

Estimations of Deaths in Virginia Caused by Pandemic Flu by Planning District

NOTE: THE NUMBERS CONTAINED IN THE FOLLOWING TABLE ARE ESTIMATIONS OF WHAT COULD HAPPEN AND ARE INTENDED SOLEY AS A GUIDE TO HELP LOCALITIES PLAN AND PREPARE.

The attached table is an estimation of the number of deaths that could possibly occur if pandemic flu were to arrive in the Commonwealth of Virginia. These numbers are based on 2004 population data obtained from the Virginia Department of Health Statistics' website (<http://vdhweb/HealthStats/2004Pop.xls>). Population counts and total deaths for 2004 (Columns 2 & 3, respectively) are broken down by planning district and city or county (Column 1).

The remaining six columns represent the estimated number of deaths that could occur due to pandemic flu during a 24-week period with two waves. The first 3 columns represent three mortality rates: 1) the first rate of 0.6 deaths/1000 people is an average mortality rate based on the estimated, total number of deaths in a "medium level" pandemic as provided by the Virginia Department of Health (Column 4); 2) the second rate of 1.52 deaths/1000 people is based on a worst-case scenario using a 35% attack rate modeled after the 1958 and 1968 pandemics (Column 5)¹; and 3) the last rate of 7.35 deaths/1000 people is based on the a 35% attack rate modeled after the 1918 pandemic, which was a highly virulent influenza strain where the death rate for 15 to 34-year-olds was 20 times higher in 1918 than in previous years (Column 6)^{1,2}. The second set of projected deaths is modeled after the 1958 pandemic where 44% of deaths occurred in a 4-week span of time. Columns 7-9 represent the estimated number of deaths at their previously established specific mortality rates during one week of the peak period. In the event of a future pandemic, there could be more or less waves than 2, and it also could last longer or shorter than 24 weeks.

EXAMPLE

County A's population was 282,913 people with 1,286 deaths due to all causes in 2004. The estimated total numbers of death for a medium-level, 1958-like, or 1918-like pandemic are 170, 430, or 2,079 deaths, respectively. These estimated totals include the normal number of flu deaths this county has in a normal season. The next set of data demonstrates the number of deaths that County A would see in 1 week during the peak period of the different pandemics. The one-week estimates for the medium-level, 1958-like, or 1918-like pandemics are 19, 47, or 229 deaths, respectively.

¹ Calculated using FluAid 2.0 (<http://www.hhs.gov/nvpo/pandemics/>)

² Taubenberger, Jeffery et al. 1997. Initial Genetic Characterization of the 1918 "Spanish" Influenza Virus. Science. 275:1793-96.

TOTAL DEATHS BY ALL CAUSES AND TOTAL AND WEEKLY PANDEMIC FLU DEATHS BY PLANNING DISTRICT AND CITY OR COUNTY IN VIRGINIA (BASED ON 2004 POPULATION DATA)^a

