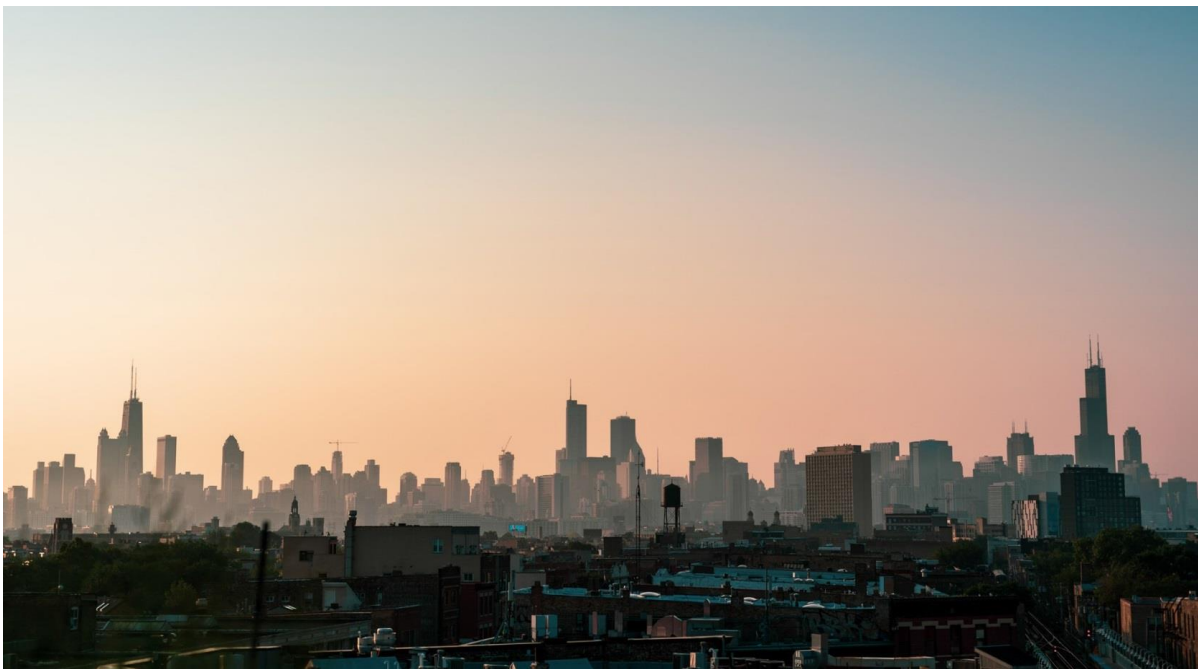


equal  hope



Eradicating Cervical Cancer in Chicago

November 2, 2019



"Of all the forms of inequality, injustice in **health care** is the most shocking and inhumane." -- Dr. **Martin Luther King, Jr.**

"Cancer injustice is not a science problem, a technology problem, or a genetics problem. It is a policy problem." Polite, Gluck and Brawley, JAMA 2019

"Society should not regard the goal of curbing cancer injustice as more complicated than it really is. If policymakers tolerate cancer disparities in the communities they serve because of competing priorities, they should state truthfully that they have knowingly chosen to do so. What should no longer be tolerated is the misguided belief that the problem is too difficult to solve, cannot be solved, or that it is due to the affected person's genes or inaction. Public health evidence to the contrary is too compelling, and condoning such excuses violates fundamental principles of equality." Polite, Gluck and Brawley, JAMA 2019

