

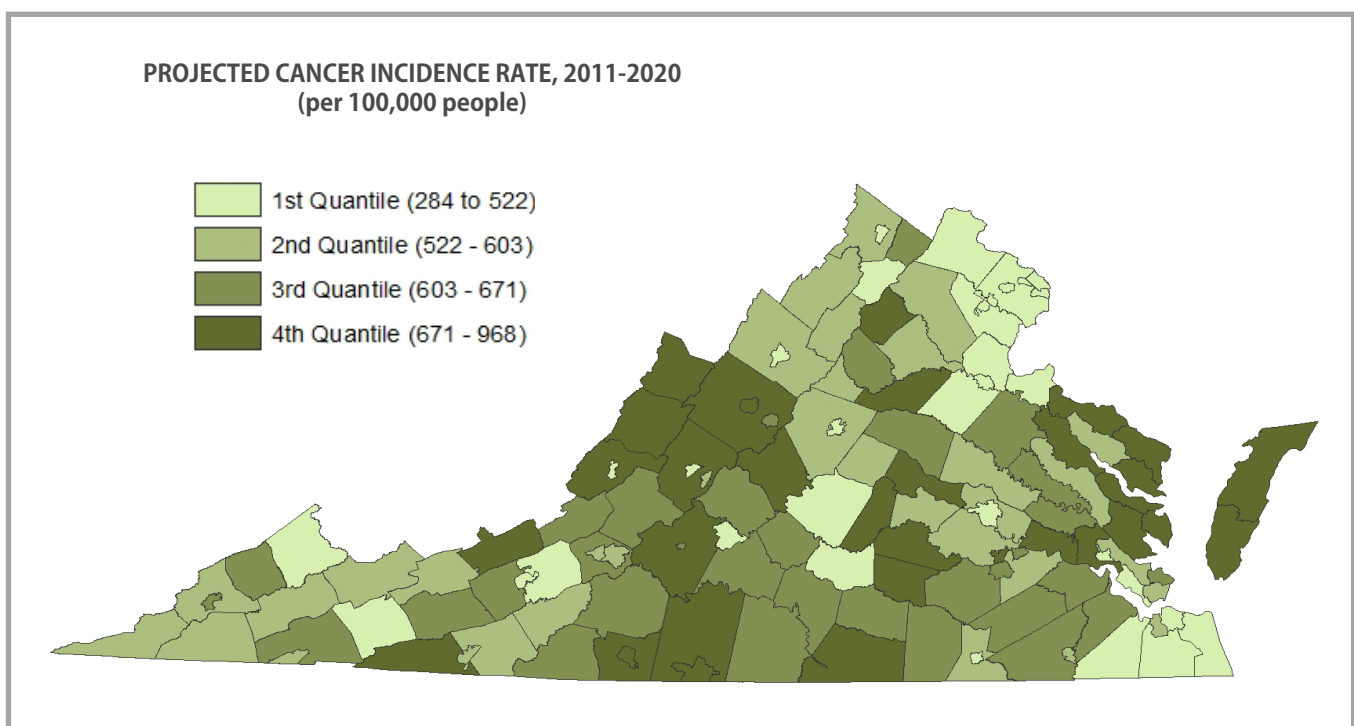
Projecting Cancer Incidence in Virginia

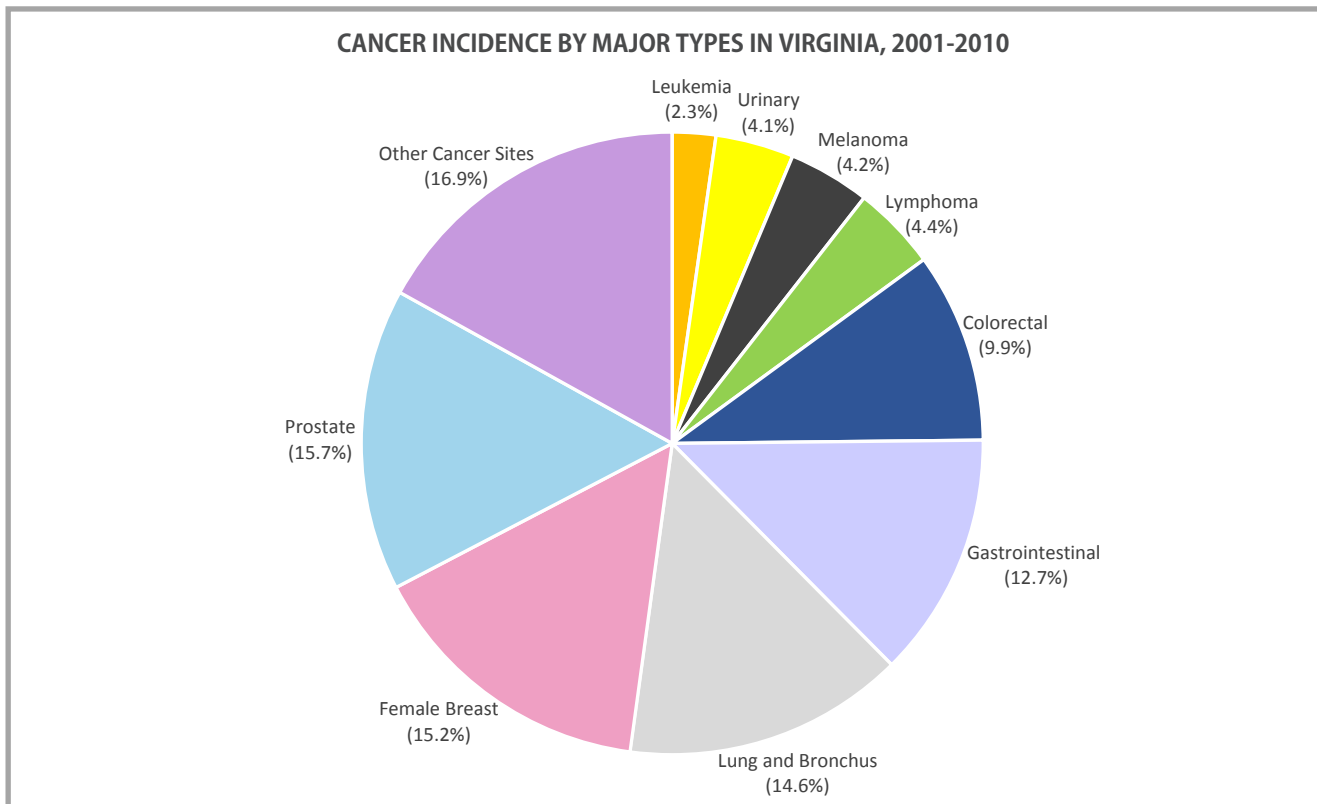
Cancer is a leading cause of death in Virginiaⁱ. Between 2001 and 2010, more than 300,000 new cancer cases were diagnosed. While steady and significant progress has been made in cancer diagnostic techniques, treatment, and survival, the impact of cancer on the lives of individuals and their families—and on the Commonwealth—is notable.

Anticipating the future burden of cancer in Virginia sets the stage for policy development and resource allocation appropriate to cancer's impact on individuals, families, communities, employers, the Virginia workforce, and an already stressed health care industry scrambling to keep up with demand. Projecting incidence of cancer in Virginia over the next few decades provides one element of the foundation to address these needsⁱⁱ.

The projected number of new cancer cases depends on both the size of the population and its age profile. Since the population of Virginia is growing and the baby-boomer generation is aging, and since the vast majority of cancer diagnoses occur in people over age 55,ⁱⁱⁱ we anticipate the increase of new cancer cases to significantly outpace population growth.

Cancer incidence projections were developed for Virginia, its 95 counties, and 39 independent cities,^{iv} over the three decades of 2011-2020, 2021-2030, and 2031-2040. Within this timeline and geography, we focused on the three most commonly occurring cancers—lung, breast (for females alone), and prostate (for males alone)—as well as an aggregate projection for all types/sites of cancer.





Some of the key findings are:

- In the near future, the projected cancer incidence growth outpaces the population growth, primarily due to an aging population. While the statewide population is projected to increase by about 10 percent by the end-point of each decade, the number of new cancer cases over the course of the decades ending in 2020, 2030, and 2040 is expected to increase by 26 percent, 20 percent, and 12 percent, respectively. The difference between the rate of population growth and the rate of increase in cancer incidence illuminates the significant impact of an aging population. The momentum of increase in the cancer burden is projected to slow each decade, especially after 2030, in part due to a much smaller baby-bust cohort, which followed the baby-boom generation.
- The highest projected number of new cancer cases for the current decade of 2011-2020 are in the state's major metropolitan areas, especially among population centers such as Fairfax County, Virginia Beach, Chesterfield, Henrico, and Prince William.
- On the other hand, the largest percentage increases are projected to take place in the fast-growing localities of Stafford, Loudon, Spotsylvania, Prince William and James City, which top the list for the highest projected change in terms of new cancer cases between the decades of 2001-2010 and 2011-2020.
- The cancer burden, measured by new cancer cases per 100,000 people, is greatest among some of Virginia's rural counties with older populations. While many rural communities are not expecting much growth in population

size, the aging of the community is certain and significant. Where the young tend to move away, and older residents continue to stay, cancer incidence rates are already high and keep rising over time as the population becomes even older. By 2020, Northampton, Lancaster, Northumberland, Middlesex, and Mathews are projected to be counties with the highest cancer incidence rates, above or near 900 cases per 100,000.