PLANNING DISTRICT AND CITY/COUNTY	TOTAL POPULATION	NUMBER OF DEATHS BY PLACE OF OCCURRENCE						
		TOTAL DEATHS in 2004 ^b	Total Projected Flu Deaths For 6 Months ^c			Total Deaths for 1 Week During Peak Period ^d		
			0.6/1000 ^e	1.52/1000 ^f	7.35/1000 ^g	0.6/1000	1.52/1000	7.35/1000
COMMONWEALTH OF VA	7,460,066	56,100	4,476	11,339	54,831	492	1,247	6,031
PLANNING DISTRICT 1	92,325	878	55	140	679	6	15	75
LEE COUNTY	23844	228	14	36	175	2	4	19
SCOTT COUNTY	22982	158	14	35	169	2	4	19
WISE COUNTY	41745	297	25	63	307	3	7	34
NORTON CITY	3754	195	2	6	28	0	1	3
PLANNING DISTRICT 2	115,025	1,143	69	175	845	8	19	93
BUCHANAN COUNTY	25206	244	15	38	185	2	4	20
DICKENSON COUNTY	16172	119	10	25	119	1	3	13
RUSSELL COUNTY	28892	306	17	44	212	2	5	23
TAZEWELL COUNTY	44755	474	27	68	329	3	7	36
PLANNING DISTRICT 3	189,546	1,804	114	288	1,393	13	32	153
BLAND COUNTY	7034	27	4	11	52	0	1	6
CARROLL COUNTY	29484	152	18	45	217	2	5	24
GRAYSON COUNTY	16490	110	10	25	121	1	3	13
SMYTH COUNTY	32538	334	20	49	239	2	5	26
WASHINGTON COUNTY	52037	527	31	79	382	3	9	42
WYTHE COUNTY	27999	268	17	43	206	2	5	23
BRISTOL CITY	17306	93	10	26	127	1	3	14
GALAX CITY	6658	293	4	10	49	0	1	5
PLANNING DISTRICT 4	165,340	1,266	99	251	1,215	11	28	134
FLOYD COUNTY	14465	89	9	22	106	1	2	12
GILES COUNTY	16985	182	10	26	125	1	3	14
MONTGOMERY COUNTY	83983	610	50	128	617	6	14	68
PULASKI COUNTY	35145	316	21	53	258	2	6	28
RADFORD CITY	14762	69	9	22	109	1	2	12
PLANNING DISTRICT 5	264,263	3,509	159	402	1,942	17	44	214
ALLEGHANY COUNTY	16742	304	10	25	123	1	3	14
BOTETOURT COUNTY	31781	107	19	48	234	2	5	26
CRAIG COUNTY	5135	20	3	8	38	0	1	4
ROANOKE COUNTY	87682	488	53	133	644	6	15	71
COVINGTON CITY	6258	22	4	10	46	0	1	5
ROANOKE CITY	92329	1,718	55	140	679	6	15	75
SALEM CITY	24336	850	15	37	179	2	4	20
PLANNING DISTRICT 6	266,357	2,205	160	405	1,958	18	45	215
AUGUSTA COUNTY	68758	649	41	105	505	5	11	56
BATH COUNTY	4986	40	3	8	37	0	1	4
HIGHLAND COUNTY	2482	13	1	4	18	0	0	2
ROCKBRIDGE COUNTY	21084	102	13	32	155	1	4	17
ROCKINGHAM COUNTY	70220	300	42	107	516	5	12	57
BUENA VISTA CITY	6227	72	4	9	46	0	1	5
HARRISONBURG CITY	41082	589	25	62	302	3	7	33
LEXINGTON CITY	6917	117	4	11	51	0	1	6
STAUNTON CITY	23847	172	14	36	175	2	4	19
WAYNESBORO CITY	20754	151	12	32	153	1	3	17
PLANNING DISTRICT 7	201,407	1,971	121	306	1,480	13	34	163
CLARKE COUNTY	13854	97	8	21	102	1	2	11
FREDERICK COUNTY	66638	265	40	101	490	4	11	54
PAGE COUNTY	23725	186	14	36	174	2	4	19
SHENANDOAH COUNTY	38028	347	23	58	280	3	6	31
WARREN COUNTY	34372	287	21	52	253	2	6	28
WINCHESTER CITY	24790	789	15	38	182	2	4	20
PLANNING DISTRICT 8	1,975,194	8,523	1,185	3,002	14,518	130	330	1597
ARLINGTON COUNTY	186144	1,538	112	283	1,368	12	31	150
FAIRFAX COUNTY	1003140	3,951	602	1,525	7,373	66	168	811
LOUDOUN COUNTY	239181	605	144	364	1,758	16	40	193
PRINCE WILLIAM COUNTY	336527	747	202	512	2,473	22	56	272
ALEXANDRIA CITY	128206	972	77	195	942	8	21	104
FAIRFAX CITY	22072	201	13	34	162	1	4	18
FALLS CHURCH CITY	10777	36	6	16	79	1	2	9
MANASSAS CITY	37626	461	23	57	277	2	6	30
MANASSAS PARK CITY	11521	12	7	18	85	1	2	9
PLANNING DISTRICT 9	152,735	1,049	92	232	1,123	10	26	123
CULPEPER COUNTY	40205	319	24	61	296	3	7	33
FAUQUIER COUNTY	63256	466	38	96	465	4	11	51
MADISON COUNTY	13132	71	8	20	97	1	2	11
ORANGE COUNTY	28972	164	17	44	213	2	5	23
RAPPAHANNOCK COUNTY	7170	29	4	11	53	0	1	6

