late staging that was >50%.

## Prostate Cancer

- Cuyahoga County had less (4%) late staged prostate cancer cases than the nation and the City of Cleveland had slightly lower (<1%) numbers of prostate cancers staged late compared to

Prostate Cancer Cases and Average Annual Percent Stage at Diagnosis from 2005-2009				
	Total Number of cases	Early (%)	Late (%)	Unknown (%)
United States (2000-2009)	not available	80.2	15.4	4.4
Cuyahoga	5,290	81.6	11.5	6.9
Cleveland	1,320	76.4	15.0	8.6

the nation.

- 56 of 94 City of Cleveland neighborhoods or suburban municipalities had late staging that was >10%.
  - Of those, 15 were higher than 20% late staged.

## Testicular Cancer

- Cuyahoga County and the City of Cleveland had more (9 -13%) late staged testicular cancer cases than the nation.

Testis Cancer Cases and Average Annual Percent Stage at Diagnosis from 2005-2009				
	Total Number of cases	Early (%)	Late (%)	Unknown (%)
United States (2000-2009)	not available	69.9	28.8	1.6
Cuyahoga	157	59.9	37.6	2.5
Cleveland	36	55.6	41.7	2.8

- 33 of 94 City of Cleveland neighborhoods or suburban municipalities had late staging that was >20%.
  - Of those, 30 were higher than 30% late staged, and 19 were higher than 40% late staged.

# American Cancer Society Guidelines for Early Detection of Cancer<sup>1</sup>

For more information on how to reduce your cancer risk and other questions about cancer, contact the American Cancer Society (1-800-227-2345) [www.cancer.org](http://www.cancer.org)

## General Ways to Reduce Cancer Risk

- Stay away from tobacco
- Stay at a healthy weight
- Get moving with regular physical activity
- Limit how much alcohol you drink (if you drink at all)
- Protect your skin
- Know yourself, your family history, and your risks
- Have regular check-ups and cancer screening tests

## Cancer-related check-ups

- For people aged 20 or older having periodic health exams, a cancer-related check-up should include health counseling and, depending on a person's age and gender, exams for cancers of the thyroid, oral cavity, skin, lymph nodes, testes, and ovaries, as well as for some non-malignant (non-cancerous) diseases.

## Breast cancer

- Yearly mammograms are recommended starting at age 40 and continuing for as long as a woman is in good health
- Clinical breast exam (CBE) about every 3 years for women in their 20s and 30s and every year for women 40 and over
- Women should know how their breasts normally look and feel and report any breast change promptly to their health care provider. Breast self-exam (BSE) is an option for women starting in their 20s.
- Some women – because of their family history, a genetic tendency, or certain other factors – should be screened with MRI in addition to mammograms. Talk with your doctor about your history and whether you should have additional tests at an earlier age.

## Colorectal cancer and polyps

- Some people should be screened using a different schedule because of their personal history or family history. Talk with your doctor about your history and what colorectal cancer screening schedule is best for you.
- Beginning at age 50, both men and women should follow one of these testing schedules:
  - Flexible sigmoidoscopy every 5 years\*, or
  - Colonoscopy every 10 years, or
  - Double-contrast barium enema every 5 years\*, or
  - CT colonography (virtual colonoscopy) every 5 years\*
  - Yearly fecal occult blood test (gFOBT)\*, \*\*, or
  - Yearly fecal immunochemical test (FIT) every year\*, \*\*, or
  - Stool DNA test (sDNA)\*\*\*

\* If the test is positive, a colonoscopy should be done.

\*\* The multiple stool take-home test should be used. One test done by the doctor in the office is not adequate for testing. A colonoscopy should be done if the test is positive.

\*\*\* This test is no longer available.

## Cervical cancer

- Cervical cancer screening (testing) should begin at age 21. Women under age 21 should *not* be tested.
- Women between ages 21 and 29 should have a Pap test every 3 years. Now there is also a test called the HPV test. HPV testing should *not* be used in this age group unless it is needed after an abnormal Pap test result.
- Women between the ages of 30 and 65 should have a Pap test plus an HPV test (called “co-testing”) every 5 years. This is the preferred approach, but it is also OK to have a Pap test alone every 3 years.
- Women over age 65 who have had regular cervical cancer testing with normal results should *not* be tested for cervical cancer. Once testing is stopped, it should not be started again. Women with a history of a serious cervical pre-cancer should continue to be tested for at least 20 years after that diagnosis, even if testing continues past age 65.
- A woman who has had her uterus removed (and also her cervix) for reasons not related to cervical cancer and who has no history of cervical cancer or serious pre-cancer should *not* be tested.
- A woman who has been vaccinated against HPV should still follow the screening recommendations for her age group.
- Some women – because of their history – may need to have a different screening schedule for cervical cancer.

## Endometrial (uterine) cancer

- The American Cancer Society recommends that at the time of menopause, all women should be told about the risks and symptoms of endometrial cancer. Women should report any unexpected bleeding or spotting to their doctors.
- Some women – because of their history – may need to consider having a yearly endometrial biopsy. Please talk with your doctor about your history.

## Prostate cancer

- The American Cancer Society recommends that men make an informed decision with their doctor about whether to be tested for prostate cancer. Research has not yet proven that the potential benefits of testing outweigh the harms of testing and treatment. The American Cancer Society believes that men should not be tested without learning about what we know and don't know about the risks and possible benefits of testing and treatment.
- Starting at age 50, men should talk to a doctor about the pros and cons of testing so they can decide if testing is the right choice for them. If they are African American or have a father or brother who had prostate cancer before age 65, men should have this talk with a doctor starting at age 45. If men decide to be tested, they should have the PSA blood test with or without a rectal exam. How often they are tested will depend on their PSA level.

1. *American Cancer Society Guidelines for the Early Detection of Cancer*. March 2012. American Cancer Society. <http://www.cancer.org/healthy/findcancerearly/cancerscreeningguidelines/american-cancer-society-guidelines-for-the-early-detection-of-cancer> (Accessed December 7, 2012).

# U.S. Preventive Services Task Force Cancer Screening Recommendations

## Breast cancer<sup>1</sup>

- The USPSTF recommends biennial screening mammography for women aged 50 to 74 years.
- The decision to start regular, biennial screening mammography before the age of 50 years should be an individual one and take patient context into account, including the patient's values regarding specific benefits and harms.

## Cervical cancer<sup>2</sup>

- The USPSTF recommends screening for cervical cancer in women ages 21 to 65 years with cytology (Pap smear) every 3 years or, for women ages 30 to 65 years who want to lengthen the screening interval, screening with a combination of cytology and human papillomavirus (HPV) testing every 5 years.

## Colorectal cancer and polyps<sup>3</sup>

- The USPSTF recommends screening for colorectal cancer (CRC) using fecal occult blood testing, sigmoidoscopy, or colonoscopy, in adults, beginning at age 50 years and continuing until age 75 years. The risks and benefits of these screening methods vary.

1. *Screening for Breast Cancer*, Topic Page. July 2010. U.S. Preventive Services Task Force. <http://www.uspreventiveservicestaskforce.org/uspstf/uspsbrca.htm> (Accessed December 7, 2012).

2. *Screening for Cervical Cancer*, Topic Page. April 2012. U.S. Preventive Services Task Force. <http://www.uspreventiveservicestaskforce.org/uspstf/uspscerv.htm> (Accessed December 7, 2012).

3. *Screening for Colorectal Cancer*, Topic Page. March 2009. U.S. Preventive Services Task Force. <http://www.uspreventiveservicestaskforce.org/uspstf/uspscolo.htm> (Accessed December 7, 2012).