- Statewide, more than 70,000 prostate cancer cases, nearly 63,000 breast cancer cases, and 64,000 lung cancer cases are projected to be diagnosed during this decade, 2011-2020.
- Prostate cancer incidence rate is projected to increase to 191 cases per 100,000 people in 2031-2040, compared to 146 in 2001-2010. Population aging plays a key role in the increase of this highly age-associated, male-specific cancer. Female breast cancer cases per 100,000 is projected to increase from 134 to 154 between the same time periods.

While projections are inherently uncertain, as the future is largely unknown, accuracy at larger geographic levels—and for the near future—are believed to be highly valuable and useful. The Virginia cancer incidence projections, based on observed trends in both population and cancer rates, provide a lens to look into the future and

understand the burden of the disease. These projections not only illuminate the importance of research to prevent, diagnose, and treat cancer, but also highlight the needs and priorities for resource allocation across the Commonwealth as we come to terms with the disease over the next several decades.

Pending funding, the Demographics Research Group will develop additional projections for Virginia of incidence of other cancer types, and of deaths from cancer over the three decades in this report. In addition, three-decade projections of cancer incidence and deaths for the nation overall and for the 50 states can be developed, if funding is available.

ⁱ From *Cancer in Virginia 2014* release using VDH Division of Health Statistics, based on combined 2008-2012 data. Mortality rates are age-adjusted to the 2000 U.S. standard population.

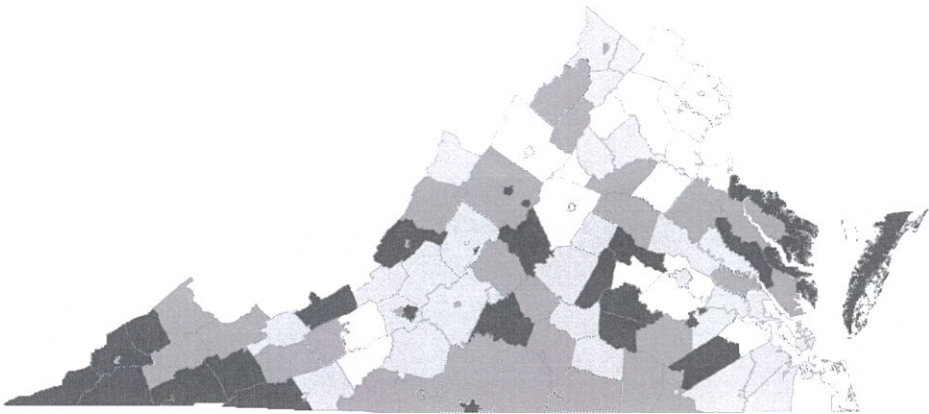
ⁱⁱ Please refer to the methodology document for details

ⁱⁱⁱ Age is an established risk factor for cancer. *Cancer Facts and Figures 2015*, The American Cancer Society

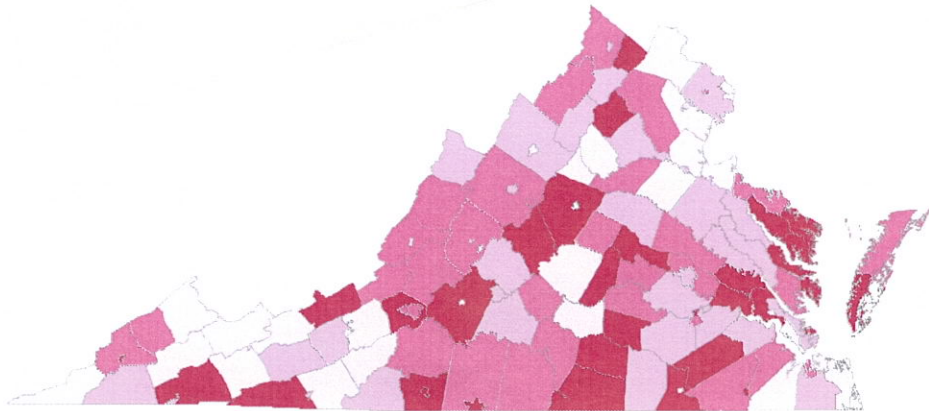
^{iv} Our projections are based on 2001-2010 Virginia Cancer Registry data which consider Bedford County and Bedford city as separate localities, we continue to report the numbers for them separately. As of July 2013, Bedford city reverted to being an incorporated town and lost its independent city status; so projections for Bedford County and Bedford city can be aggregated under a single locality.

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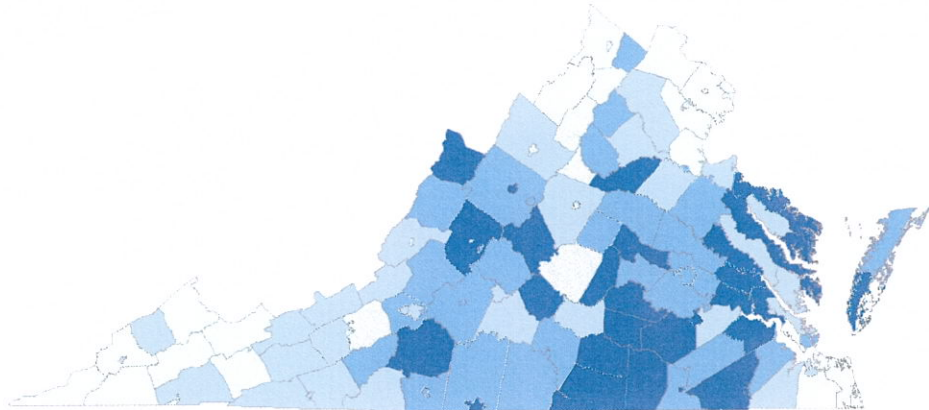
Lung Cancer Incidence Rate – 2001 to 2010



Breast Cancer Incidence Rate – 2001 to 2010



Prostate Cancer Incidence Rate – 2001 to 2010



Cancer Incidence Projections for Virginia and its Counties and Cities

Published by the Weldon Cooper Center for Public Service Demographics Research Group, April 2015

www.coopercenter.org/demographics/

FIPS Code	Locality	All Sites of Cancer Crude Rates for Total Population (per 100,000)			
		2001- 2010	2011- 2020	2021- 2030	2031- 2040
51000	Virginia, Statewide	453	509	557	572
51001	Accomack County	660	755	832	866
51003	Albemarle County	529	603	668	689
51005	Alleghany County	622	711	786	816
51007	Amelia County	604	704	779	808
51009	Amherst County	567	654	714	728
51011	Appomattox County	590	665	724	748
51013	Arlington County	344	356	368	367
51015	Augusta County	578	680	761	797
51017	Bath County	622	723	796	838
51019	Bedford County*	569	676	760	784
51021	Bland County	491	569	635	671
51023	Botetourt County	537	629	697	708
51025	Brunswick County	577	659	727	767
51027	Buchanan County	420	514	595	645
51029	Buckingham County	430	492	555	586
51031	Campbell County	576	655	717	739
51033	Caroline County	577	630	687	713
51035	Carroll County	524	593	649	670
51036	Charles City County	627	778	909	978
51037	Charlotte County	602	667	730	753
51041	Chesterfield County	460	555	622	642
51043	Clarke County	563	648	734	757
51045	Craig County	516	612	681	692
51047	Culpeper County	506	561	620	645
51049	Cumberland County	663	737	799	820
51051	Dickenson County	556	643	725	770
51053	Dinwiddie County	580	642	695	711
51057	Essex County	634	697	755	764
51059	Fairfax County	365	417	451	457
51061	Fauquier County	475	562	633	651
51063	Floyd County	515	575	623	634
51065	Fluvanna County	537	600	667	709
51067	Franklin County	543	631	704	732
51069	Frederick County	464	526	574	587

FIPS Code	Locality	All Sites of Cancer Crude Rates for Total Population (per 100,000)			
		2001- 2010	2011- 2020	2021- 2030	2031- 2040
51071	Giles County	632	695	750	768
51073	Gloucester County	551	672	780	828
51075	Goochland County	693	817	919	945
51077	Grayson County	611	715	787	812
51079	Greene County	442	527	587	606
51081	Greensville County	544	604	658	725
51083	Halifax County	566	642	702	718
51085	Hanover County	508	599	655	659
51087	Henrico County	484	527	562	565
51089	Henry County	594	704	787	826
51091	Highland County	601	728	843	886
51093	Isle of Wight County	557	672	776	814
51095	James City County	624	737	839	886
51097	King and Queen County	510	584	662	702
51099	King George County	441	495	555	581
51101	King William County	563	631	694	720
51103	Lancaster County	857	955	1,049	1,084
51105	Lee County	494	541	597	643
51107	Loudoun County	296	328	348	347
51109	Louisa County	562	645	723	756
51111	Lunenburg County	574	637	700	739
51113	Madison County	532	614	680	704
51115	Mathews County	781	879	958	987
51117	Mecklenburg County	623	708	775	804
51119	Middlesex County	816	918	1,018	1,059
51121	Montgomery County	328	370	401	410
51125	Nelson County	734	864	978	1,020
51127	New Kent County	518	630	716	737
51131	Northampton County	854	967	1,077	1,143
51133	Northumberland County	862	948	1,026	1,054
51135	Nottoway County	624	678	737	762
51137	Orange County	662	717	782	813
51139	Page County	532	595	651	678
51141	Patrick County	552	653	729	766
51143	Pittsylvania County	576	675	757	781
51145	Powhatan County	476	590	672	687
51147	Prince Edward County	436	480	531	551
51149	Prince George County	446	572	673	724
51153	Prince William County	294	356	406	426
51155	Pulaski County	564	647	716	747