PLANNING DISTRICT AND CITY/COUNTY ~continued	TOTAL POPULATION	NUMBER OF DEATHS BY PLACE OF OCCURRENCE						
		TOTAL DEATHS in 2004 ^b	Total Projected Flu Deaths For 6 Months ^c			Total Deaths for 1 Week During Peak Period ^d		
			0.6/1000 ^a	1.52/1000 ^e	7.35/1000 ^f	0.6/1000	1.52/1000	7.35/1000
COMMONWEALTH OF VA	7,460,066	56,100	4,476	11,339	54,831	492	1,247	6,031
PLANNING DISTRICT 10	209,707	2,201	126	319	1,541	14	35	170
ALBEMARLE COUNTY	88731	475	53	135	652	6	15	72
FLUVANNA COUNTY	23650	70	14	36	174	2	4	19
GREENE COUNTY	17025	88	10	26	125	1	3	14
LOUISA COUNTY	28790	135	17	44	212	2	5	23
NELSON COUNTY	14902	89	9	23	110	1	2	12
CHARLOTTESVILLE CITY	36609	1,344	22	56	269	2	6	30
PLANNING DISTRICT 11	232,546	2,170	140	353	1,709	15	39	188
AMHERST COUNTY	32000	129	19	49	235	2	5	26
APPOMATTOX COUNTY	13910	55	8	21	102	1	2	11
BEDFORD COUNTY	63787	198	38	97	469	4	11	52
CAMPBELL COUNTY	51695	189	31	79	380	3	9	42
BEDFORD CITY	6231	166	4	9	46	0	1	5
LYNCHBURG CITY	64923	1,433	39	99	477	4	11	52
PLANNING DISTRICT 12	249,206	2,516	150	379	1,832	16	42	201
FRANKLIN COUNTY	49852	375	30	76	366	3	8	40
HENRY COUNTY	56938	229	34	87	418	4	10	46
PATRICK COUNTY	19241	207	12	29	141	1	3	16
PITTSYLVANIA COUNTY	61759	205	37	94	454	4	10	50
DANVILLE CITY	46377	979	28	70	341	3	8	37
MARTINSVILLE CITY	15039	521	9	23	111	1	3	12
PLANNING DISTRICT 13	87,055	982	52	132	640	6	15	70
BRUNSWICK COUNTY	18195	75	11	28	134	1	3	15
HALIFAX COUNTY	36360	496	22	55	267	2	6	29
MECKLENBURG COUNTY	32500	411	20	49	239	2	5	26
PLANNING DISTRICT 14	98,486	731	59	150	724	7	16	80
AMELIA COUNTY	11936	68	7	18	88	1	2	10
BUCKINGHAM COUNTY	15919	111	10	24	117	1	3	13
CHARLOTTE COUNTY	12415	68	7	19	91	1	2	10
CUMBERLAND COUNTY	9179	32	6	14	67	1	2	7
LUNENBURG COUNTY	13090	35	8	20	96	1	2	11
NOTTOWAY COUNTY	15624	105	9	24	115	1	3	13
PRINCE EDWARD COUNTY	20323	312	12	31	149	1	3	16
PLANNING DISTRICT 15	915,226	8,114	549	1,391	6,727	60	153	740
CHARLES CITY COUNTY	7105	26	4	11	52	0	1	6
CHESTERFIELD COUNTY	282913	1,286	170	430	2,079	19	47	229
GOOCHLAND COUNTY	18758	49	11	29	138	1	3	15
HANOVER COUNTY	96069	820	58	146	706	6	16	78
HENRICO COUNTY	276489	2,735	166	420	2,032	18	46	224
NEW KENT COUNTY	15574	39	9	24	114	1	3	13
POWHATAN COUNTY	25865	83	16	39	190	2	4	21
RICHMOND CITY	192453	3,076	115	293	1,415	13	32	156
PLANNING DISTRICT 16	290,444	1,545	174	441	2,135	19	49	235
CAROLINE COUNTY	24013	122	14	36	176	2	4	19
KING GEORGE DISTRICT	19356	79	12	29	142	1	3	16
SPOTSYLVANIA COUNTY	111846	333	67	170	822	7	19	90
STAFFORD COUNTY	114773	258	69	174	844	8	19	93
FREDERICKSBURG CITY	20456	753	12	31	150	1	3	17
PLANNING DISTRICT 17	50,964	501	31	77	375	3	9	41
LANCASTER COUNTY	12037	248	7	18	88	1	2	10
NORTHUMBERLAND COUNTY	12896	54	8	20	95	1	2	10
RICHMOND COUNTY	8988	94	5	14	66	1	2	7
WESTMORELAND COUNTY	17043	105	10	26	125	1	3	14
PLANNING DISTRICT 18	88,411	712	53	134	650	6	15	71
ESSEX COUNTY	10332	180	6	16	76	1	2	8
GLOUCESTER COUNTY	37253	330	22	57	274	2	6	30
KING AND QUEEN COUNTY	6768	27	4	10	50	0	1	5
KING WILLIAM COUNTY	14348	69	9	22	105	1	2	12
MATHEWS COUNTY	9219	44	6	14	68	1	2	7
MIDDLESEX COUNTY	10491	62	6	16	77	1	2	8
PLANNING DISTRICT 19	168,213	1,597	101	256	1,236	11	28	136
DINWIDDIE COUNTY	25182	102	15	38	185	2	4	20
GREENSVILLE COUNTY	11490	36	7	17	84	1	2	9
PRINCE GEORGE COUNTY	34346	64	21	52	252	2	6	28
SURRY COUNTY	6969	16	4	11	51	0	1	6
SUSSEX COUNTY	11914	62	7	18	88	1	2	10
COLONIAL HEIGHTS CITY	17516	114	11	27	129	1	3	14
EMPORIA CITY	5674	174	3	9	42	0	1	5
HOPEWELL CITY	22363	367	13	34	164	1	4	18
PETERSBURG CITY	32759	662	20	50	241	2	5	26