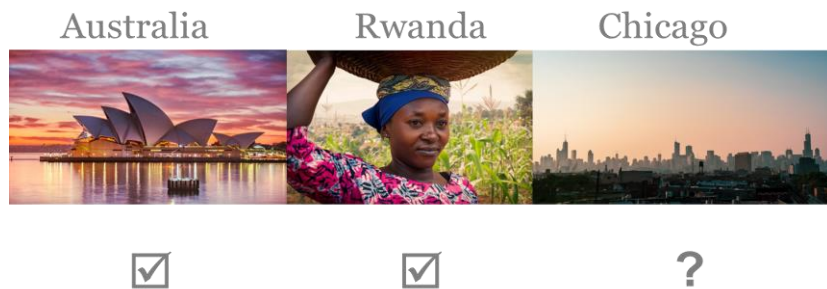
Uniting to End Health Disparities

Eradicating Cervical Cancer in Chicago

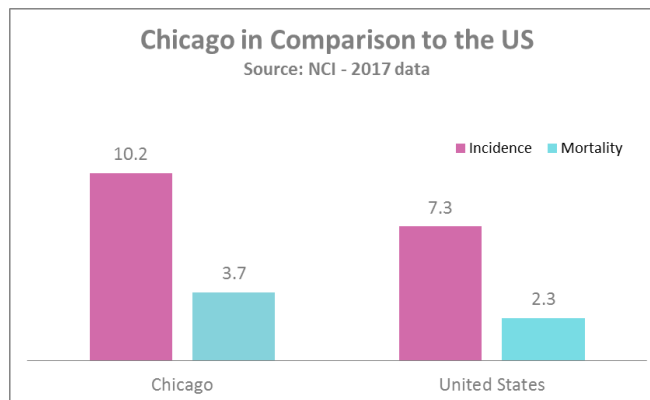
Cervical cancer is almost 100% preventable. Caused primarily by the Human Papilloma Virus (HPV), it can be prevented by a combination of vaccination against HPV and regular screening for pre-cancerous lesions of the cervix starting at age 21.

Australia recently announced that it expected to eradicate cervical cancer by 2028ⁱ and Rwanda succeeded in getting 94% of its adolescents fully vaccinated within 3 years.ⁱⁱ

Eradicating Cervical Cancer?

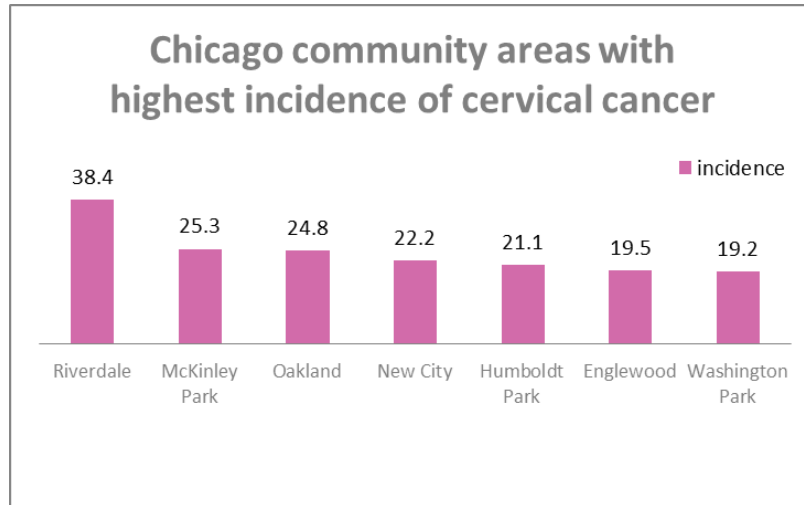


Chicago’s progress has been much slower. Chicago’s cervical cancer incidence and mortality are considerably higher than the national average. Chicago’s cervical cancer incidence is 39% higher than the US average and its mortality is 60% higher than the US average. (Source NCI Data 2011 – 2015)

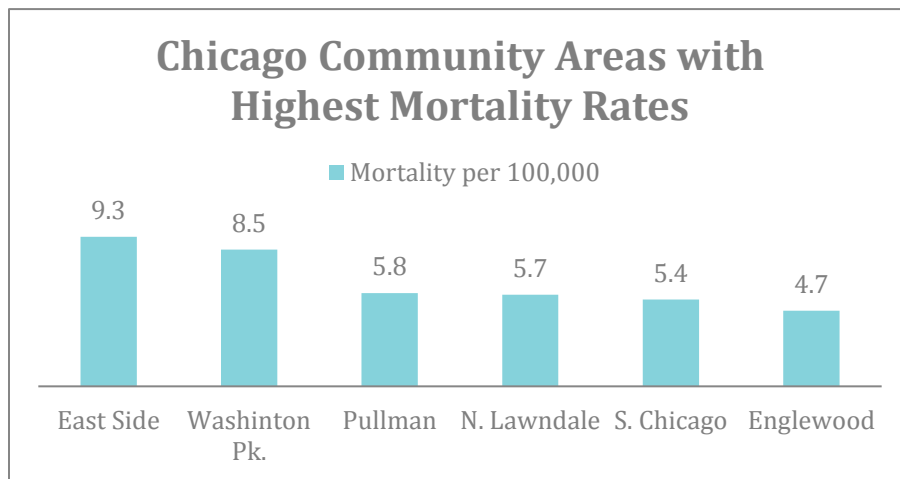


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Not only is Chicago doing much worse than the national average but there are large disparities within Chicago itself. The data below from the Chicago Health Atlas for the time period 2012-2016 demonstrate that the areas with high incidence of cervical cancer tend to be areas that are predominantly minority and most suffer high economic hardship.