FIPS Code	Locality	All Sites of Cancer Crude Rates for Total Population (per 100,000)			
		2001- 2010	2011- 2020	2021- 2030	2031- 2040
51157	Rappahannock County	595	715	799	819
51159	Richmond County	529	576	630	676
51161	Roanoke County	547	614	671	684
51163	Rockbridge County	592	700	774	800
51165	Rockingham County	524	591	646	663
51167	Russell County	458	540	604	627
51169	Scott County	519	578	633	661
51171	Shenandoah County	542	589	634	645
51173	Smyth County	444	494	535	551
51175	Southampton County	533	629	740	791
51177	Spotsylvania County	441	520	584	608
51179	Stafford County	356	417	463	475
51181	Surry County	524	631	730	769
51183	Sussex County	563	622	677	728
51185	Tazewell County	496	562	626	658
51187	Warren County	472	523	572	587
51191	Washington County	584	661	725	754
51193	Westmoreland County	690	768	837	867
51195	Wise County	515	567	622	655
51197	Wythe County	541	611	676	712
51199	York County	463	550	611	627
51510	Alexandria city	352	386	411	413
51515	Bedford city*	602	619	658	667
51520	Bristol city	524	536	568	583
51530	Buena Vista city	560	575	583	569
51540	Charlottesville city	384	422	456	471
51550	Chesapeake city	427	503	562	584
51570	Colonial Heights city	642	675	696	691
51580	Covington city	476	501	546	569
51590	Danville city	637	680	729	739
51595	Emporia city	505	504	519	519
51600	Fairfax city	446	490	526	536
51610	Falls Church city	457	470	477	452
51620	Franklin city	552	597	648	656
51630	Fredericksburg city	493	476	490	500
51640	Galax city	524	550	571	578
51650	Hampton city	483	561	617	632
51660	Harrisonburg city	313	312	314	308
51670	Hopewell city	576	622	669	690
51678	Lexington city	410	407	419	412

FIPS Code	Locality	All Sites of Cancer Crude Rates for Total Population (per 100,000)			
		2001- 2010	2011- 2020	2021- 2030	2031- 2040
51680	Lynchburg city	485	481	493	489
51683	Manassas city	314	378	427	444
51685	Manassas Park city	248	284	314	337
51690	Martinsville city	641	680	734	760
51700	Newport News city	415	468	518	540
51710	Norfolk city	389	427	486	522
51720	Norton city	562	606	668	694
51730	Petersburg city	596	650	717	758
51735	Poquoson city	546	672	773	820
51740	Portsmouth city	503	554	610	641
51750	Radford city	323	322	328	327
51760	Richmond city	492	502	524	527
51770	Roanoke city	538	565	608	626
51775	Salem city	505	536	564	560
51790	Staunton city	620	680	724	733
51800	Suffolk city	469	509	551	568
51810	Virginia Beach city	386	478	567	619
51820	Waynesboro city	613	629	653	657
51830	Williamsburg city	402	440	457	457
51840	Winchester city	488	502	516	515

NOTES:

* Since our projections are based on 2001-2010 Virginia Cancer Registry cancer incidence data (rates and counts) which consider Bedford County and Bedford city as separate localities, we continue to report the numbers for them separately. As of July 2013, Bedford city reverted to being an incorporated town and lost its independent city status; so projections for Bedford County and Bedford city can be aggregated under a single locality.

Cancer Incidence Projections for Virginia and its Counties and Cities

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FIPS Code	Locality	All Sites of Cancer Incidence for Total Population			
		2001- 2010 Counts	2011- 2020 Projections	2021- 2030 Projections	2031- 2040 Projections
51000	Virginia, Statewide	342,680	430,760	518,510	583,154
51001	Accomack County	2,339	2,516	2,788	2,913
51003	Albemarle County	4,759	6,520	8,408	10,029
51005	Alleghany County	1,029	1,135	1,223	1,245
51007	Amelia County	726	921	1,069	1,150
51009	Amherst County	1,824	2,150	2,421	2,541
51011	Appomattox County	847	1,027	1,175	1,265
51013	Arlington County	6,733	7,375	7,515	7,308
51015	Augusta County	4,038	5,270	6,424	7,295
51017	Bath County	302	341	377	402
51019	Bedford County*	3,685	4,963	6,247	7,180
51021	Bland County	339	394	452	492
51023	Botetourt County	1,702	2,159	2,527	2,698
51025	Brunswick County	1,027	1,139	1,248	1,313
51027	Buchanan County	1,073	1,220	1,388	1,502
51029	Buckingham County	704	860	998	1,072
51031	Campbell County	3,038	3,697	4,247	4,564
51033	Caroline County	1,456	1,898	2,235	2,456
51035	Carroll County	1,559	1,797	1,995	2,080
51036	Charles City County	449	589	738	847
51037	Charlotte County	749	837	910	932
51041	Chesterfield County	13,323	19,753	27,088	33,933
51043	Clarke County	753	945	1,137	1,233
51045	Craig County	265	329	390	420
51047	Culpeper County	2,083	2,878	3,708	4,427
51049	Cumberland County	626	764	867	924
51051	Dickenson County	887	1,012	1,123	1,176
51053	Dinwiddie County	1,527	1,852	2,089	2,200
51057	Essex County	672	806	922	976
51059	Fairfax County	37,658	47,438	55,552	60,121
51061	Fauquier County	2,893	3,938	5,011	5,772
51063	Floyd County	750	898	1,005	1,045
51065	Fluvanna County	1,267	1,650	2,040	2,363
51067	Franklin County	2,849	3,759	4,627	5,259
51069	Frederick County	3,219	4,666	6,279	7,871

FIPS Code	Locality	All Sites of Cancer Incidence for Total Population			
		2001- 2010 Counts	2011- 2020 Projections	2021- 2030 Projections	2031- 2040 Projections
51071	Giles County	1,066	1,222	1,356	1,421
51073	Gloucester County	1,972	2,583	3,217	3,645
51075	Goochland County	1,341	1,880	2,304	2,531
51077	Grayson County	1,008	1,091	1,170	1,187
51079	Greene County	757	1,028	1,252	1,391
51081	Greensville County	638	747	825	916
51083	Halifax County	2,065	2,310	2,501	2,540
51085	Hanover County	4,808	6,584	8,495	10,004
51087	Henrico County	13,732	17,492	21,299	24,184
51089	Henry County	3,327	3,814	4,311	4,617
51091	Highland County	149	167	192	202
51093	Isle of Wight County	1,822	2,501	3,148	3,548
51095	James City County	3,671	5,717	8,283	11,008
51097	King and Queen County	343	414	487	532
51099	King George County	898	1,263	1,593	1,832
51101	King William County	828	1,053	1,240	1,353
51103	Lancaster County	981	1,106	1,256	1,343
51105	Lee County	1,227	1,368	1,460	1,504
51107	Loudoun County	7,293	11,771	15,437	18,361
51109	Louisa County	1,678	2,277	2,809	3,177
51111	Lunenburg County	743	823	911	968
51113	Madison County	689	841	976	1,053
51115	Mathews County	705	804	911	977
51117	Mecklenburg County	2,041	2,324	2,552	2,653
51119	Middlesex County	855	1,042	1,224	1,334
51121	Montgomery County	2,916	3,718	4,467	5,015
51125	Nelson County	1,076	1,301	1,474	1,531
51127	New Kent County	830	1,251	1,587	1,782
51131	Northampton County	1,083	1,185	1,298	1,365
51133	Northumberland County	1,065	1,185	1,315	1,385
51135	Nottoway County	978	1,081	1,190	1,242
51137	Orange County	2,001	2,566	3,097	3,503
51139	Page County	1,255	1,461	1,660	1,786
51141	Patrick County	1,045	1,207	1,355	1,440
51143	Pittsylvania County	3,592	4,295	4,822	4,974
51145	Powhatan County	1,223	1,784	2,286	2,589
51147	Prince Edward County	936	1,162	1,347	1,445
51149	Prince George County	1,529	2,108	2,603	2,915
51153	Prince William County	10,220	16,007	21,701	26,419
51155	Pulaski County	1,968	2,285	2,590	2,769

FIPS Code	Locality	All Sites of Cancer Incidence for Total Population			
		2001- 2010 Counts	2011- 2020 Projections	2021- 2030 Projections	2031- 2040 Projections
51157	Rappahannock County	428	538	621	655
51159	Richmond County	488	548	629	704
51161	Roanoke County	4,822	5,878	6,813	7,315
51163	Rockbridge County	1,287	1,585	1,786	1,870
51165	Rockingham County	3,763	4,745	5,632	6,237
51167	Russell County	1,336	1,565	1,763	1,846
51169	Scott County	1,194	1,333	1,449	1,503
51171	Shenandoah County	2,123	2,598	3,017	3,272
51173	Smyth County	1,448	1,593	1,736	1,805
51175	Southampton County	955	1,172	1,377	1,462
51177	Spotsylvania County	4,801	7,619	11,562	16,134
51179	Stafford County	4,023	6,507	9,928	13,934
51181	Surry County	362	457	555	611
51183	Sussex County	684	753	825	897
51185	Tazewell County	2,204	2,540	2,839	2,995
51187	Warren County	1,647	2,087	2,520	2,817
51191	Washington County	3,088	3,706	4,208	4,500
51193	Westmoreland County	1,174	1,378	1,575	1,703
51195	Wise County	2,106	2,331	2,523	2,629
51197	Wythe County	1,525	1,812	2,051	2,196
51199	York County	2,879	3,909	4,978	5,804
51510	Alexandria city	4,736	5,509	6,025	6,133
51515	Bedford city*	378	399	453	491
51520	Bristol city	915	983	1,093	1,170
51530	Buena Vista city	369	398	433	450
51540	Charlottesville city	1,685	1,885	2,122	2,258
51550	Chesapeake city	9,077	12,045	15,241	17,735
51570	Colonial Heights city	1,113	1,220	1,343	1,414
51580	Covington city	287	307	353	390
51590	Danville city	2,884	2,909	3,132	3,231
51595	Emporia city	288	314	353	383
51600	Fairfax city	983	1,137	1,279	1,351
51610	Falls Church city	513	614	680	689
51620	Franklin city	462	534	626	679
51630	Fredericksburg city	1,094	1,217	1,352	1,460
51640	Galax city	368	405	456	496
51650	Hampton city	6,801	7,685	8,469	8,777
51660	Harrisonburg city	1,422	1,668	1,943	2,186
51670	Hopewell city	1,287	1,444	1,628	1,752
51678	Lexington city	289	299	333	352