PLANNING DISTRICT AND CITY/COUNTY ~continued	TOTAL POPULATION	NUMBER OF DEATHS BY PLACE OF OCCURRENCE						
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COMMONWEALTH OF VA	7,460,066	56,100	4,476	11,339	54,831	492	1,247	6,031
PLANNING DISTRICT 20	1,127,548	8,501	677	1,714	8,287	74	189	912
ISLE OF WIGHT COUNTY	32784	168	20	50	241	2	5	27
SOUTHAMPTON COUNTY	17586	71	11	27	129	1	3	14
CHESAPEAKE CITY	214715	1,217	129	326	1,578	14	36	174
FRANKLIN CITY	8473	182	5	13	62	1	1	7
NORFOLK CITY	237954	2,789	143	362	1,749	16	40	192
PORTSMOUTH CITY	99298	1,173	60	151	730	7	17	80
SUFFOLK CITY	76599	780	46	116	563	5	13	62
VIRGINIA BEACH CITY	440139	2,121	264	669	3,235	29	74	356
PLANNING DISTRICT 21	467,397	3,644	280	710	3,435	31	78	378
JAMES CITY COUNTY	55506	297	33	84	408	4	9	45
YORK COUNTY	60875	170	37	93	447	4	10	49
HAMPTON CITY	145964	1,200	88	222	1,073	10	24	118
NEWPORT NEWS CITY	181891	1,621	109	276	1,337	12	30	147
POQUOSON CITY	11705	38	7	18	86	1	2	9
WILLIAMSBURG CITY	11456	318	7	17	84	1	2	9
PLANNING DISTRICT 22	52,671	538	32	80	387	3	9	43
ACCOMACK COUNTY	39374	221	24	60	289	3	7	32
NORTHAMPTON COUNTY	13297	317	8	20	98	1	2	11

^a All projected pandemic flu deaths are estimates only. Data is based on population counts from 2004.

^b Total Deaths: The number of deaths by all causes (AIDS, heart disease, gunshot wounds, narcotic abuse, etc.) seen in 2004.

^c Projected flu deaths include those deaths that would normally occur due to flu regardless of pandemic status.

^d Peak Period Deaths: Estimated number of deaths that would occur for 1 week of a 4-week peak period of a 24-week pandemic event.

^e Estimated, average mortality rate (0.6 deaths/1000 people) by VA Department of Health for a "medium level" pandemic.

^f Estimated mortality rate (1.52 deaths/1000 people) based on a worst-case scenario using a 35% attack rate modeled after the 1958 & 1968 pandemics.

^g Estimated mortality rate based on a 35% attack rate modeled after the 1918 pandemic.

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