FIPS Code	Locality	All Sites of Cancer Incidence for Total Population			
		2001- 2010 Counts	2011- 2020 Projections	2021- 2030 Projections	2031- 2040 Projections
51680	Lynchburg city	3,422	3,761	4,053	4,184
51683	Manassas city	1,179	1,518	1,902	2,175
51685	Manassas Park city	310	442	552	652
51690	Martinsville city	924	954	1,077	1,179
51700	Newport News city	7,528	8,569	9,731	10,380
51710	Norfolk city	9,287	10,591	12,423	13,563
51720	Norton city	217	248	290	320
51730	Petersburg city	1,941	2,118	2,370	2,550
51735	Poquoson city	649	871	1,119	1,308
51740	Portsmouth city	4,883	5,296	5,913	6,342
51750	Radford city	512	546	588	619
51760	Richmond city	9,735	10,323	10,884	11,053
51770	Roanoke city	5,127	5,552	6,101	6,387
51775	Salem city	1,242	1,361	1,498	1,549
51790	Staunton city	1,487	1,648	1,821	1,909
51800	Suffolk city	3,531	4,711	5,928	7,065
51810	Virginia Beach city	16,876	20,922	24,605	26,256
51820	Waynesboro city	1,255	1,368	1,504	1,586
51830	Williamsburg city	532	653	740	792
51840	Winchester city	1,251	1,365	1,487	1,554

NOTES:

* Since our projections are based on 2001-2010 Virginia Cancer Registry cancer incidence data (rates and counts) which consider Bedford County and Bedford city as separate localities, we continue to report the numbers for them separately. As of July 2013, Bedford city reverted to being an incorporated town and lost its independent city status; so projections for Bedford County and Bedford city can be aggregated under a single locality.

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FIPS Code	Locality	Lung Cancer Crude Rates for Total Population (per 100,000)			
		2001- 2010	2011- 2020	2021- 2030	2031- 2040
51000	Virginia, Statewide	66	77	87	90
51001	Accomack County	129	150	169	176
51003	Albemarle County	69	81	93	97
51005	Alleghany County	119	139	158	166
51007	Amelia County	100	117	133	143
51009	Amherst County	98	115	128	133
51011	Appomattox County	99	115	130	135
51013	Arlington County	35	37	39	39
51015	Augusta County	89	109	125	132
51017	Bath County	89	106	120	128
51019	Bedford County*	86	107	125	131
51021	Bland County	80	96	108	115
51023	Botetourt County	77	92	105	108
51025	Brunswick County	91	104	117	125
51027	Buchanan County	89	112	132	144
51029	Buckingham County	71	82	94	100
51031	Campbell County	104	121	135	139
51033	Caroline County	99	110	124	129
51035	Carroll County	84	98	110	115
51036	Charles City County	86	108	126	133
51037	Charlotte County	96	107	121	125
51041	Chesterfield County	63	80	95	99
51043	Clarke County	83	99	119	126
51045	Craig County	81	98	114	122
51047	Culpeper County	76	87	101	107
51049	Cumberland County	109	124	135	138
51051	Dickenson County	118	141	162	174
51053	Dinwiddie County	99	111	122	126
51057	Essex County	96	108	119	120
51059	Fairfax County	37	44	51	52
51061	Fauquier County	58	72	83	85
51063	Floyd County	58	67	75	77
51065	Fluvanna County	76	86	97	106
51067	Franklin County	80	96	110	116
51069	Frederick County	74	87	97	101

FIPS Code	Locality	Lung Cancer Crude Rates for Total Population (per 100,000)			
		2001- 2010	2011- 2020	2021- 2030	2031- 2040
51071	Giles County	109	121	132	136
51073	Gloucester County	90	113	134	142
51075	Goochland County	103	125	143	149
51077	Grayson County	118	141	156	158
51079	Greene County	68	86	100	104
51081	Greensville County	94	106	115	126
51083	Halifax County	94	109	122	124
51085	Hanover County	69	86	98	101
51087	Henrico County	67	75	82	84
51089	Henry County	93	112	127	134
51091	Highland County	74	97	122	121
51093	Isle of Wight County	84	105	128	133
51095	James City County	69	84	98	105
51097	King and Queen County	114	135	160	170
51099	King George County	65	75	87	91
51101	King William County	86	98	113	118
51103	Lancaster County	121	136	151	156
51105	Lee County	118	131	146	157
51107	Loudoun County	30	35	39	40
51109	Louisa County	95	112	129	137
51111	Lunenburg County	77	87	96	102
51113	Madison County	70	83	91	92
51115	Mathews County	120	137	151	156
51117	Mecklenburg County	97	112	124	129
51119	Middlesex County	144	165	188	196
51121	Montgomery County	44	51	57	58
51125	Nelson County	117	141	166	177
51127	New Kent County	93	116	136	141
51131	Northampton County	172	196	224	242
51133	Northumberland County	125	138	149	152
51135	Nottoway County	107	119	132	136
51137	Orange County	98	107	121	129
51139	Page County	93	106	119	124
51141	Patrick County	91	109	124	131
51143	Pittsylvania County	92	110	127	132
51145	Powhatan County	65	83	99	103
51147	Prince Edward County	73	82	92	95
51149	Prince George County	73	97	118	127
51153	Prince William County	35	46	55	59
51155	Pulaski County	92	109	122	128

FIPS Code	Locality	Lung Cancer Crude Rates for Total Population (per 100,000)			
		2001- 2010	2011- 2020	2021- 2030	2031- 2040
51157	Rappahannock County	68	89	105	108
51159	Richmond County	92	101	113	124
51161	Roanoke County	77	89	101	103
51163	Rockbridge County	79	95	106	108
51165	Rockingham County	68	78	88	90
51167	Russell County	95	116	133	138
51169	Scott County	110	125	139	146
51171	Shenandoah County	93	103	114	117
51173	Smyth County	109	123	135	141
51175	Southampton County	82	98	119	133
51177	Spotsylvania County	63	78	92	97
51179	Stafford County	51	63	74	77
51181	Surry County	65	80	97	106
51183	Sussex County	101	113	124	135
51185	Tazewell County	91	105	120	125
51187	Warren County	87	99	111	114
51191	Washington County	103	118	132	137
51193	Westmoreland County	126	142	157	163
51195	Wise County	118	133	148	156
51197	Wythe County	89	103	115	122
51199	York County	57	71	82	86
51510	Alexandria city	38	42	47	48
51515	Bedford city*	90	92	97	100
51520	Bristol city	103	105	114	118
51530	Buena Vista city	111	114	117	114
51540	Charlottesville city	56	61	69	72
51550	Chesapeake city	67	82	97	102
51570	Colonial Heights city	100	105	110	110
51580	Covington city	88	94	102	105
51590	Danville city	113	121	133	135
51595	Emporia city	72	70	75	76
51600	Fairfax city	55	62	69	73
51610	Falls Church city	49	53	58	53
51620	Franklin city	75	81	94	99
51630	Fredericksburg city	70	67	69	72
51640	Galax city	81	85	90	92
51650	Hampton city	71	85	97	100
51660	Harrisonburg city	40	40	41	40
51670	Hopewell city	111	122	134	137
51678	Lexington city	48	47	49	48

FIPS Code	Locality	Lung Cancer Crude Rates for Total Population (per 100,000)			
		2001- 2010	2011- 2020	2021- 2030	2031- 2040
51680	Lynchburg city	85	85	87	85
51683	Manassas city	41	52	62	67
51685	Manassas Park city	40	48	54	59
51690	Martinsville city	95	102	113	117
51700	Newport News city	65	74	85	90
51710	Norfolk city	66	73	86	93
51720	Norton city	96	105	119	124
51730	Petersburg city	116	128	145	154
51735	Poquoson city	57	77	93	102
51740	Portsmouth city	88	97	110	117
51750	Radford city	54	54	55	55
51760	Richmond city	81	83	88	88
51770	Roanoke city	100	107	118	121
51775	Salem city	89	96	103	102
51790	Staunton city	102	113	122	124
51800	Suffolk city	73	80	89	93
51810	Virginia Beach city	56	73	92	103
51820	Waynesboro city	103	105	111	113
51830	Williamsburg city	40	45	47	47
51840	Winchester city	92	94	100	100

NOTES:

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FIPS Code	Locality	Lung Cancer Incidence for Total Population			
		2001- 2010 Counts	2011- 2020 Projections	2021- 2030 Projections	2031- 2040 Projections
51000	Virginia, Statewide	50,060	64,318	79,892	90,666
51001	Accomack County	456	500	566	592
51003	Albemarle County	618	876	1,174	1,414
51005	Alleghany County	196	222	246	253
51007	Amelia County	120	154	183	203
51009	Amherst County	314	378	434	464
51011	Appomattox County	143	178	211	229
51013	Arlington County	690	765	792	771
51015	Augusta County	622	842	1,056	1,210
51017	Bath County	43	50	57	61
51019	Bedford County*	558	786	1,031	1,204
51021	Bland County	55	66	77	84
51023	Botetourt County	242	316	381	412
51025	Brunswick County	161	180	200	213
51027	Buchanan County	227	266	309	335
51029	Buckingham County	116	143	169	184
51031	Campbell County	546	682	798	860
51033	Caroline County	248	331	402	445
51035	Carroll County	251	297	339	357
51036	Charles City County	62	82	102	115
51037	Charlotte County	119	134	151	155
51041	Chesterfield County	1,816	2,856	4,122	5,226
51043	Clarke County	110	144	184	205
51045	Craig County	41	53	65	74
51047	Culpeper County	311	448	606	732
51049	Cumberland County	103	129	147	155
51051	Dickenson County	188	221	251	266
51053	Dinwiddie County	259	321	368	390
51057	Essex County	102	125	146	153
51059	Fairfax County	3,774	5,035	6,245	6,900
51061	Fauquier County	353	505	659	753
51063	Floyd County	85	104	121	127
51065	Fluvanna County	181	236	297	352
51067	Franklin County	418	570	722	832
51069	Frederick County	514	769	1,065	1,352

FIPS Code	Locality	Lung Cancer Incidence for Total Population			
		2001- 2010 Counts	2011- 2020 Projections	2021- 2030 Projections	2031- 2040 Projections
51071	Giles County	185	213	239	252
51073	Gloucester County	323	434	552	625
51075	Goochland County	200	287	359	400
51077	Grayson County	195	216	232	231
51079	Greene County	116	168	214	240
51081	Greensville County	110	131	144	159
51083	Halifax County	341	393	434	437
51085	Hanover County	654	940	1,276	1,532
51087	Henrico County	1,909	2,475	3,121	3,580
51089	Henry County	520	609	698	748
51091	Highland County	18	22	28	28
51093	Isle of Wight County	273	393	517	581
51095	James City County	405	650	968	1,310
51097	King and Queen County	76	96	118	129
51099	King George County	133	192	250	288
51101	King William County	126	164	201	222
51103	Lancaster County	138	158	181	193
51105	Lee County	293	333	357	368
51107	Loudoun County	725	1,249	1,727	2,097
51109	Louisa County	284	395	503	576
51111	Lunenburg County	100	112	125	133
51113	Madison County	90	113	131	138
51115	Mathews County	108	125	143	154
51117	Mecklenburg County	318	367	410	427
51119	Middlesex County	150	188	226	247
51121	Montgomery County	395	516	631	710
51125	Nelson County	171	212	251	265
51127	New Kent County	148	230	301	341
51131	Northampton County	219	240	270	289
51133	Northumberland County	154	173	191	200
51135	Nottoway County	168	189	213	222
51137	Orange County	295	384	478	556
51139	Page County	219	261	303	326
51141	Patrick County	171	202	230	246
51143	Pittsylvania County	572	702	808	841
51145	Powhatan County	165	252	336	390
51147	Prince Edward County	157	198	234	250
51149	Prince George County	249	359	456	510
51153	Prince William County	1,195	2,048	2,961	3,692
51155	Pulaski County	320	384	443	474

FIPS Code	Locality	Lung Cancer Incidence for Total Population			
		2001- 2010 Counts	2011- 2020 Projections	2021- 2030 Projections	2031- 2040 Projections
51157	Rappahannock County	49	67	82	86
51159	Richmond County	85	96	113	129
51161	Roanoke County	678	856	1,026	1,106
51163	Rockbridge County	171	215	245	252
51165	Rockingham County	485	629	766	852
51167	Russell County	276	336	389	407
51169	Scott County	253	288	318	332
51171	Shenandoah County	365	454	541	592
51173	Smyth County	356	397	440	461
51175	Southampton County	147	183	222	246
51177	Spotsylvania County	679	1,141	1,815	2,568
51179	Stafford County	572	985	1,584	2,257
51181	Surry County	45	58	74	85
51183	Sussex County	123	136	152	167
51185	Tazewell County	405	476	543	567
51187	Warren County	304	395	489	547
51191	Washington County	542	663	767	820
51193	Westmoreland County	215	255	296	319
51195	Wise County	480	547	602	626
51197	Wythe County	249	305	350	375
51199	York County	353	503	669	798
51510	Alexandria city	512	605	690	714
51515	Bedford city*	56	59	67	73
51520	Bristol city	179	193	219	236
51530	Buena Vista city	73	79	87	90
51540	Charlottesville city	246	274	320	346
51550	Chesapeake city	1,420	1,958	2,616	3,100
51570	Colonial Heights city	173	190	212	226
51580	Covington city	53	58	66	72
51590	Danville city	513	518	572	590
51595	Emporia city	41	44	51	56
51600	Fairfax city	122	144	169	184
51610	Falls Church city	54	70	82	81
51620	Franklin city	63	73	91	102
51630	Fredericksburg city	156	170	192	209
51640	Galax city	57	63	72	79
51650	Hampton city	999	1,162	1,324	1,383
51660	Harrisonburg city	184	215	254	284
51670	Hopewell city	248	284	326	348
51678	Lexington city	34	34	39	41

FIPS Code	Locality	Lung Cancer Incidence for Total Population			
		2001- 2010 Counts	2011- 2020 Projections	2021- 2030 Projections	2031- 2040 Projections
51680	Lynchburg city	598	665	719	731
51683	Manassas city	153	207	277	330
51685	Manassas Park city	50	74	96	114
51690	Martinsville city	137	143	166	181
51700	Newport News city	1,178	1,363	1,602	1,734
51710	Norfolk city	1,562	1,800	2,185	2,415
51720	Norton city	37	43	52	57
51730	Petersburg city	377	416	480	518
51735	Poquoson city	68	100	135	163
51740	Portsmouth city	849	929	1,068	1,159
51750	Radford city	86	91	99	104
51760	Richmond city	1,598	1,707	1,829	1,852
51770	Roanoke city	949	1,052	1,180	1,231
51775	Salem city	219	244	274	281
51790	Staunton city	246	273	306	324
51800	Suffolk city	544	739	955	1,158
51810	Virginia Beach city	2,465	3,201	3,984	4,368
51820	Waynesboro city	211	229	256	272
51830	Williamsburg city	54	67	76	81
51840	Winchester city	234	256	287	302

NOTES:

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FIPS Code	Locality	Breast Cancer Crude Rates for Female Population (per 100,000)			
		2001- 2010	2011- 2020	2021- 2030	2031- 2040
51000	Virginia, Statewide	134	145	152	154
51001	Accomack County	159	178	190	194
51003	Albemarle County	165	179	191	196
51005	Alleghany County	159	177	190	195
51007	Amelia County	159	175	180	179
51009	Amherst County	131	148	155	156
51011	Appomattox County	153	167	181	191
51013	Arlington County	127	129	132	131
51015	Augusta County	156	174	185	189
51017	Bath County	159	175	188	194
51019	Bedford County*	174	197	209	211
51021	Bland County	127	140	149	155
51023	Botetourt County	154	171	178	176
51025	Brunswick County	143	157	167	171
51027	Buchanan County	106	122	131	137
51029	Buckingham County	121	133	144	149
51031	Campbell County	143	156	165	167
51033	Caroline County	128	135	141	144
51035	Carroll County	126	140	151	152
51036	Charles City County	171	200	226	244
51037	Charlotte County	160	175	187	189
51041	Chesterfield County	139	154	164	168
51043	Clarke County	183	198	213	219
51045	Craig County	145	156	162	163
51047	Culpeper County	130	138	148	152
51049	Cumberland County	161	175	188	194
51051	Dickenson County	149	167	180	186
51053	Dinwiddie County	135	145	151	154
51057	Essex County	140	151	160	159
51059	Fairfax County	131	142	146	145
51061	Fauquier County	150	168	179	183
51063	Floyd County	124	136	143	142
51065	Fluvanna County	148	163	179	188
51067	Franklin County	145	163	176	178
51069	Frederick County	143	157	165	167

FIPS Code	Locality	Breast Cancer Crude Rates for Female Population (per 100,000)			
		2001- 2010	2011- 2020	2021- 2030	2031- 2040
51071	Giles County	168	178	187	187
51073	Gloucester County	150	178	200	207
51075	Goochland County	165	184	197	201
51077	Grayson County	173	192	204	210
51079	Greene County	108	124	134	135
51081	Greensville County	166	176	190	205
51083	Halifax County	154	165	173	177
51085	Hanover County	154	172	177	176
51087	Henrico County	146	154	158	158
51089	Henry County	165	185	198	204
51091	Highland County	133	149	163	173
51093	Isle of Wight County	159	181	196	203
51095	James City County	194	219	239	246
51097	King and Queen County	142	160	171	181
51099	King George County	121	133	142	144
51101	King William County	143	154	163	167
51103	Lancaster County	223	243	259	262
51105	Lee County	123	134	146	155
51107	Loudoun County	105	113	113	111
51109	Louisa County	133	150	163	166
51111	Lunenburg County	169	175	188	199
51113	Madison County	124	137	145	145
51115	Mathews County	185	200	208	207
51117	Mecklenburg County	169	186	197	203
51119	Middlesex County	190	206	214	221
51121	Montgomery County	113	122	129	130
51125	Nelson County	177	195	206	208
51127	New Kent County	171	192	207	213
51131	Northampton County	194	221	234	248
51133	Northumberland County	231	249	262	264
51135	Nottoway County	184	196	207	208
51137	Orange County	153	160	167	171
51139	Page County	129	139	147	151
51141	Patrick County	128	144	153	158
51143	Pittsylvania County	147	165	175	177
51145	Powhatan County	154	177	188	191
51147	Prince Edward County	121	133	142	144
51149	Prince George County	130	157	177	190
51153	Prince William County	98	111	118	119
51155	Pulaski County	133	147	157	161

FIPS Code	Locality	Breast Cancer Crude Rates for Female Population (per 100,000)			
		2001- 2010	2011- 2020	2021- 2030	2031- 2040
51157	Rappahannock County	179	195	202	205
51159	Richmond County	170	181	191	199
51161	Roanoke County	169	182	190	190
51163	Rockbridge County	158	177	186	187
51165	Rockingham County	140	153	162	163
51167	Russell County	117	131	139	139
51169	Scott County	138	147	153	155
51171	Shenandoah County	159	169	175	175
51173	Smyth County	94	102	107	109
51175	Southampton County	154	171	192	200
51177	Spotsylvania County	115	130	139	142
51179	Stafford County	108	121	127	127
51181	Surry County	139	162	180	188
51183	Sussex County	172	188	200	206
51185	Tazewell County	110	120	131	135
51187	Warren County	139	150	158	159
51191	Washington County	164	179	189	192
51193	Westmoreland County	159	175	183	183
51195	Wise County	152	164	176	183
51197	Wythe County	130	144	155	162
51199	York County	137	154	162	164
51510	Alexandria city	121	130	134	131
51515	Bedford city*	121	121	128	129
51520	Bristol city	133	135	141	142
51530	Buena Vista city	113	113	113	112
51540	Charlottesville city	117	128	135	138
51550	Chesapeake city	134	149	157	162
51570	Colonial Heights city	168	173	173	169
51580	Covington city	118	117	122	129
51590	Danville city	166	173	181	183
51595	Emporia city	118	122	121	122
51600	Fairfax city	143	153	157	155
51610	Falls Church city	162	158	159	154
51620	Franklin city	167	178	188	186
51630	Fredericksburg city	132	127	129	130
51640	Galax city	134	138	141	141
51650	Hampton city	135	148	157	160
51660	Harrisonburg city	82	80	80	78
51670	Hopewell city	128	133	139	141
51678	Lexington city	137	134	136	133

FIPS Code	Locality	Breast Cancer Crude Rates for Female Population (per 100,000)			
		2001- 2010	2011- 2020	2021- 2030	2031- 2040
51680	Lynchburg city	133	130	133	134
51683	Manassas city	100	113	124	128
51685	Manassas Park city	64	71	76	81
51690	Martinsville city	178	186	188	190
51700	Newport News city	126	137	147	151
51710	Norfolk city	117	126	139	147
51720	Norton city	187	200	213	215
51730	Petersburg city	150	159	171	179
51735	Poquoson city	178	198	212	218
51740	Portsmouth city	147	158	168	173
51750	Radford city	104	106	108	107
51760	Richmond city	137	136	140	144
51770	Roanoke city	143	148	156	159
51775	Salem city	151	154	158	158
51790	Staunton city	135	142	145	143
51800	Suffolk city	127	134	141	143
51810	Virginia Beach city	121	142	159	167
51820	Waynesboro city	156	157	160	161
51830	Williamsburg city	113	119	123	123
51840	Winchester city	136	136	134	136

NOTES:

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FIPS Code	Locality	Breast Cancer Incidence for Female Population			
		2001- 2010 Counts	2011- 2020 Projections	2021- 2030 Projections	2031- 2040 Projections
51000	Virginia, Statewide	52,019	62,718	72,677	80,714
51001	Accomack County	291	305	327	336
51003	Albemarle County	772	1,005	1,253	1,491
51005	Alleghany County	135	145	152	154
51007	Amelia County	97	117	127	132
51009	Amherst County	220	254	277	288
51011	Appomattox County	112	133	151	167
51013	Arlington County	1,248	1,342	1,352	1,310
51015	Augusta County	540	666	777	863
51017	Bath County	38	41	44	46
51019	Bedford County*	568	728	871	982
51021	Bland County	40	44	48	52
51023	Botetourt County	246	296	329	342
51025	Brunswick County	120	130	137	142
51027	Buchanan County	132	143	152	161
51029	Buckingham County	89	105	117	124
51031	Campbell County	388	454	505	535
51033	Caroline County	164	207	235	254
51035	Carroll County	190	216	236	242
51036	Charles City County	62	77	94	110
51037	Charlotte County	103	112	119	121
51041	Chesterfield County	2,090	2,855	3,719	4,639
51043	Clarke County	124	145	167	181
51045	Craig County	37	43	47	51
51047	Culpeper County	265	350	436	519
51049	Cumberland County	78	93	106	113
51051	Dickenson County	119	131	140	145
51053	Dinwiddie County	181	213	233	244
51057	Essex County	77	92	103	107
51059	Fairfax County	6,836	8,159	9,130	9,735
51061	Fauquier County	467	598	722	832
51063	Floyd County	91	106	115	118
51065	Fluvanna County	188	243	296	339
51067	Franklin County	386	494	591	655
51069	Frederick County	502	700	911	1,134

FIPS Code	Locality	Breast Cancer Incidence for Female Population			
		2001- 2010 Counts	2011- 2020 Projections	2021- 2030 Projections	2031- 2040 Projections
51071	Giles County	145	160	173	178
51073	Gloucester County	273	347	420	467
51075	Goochland County	160	214	250	272
51077	Grayson County	143	149	156	159
51079	Greene County	94	123	147	159
51081	Greensville County	73	81	90	100
51083	Halifax County	296	312	326	333
51085	Hanover County	743	962	1,176	1,373
51087	Henrico County	2,218	2,714	3,193	3,608
51089	Henry County	475	522	569	601
51091	Highland County	17	17	19	20
51093	Isle of Wight County	269	347	411	461
51095	James City County	592	882	1,228	1,604
51097	King and Queen County	48	57	64	71
51099	King George County	122	168	203	228
51101	King William County	107	132	150	162
51103	Lancaster County	136	150	165	174
51105	Lee County	150	163	173	176
51107	Loudoun County	1,331	2,053	2,563	3,004
51109	Louisa County	203	268	322	355
51111	Lunenburg County	102	107	116	125
51113	Madison County	83	96	107	112
51115	Mathews County	87	94	102	106
51117	Mecklenburg County	279	309	331	343
51119	Middlesex County	103	118	129	141
51121	Montgomery County	481	593	695	774
51125	Nelson County	135	151	160	162
51127	New Kent County	136	187	226	255
51131	Northampton County	128	141	148	157
51133	Northumberland County	149	160	172	179
51135	Nottoway County	137	148	159	163
51137	Orange County	238	292	339	378
51139	Page County	154	174	191	204
51141	Patrick County	123	136	146	153
51143	Pittsylvania County	470	536	573	582
51145	Powhatan County	181	247	295	334
51147	Prince Edward County	131	162	183	193
51149	Prince George County	205	264	316	354
51153	Prince William County	1,724	2,509	3,191	3,770
51155	Pulaski County	235	263	290	307

FIPS Code	Locality	Breast Cancer Incidence for Female Population			
		2001- 2010 Counts	2011- 2020 Projections	2021- 2030 Projections	2031- 2040 Projections
51157	Rappahannock County	65	73	79	82
51159	Richmond County	68	75	84	93
51161	Roanoke County	784	915	1,019	1,079
51163	Rockbridge County	173	204	219	223
51165	Rockingham County	512	628	722	787
51167	Russell County	174	194	208	211
51169	Scott County	163	172	178	180
51171	Shenandoah County	319	381	429	458
51173	Smyth County	157	169	180	185
51175	Southampton County	132	153	173	180
51177	Spotsylvania County	646	971	1,410	1,940
51179	Stafford County	615	940	1,359	1,861
51181	Surry County	49	60	70	77
51183	Sussex County	87	95	103	110
51185	Tazewell County	251	276	303	316
51187	Warren County	246	301	351	386
51191	Washington County	444	510	560	589
51193	Westmoreland County	139	161	177	186
51195	Wise County	308	327	348	360
51197	Wythe County	189	219	243	258
51199	York County	439	560	682	786
51510	Alexandria city	841	962	1,021	1,016
51515	Bedford city*	41	42	48	51
51520	Bristol city	126	132	144	152
51530	Buena Vista city	40	42	45	47
51540	Charlottesville city	273	299	330	348
51550	Chesapeake city	1,472	1,835	2,206	2,546
51570	Colonial Heights city	155	168	180	187
51580	Covington city	37	37	41	46
51590	Danville city	412	404	426	439
51595	Emporia city	37	41	45	49
51600	Fairfax city	161	180	194	200
51610	Falls Church city	92	105	116	119
51620	Franklin city	78	89	101	108
51630	Fredericksburg city	159	176	193	206
51640	Galax city	50	54	60	64
51650	Hampton city	981	1,060	1,129	1,170
51660	Harrisonburg city	198	227	263	296
51670	Hopewell city	153	166	182	194
51678	Lexington city	42	44	48	51

FIPS Code	Locality	Breast Cancer Incidence for Female Population			
		2001- 2010 Counts	2011- 2020 Projections	2021- 2030 Projections	2031- 2040 Projections
51680	Lynchburg city	505	539	581	607
51683	Manassas city	188	226	278	316
51685	Manassas Park city	39	55	66	77
51690	Martinsville city	141	142	152	162
51700	Newport News city	1,183	1,303	1,437	1,514
51710	Norfolk city	1,367	1,512	1,732	1,877
51720	Norton city	39	44	50	54
51730	Petersburg city	264	277	303	324
51735	Poquoson city	107	130	157	179
51740	Portsmouth city	744	786	851	897
51750	Radford city	87	94	102	106
51760	Richmond city	1,448	1,459	1,524	1,575
51770	Roanoke city	724	762	819	855
51775	Salem city	196	205	221	231
51790	Staunton city	176	189	201	206
51800	Suffolk city	500	648	792	931
51810	Virginia Beach city	2,702	3,192	3,558	3,680
51820	Waynesboro city	169	179	194	204
51830	Williamsburg city	80	93	106	113
51840	Winchester city	180	187	197	209

NOTES:

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Cancer Incidence Projections for Virginia and its Counties and Cities

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FIPS Code	Locality	Prostate Cancer Crude Rates for Male Population (per 100,000)			
		2001- 2010	2011- 2020	2021- 2030	2031- 2040
51000	Virginia, Statewide	146	173	191	191
51001	Accomack County	196	235	264	274
51003	Albemarle County	163	194	213	210
51005	Alleghany County	152	183	205	211
51007	Amelia County	281	343	382	381
51009	Amherst County	194	231	257	258
51011	Appomattox County	206	239	260	262
51013	Arlington County	101	113	117	115
51015	Augusta County	178	221	253	261
51017	Bath County	173	210	235	247
51019	Bedford County*	184	233	266	267
51021	Bland County	144	179	207	219
51023	Botetourt County	176	218	247	245
51025	Brunswick County	214	261	294	303
51027	Buchanan County	79	104	126	141
51029	Buckingham County	132	160	183	189
51031	Campbell County	170	200	221	224
51033	Caroline County	195	222	244	252
51035	Carroll County	137	163	183	188
51036	Charles City County	260	339	397	410
51037	Charlotte County	173	198	221	221
51041	Chesterfield County	181	229	252	247
51043	Clarke County	181	224	260	256
51045	Craig County	137	170	187	182
51047	Culpeper County	157	185	208	211
51049	Cumberland County	262	302	333	336
51051	Dickenson County	138	171	199	210
51053	Dinwiddie County	210	243	268	269
51057	Essex County	253	292	313	305
51059	Fairfax County	122	147	158	154
51061	Fauquier County	159	201	231	228
51063	Floyd County	179	210	231	233
51065	Fluvanna County	175	202	232	243
51067	Franklin County	203	248	279	282
51069	Frederick County	112	133	146	144

FIPS Code	Locality	Prostate Cancer Crude Rates for Male Population (per 100,000)			
		2001- 2010	2011- 2020	2021- 2030	2031- 2040
51071	Giles County	159	185	203	205
51073	Gloucester County	160	208	244	248
51075	Goochland County	292	370	427	428
51077	Grayson County	151	193	217	222
51079	Greene County	110	137	156	157
51081	Greensville County	193	224	247	277
51083	Halifax County	190	230	256	255
51085	Hanover County	185	230	252	241
51087	Henrico County	185	213	228	221
51089	Henry County	180	223	256	270
51091	Highland County	215	277	332	339
51093	Isle of Wight County	183	234	276	279
51095	James City County	236	287	329	339
51097	King and Queen County	144	173	196	197
51099	King George County	138	163	190	198
51101	King William County	203	239	265	266
51103	Lancaster County	361	414	458	463
51105	Lee County	87	99	114	124
51107	Loudoun County	94	110	120	116
51109	Louisa County	182	221	252	261
51111	Lunenburg County	202	235	263	275
51113	Madison County	192	232	262	268
51115	Mathews County	258	302	333	334
51117	Mecklenburg County	224	265	296	303
51119	Middlesex County	262	303	338	341
51121	Montgomery County	91	109	120	119
51125	Nelson County	259	328	377	380
51127	New Kent County	197	257	292	287
51131	Northampton County	279	327	362	378
51133	Northumberland County	383	428	471	474
51135	Nottoway County	224	255	285	292
51137	Orange County	243	271	305	312
51139	Page County	103	121	135	139
51141	Patrick County	167	208	239	250
51143	Pittsylvania County	196	243	278	279
51145	Powhatan County	188	249	289	288
51147	Prince Edward County	160	185	208	214
51149	Prince George County	145	198	235	250
51153	Prince William County	97	123	140	143
51155	Pulaski County	163	198	222	229

FIPS Code	Locality	Prostate Cancer Crude Rates for Male Population (per 100,000)			
		2001- 2010	2011- 2020	2021- 2030	2031- 2040
51157	Rappahannock County	177	228	256	246
51159	Richmond County	172	199	226	242
51161	Roanoke County	177	208	227	224
51163	Rockbridge County	209	257	289	291
51165	Rockingham County	155	185	208	212
51167	Russell County	115	148	172	181
51169	Scott County	135	157	174	181
51171	Shenandoah County	134	151	165	164
51173	Smyth County	92	109	123	128
51175	Southampton County	202	259	314	327
51177	Spotsylvania County	138	174	200	203
51179	Stafford County	104	130	147	147
51181	Surry County	226	297	353	335
51183	Sussex County	181	211	233	255
51185	Tazewell County	124	149	169	176
51187	Warren County	107	127	144	143
51191	Washington County	155	183	204	208
51193	Westmoreland County	224	255	280	288
51195	Wise County	101	116	128	133
51197	Wythe County	142	169	192	202
51199	York County	163	204	227	225
51510	Alexandria city	111	133	145	145
51515	Bedford city*	175	185	205	207
51520	Bristol city	115	123	134	137
51530	Buena Vista city	187	195	200	194
51540	Charlottesville city	123	143	156	158
51550	Chesapeake city	135	169	191	191
51570	Colonial Heights city	200	215	222	215
51580	Covington city	69	77	84	86
51590	Danville city	206	230	251	248
51595	Emporia city	203	213	224	220
51600	Fairfax city	128	147	159	159
51610	Falls Church city	171	187	187	170
51620	Franklin city	199	225	246	247
51630	Fredericksburg city	180	186	197	198
51640	Galax city	142	156	165	168
51650	Hampton city	193	239	266	262
51660	Harrisonburg city	87	91	91	88
51670	Hopewell city	176	197	215	217
51678	Lexington city	117	119	122	116

FIPS Code	Locality	Prostate Cancer Crude Rates for Male Population (per 100,000)			
		2001- 2010	2011- 2020	2021- 2030	2031- 2040
51680	Lynchburg city	145	150	153	147
51683	Manassas city	93	121	140	143
51685	Manassas Park city	54	65	73	80
51690	Martinsville city	193	219	241	243
51700	Newport News city	129	154	174	176
51710	Norfolk city	105	123	146	155
51720	Norton city	154	176	207	223
51730	Petersburg city	241	274	307	315
51735	Poquoson city	171	219	243	239
51740	Portsmouth city	146	170	194	200
51750	Radford city	83	82	84	84
51760	Richmond city	178	194	203	199
51770	Roanoke city	162	179	197	200
51775	Salem city	151	168	179	172
51790	Staunton city	200	234	254	251
51800	Suffolk city	158	180	197	199
51810	Virginia Beach city	114	150	179	187
51820	Waynesboro city	193	204	215	213
51830	Williamsburg city	153	173	178	173
51840	Winchester city	126	140	144	137

NOTES:

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FIPS Code	Locality	Prostate Cancer Incidence for Male Population			
		2001- 2010 Counts	2011- 2020 Projections	2021- 2030 Projections	2031- 2040 Projections
51000	Virginia, Statewide	53,845	71,919	87,204	95,089
51001	Accomack County	339	381	430	445
51003	Albemarle County	699	1,009	1,283	1,456
51005	Alleghany County	123	142	154	155
51007	Amelia County	166	219	255	262
51009	Amherst County	298	363	414	426
51011	Appomattox County	144	180	204	214
51013	Arlington County	993	1,164	1,189	1,145
51015	Augusta County	627	867	1,076	1,197
51017	Bath County	43	50	56	59
51019	Bedford County*	596	846	1,081	1,201
51021	Bland County	54	68	80	87
51023	Botetourt County	276	369	440	457
51025	Brunswick County	204	236	262	268
51027	Buchanan County	102	125	148	162
51029	Buckingham County	121	154	180	189
51031	Campbell County	434	548	633	667
51033	Caroline County	244	328	390	424
51035	Carroll County	200	243	274	283
51036	Charles City County	93	125	157	171
51037	Charlotte County	104	122	134	133
51041	Chesterfield County	2,526	3,924	5,245	6,208
51043	Clarke County	119	163	200	205
51045	Craig County	36	45	53	54
51047	Culpeper County	327	481	629	732
51049	Cumberland County	120	151	174	182
51051	Dickenson County	109	134	152	157
51053	Dinwiddie County	272	343	393	406
51057	Essex County	128	160	181	184
51059	Fairfax County	6,200	8,251	9,582	9,971
51061	Fauquier County	473	694	897	988
51063	Floyd County	129	164	186	190
51065	Fluvanna County	189	255	325	372
51067	Franklin County	525	726	898	989
51069	Frederick County	385	586	792	950

FIPS Code	Locality	Prostate Cancer Incidence for Male Population			
		2001- 2010 Counts	2011- 2020 Projections	2021- 2030 Projections	2031- 2040 Projections
51071	Giles County	131	160	179	184
51073	Gloucester County	281	394	492	532
51075	Goochland County	278	423	530	564
51077	Grayson County	126	144	157	156
51079	Greene County	93	132	163	175
51081	Greensville County	142	173	193	215
51083	Halifax County	329	393	429	422
51085	Hanover County	855	1,239	1,597	1,781
51087	Henrico County	2,441	3,311	4,033	4,408
51089	Henry County	489	580	668	714
51091	Highland County	27	32	38	38
51093	Isle of Wight County	291	424	539	582
51095	James City County	671	1,071	1,555	2,005
51097	King and Queen County	48	61	71	73
51099	King George County	140	209	274	312
51101	King William County	146	194	230	242
51103	Lancaster County	195	225	256	267
51105	Lee County	110	131	144	149
51107	Loudoun County	1,126	1,952	2,608	3,002
51109	Louisa County	267	385	483	540
51111	Lunenburg County	142	161	180	188
51113	Madison County	120	155	183	194
51115	Mathews County	113	134	153	160
51117	Mecklenburg County	365	429	477	487
51119	Middlesex County	134	172	202	213
51121	Montgomery County	418	566	685	748
51125	Nelson County	183	240	275	274
51127	New Kent County	158	259	329	351
51131	Northampton County	168	191	207	213
51133	Northumberland County	228	260	294	303
51135	Nottoway County	184	214	240	247
51137	Orange County	360	474	588	654
51139	Page County	120	146	169	178
51141	Patrick County	156	189	216	227
51143	Pittsylvania County	599	759	863	859
51145	Powhatan County	262	406	530	582
51147	Prince Edward County	170	222	261	276
51149	Prince George County	269	396	491	539
51153	Prince William County	1,651	2,735	3,697	4,359
51155	Pulaski County	281	344	392	412

FIPS Code	Locality	Prostate Cancer Incidence for Male Population			
		2001- 2010 Counts	2011- 2020 Projections	2021- 2030 Projections	2031- 2040 Projections
51157	Rappahannock County	63	86	99	98
51159	Richmond County	91	106	126	138
51161	Roanoke County	733	946	1,088	1,124
51163	Rockbridge County	225	287	327	331
51165	Rockingham County	545	727	886	970
51167	Russell County	167	209	243	257
51169	Scott County	152	179	196	201
51171	Shenandoah County	257	326	382	404
51173	Smyth County	147	171	193	202
51175	Southampton County	189	251	301	308
51177	Spotsylvania County	730	1,243	1,921	2,617
51179	Stafford County	586	1,022	1,578	2,158
51181	Surry County	76	106	131	129
51183	Sussex County	129	149	164	179
51185	Tazewell County	271	331	374	390
51187	Warren County	184	252	315	340
51191	Washington County	401	506	578	606
51193	Westmoreland County	185	222	256	273
51195	Wise County	207	246	265	272
51197	Wythe County	193	244	282	301
51199	York County	495	705	895	1,005
51510	Alexandria city	720	913	1,018	1,024
51515	Bedford city*	50	55	65	70
51520	Bristol city	92	106	121	128
51530	Buena Vista city	57	63	69	71
51540	Charlottesville city	256	305	345	360
51550	Chesapeake city	1,378	1,968	2,503	2,781
51570	Colonial Heights city	160	180	198	202
51580	Covington city	20	23	26	28
51590	Danville city	425	448	488	489
51595	Emporia city	53	61	70	74
51600	Fairfax city	140	168	189	195
51610	Falls Church city	95	120	130	127
51620	Franklin city	73	90	105	112
51630	Fredericksburg city	184	218	248	265
51640	Galax city	47	54	62	68
51650	Hampton city	1,321	1,563	1,732	1,724
51660	Harrisonburg city	185	226	263	292
51670	Hopewell city	182	211	241	253
51678	Lexington city	46	49	54	55

FIPS Code	Locality	Prostate Cancer Incidence for Male Population			
		2001- 2010 Counts	2011- 2020 Projections	2021- 2030 Projections	2031- 2040 Projections
51680	Lynchburg city	473	551	590	591
51683	Manassas city	176	244	312	348
51685	Manassas Park city	34	51	65	78
51690	Martinsville city	127	139	160	169
51700	Newport News city	1,128	1,363	1,565	1,616
51710	Norfolk city	1,276	1,575	1,910	2,053
51720	Norton city	27	33	41	47
51730	Petersburg city	361	416	470	489
51735	Poquoson city	101	139	172	185
51740	Portsmouth city	681	781	896	943
51750	Radford city	60	66	71	75
51760	Richmond city	1,655	1,907	2,015	1,986
51770	Roanoke city	725	840	942	968
51775	Salem city	176	203	224	225
51790	Staunton city	222	256	286	292
51800	Suffolk city	567	801	1,017	1,183
51810	Virginia Beach city	2,441	3,198	3,750	3,819
51820	Waynesboro city	187	211	235	244
51830	Williamsburg city	95	121	135	141
51840	Winchester city	158	188	204	203

NOTES:

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Methodology for Projecting Cancer Incidence in Virginia

Background

Nationwide, nearly 590,000 people were estimated to die from cancer in 2014—or 1,600 per day—making cancer the second leading cause of death (after heart disease) in the U.S.^a Since cancer is known to be closely associated with age, the future cancer incidence depends on both the size of the population as well as its age profile. As Virginia is growing and growing older, this project aimed to examine how many people in the Commonwealth may be diagnosed with cancer over the next few decades. Specifically, all types of cancer, as well as three leading cancers (lung, breast, and prostate), were projected at state and locality level for 2011-2020, 2021-2030, and 2031-2040. As with all projections, there is a degree of uncertainty involved; with observations about the past and the assumptions about the future being the two fundamental ingredients in our calculations.

Data

This report draws upon data collected by the Cancer Registry at the Virginia Department of Health from 2001-2010. These are incidence data for each reportable tumor, and are arranged geographically according to the patient's place of residence^b at the time of diagnosis. Cancer incidence refers to initial diagnosis or treatment of malignant tumors, they may include multiple primary cancers occurring in one patient.

The raw data was collected for the decade 2001-2010 and included actual cancer counts as well as age-specific cancer incidence rates organized by the 18 age-intervals: 0-4, 5-9, 10-14 ... 80-84, and 85+. The cancer incidence counts and rates were reported for the entire population for All Sites (meaning all types) and Lung cancer; for Breast cancer we included data just for the female subpopulation; while Prostate cancer pertains to the male subpopulation only. The base population by age and gender for each locality for 2020, 2030, and 2040 were from the official Virginia Population Projections^c developed by the Weldon Cooper Center for Public Service in 2012.

Assumptions

We assumed that the age-specific cancer incidence rate will be constant over time; in other words, the proportion of population (measured in per 100,000) in a given age bracket (say, 60-64) getting diagnosed with new cancer cases in the period of 2001-2010 remains unchanged for the following three decades. This means we did not account for potential future changes, including but not limited to technological advances in cancer research and treatment, improvements in access to medical services and facilities (such as health insurance, transportation), and increased public awareness about cancer leading to evolution in lifestyle, all of which could benefit cancer prevention, enable better screening

^a Cancer Facts and Figures 2014, The American Cancer Society.

^b VCR database includes data collected for all Virginia residents, including those who were diagnosed elsewhere as it receives reports from multiple other states, including Florida, Georgia, New York, Pennsylvania, and South Carolina.

^c For more information, check <http://www.coopercenter.org/demographics/virginia-population-projections>

or allow earlier diagnoses. While some factors may increase diagnoses, hence raising incidence rates, others could also reduce them — these multiple influences on cancer incidence could work in either direction and are difficult to predict, therefore it is reasonable to assume that the age-specific pattern will remain relatively unchanged at least for the near future.

Methodology

The locality-level rates from Virginia Cancer Registry were applied to the population base for each decade in order to calculate the expected number of cancer cases in each locality. The main elements of our estimation are listed below.

- **Population Base**

Using the population counts for 2000, 2010 and projections from 2020, 2030 and 2040, we constructed the aggregate population size for each entire decade. We assumed even population growth over the decade, so the uniform distribution allows us to estimate the population in the years 2001, 2011, 2021 and 2031. For example, the 10 year aggregate population for age group 60-64 over 2011-2020 was calculated as

$$\text{Population Base}_{60-64}^{2011-2020} = \frac{(\text{2011 Estimate}_{60-64} + \text{WCC 2020 Projection}_{60-64})}{2} * 10 \text{ years}$$

- **Projected Cancer Incidence**

The age-specific cancer incidence projections were obtained by multiplying the age-specific rates to the population base for the age group. For instance,

$$\text{Projected Cancer Incidence}_{60-64}^{2011-2020} = \frac{\text{Incidence Rate}_{60-64} * \text{Population Base}_{60-64}^{2011-2020}}{100,000}$$

We summed the individual incidence from each age group to derive the locality-specific cancer incidence. The sum of the numbers for all the localities yielded the state totals for Virginia.

- **Crude Cancer Rate**

Crude cancer incidence rates were also calculated from these projected values.

$$\text{Crude Rate} = \frac{\text{Number of cases projected}}{\text{Population Base}} * 100,000$$

Crude rates can be used to compare the burden of cancer across localities as they reflect the number of new cancer cases expected to be diagnosed per 100,000 people.