Chicago Health Atlas data (2013-2017) likewise show that the areas with the highest mortality from cervical cancer are predominantly minority areas suffering high economic hardship.



A woman in Washington Park is 85 times more likely to die of cervical cancer compared to a woman in Hyde Park (Source Chicago Health Atlas).

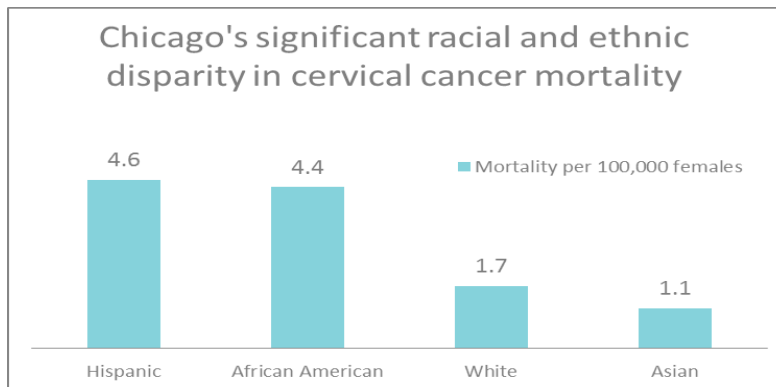


Washington Park



Hyde Park

Overall, racial and ethnic disparities for cervical cancer are pronounced in Chicago. A Black woman or a Latina in Chicago is almost 3 times more likely to die from cervical cancer compared to a White woman. (Source Chicago Health Atlas – 2017) with Latinas suffering the highest mortality rate in 2017.

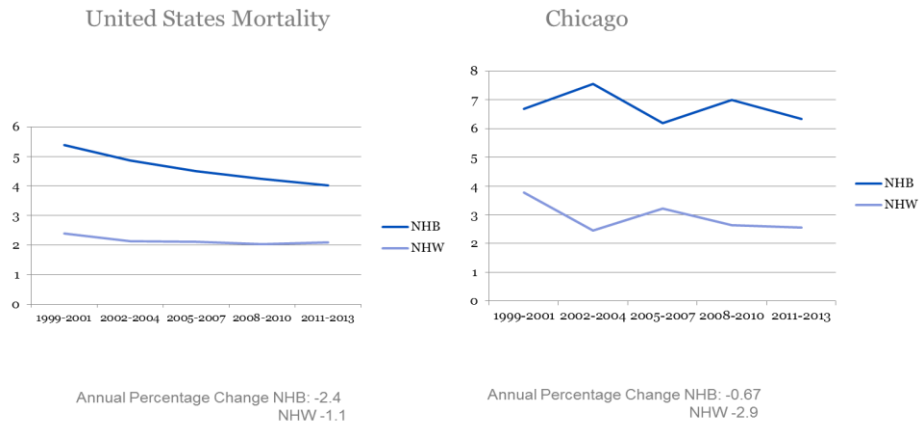


In fact research by Equal Hope and allied researchers at Rush University Medical Center, Northwestern Medicine and University of Chicago Medicine have recently found that between 1999 and 2013, the racial mortality disparity for Chicago almost doubled. Between 1999 and 2001, African American women (non-Hispanic Black (NHB)) were 77% more likely to die of cervical cancer compared to White women (non-Hispanic White (NHW)). By the time period 2011 to 2013, that death gap had doubled to a 147% inequity.

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Declines in cervical cancer mortality for Chicago's White women have been much faster
Than for Black women in contrast to the US as a whole.



Source: Equal Hope research – Mortality data from CDC

In Chicago between 1999 and 2013, the White rate of mortality decreased by almost 3% a year, where the Black rate decreased by less than 1% per year. The reverse was seen at the national level where the Black death rate decreased at a more rapid rate compared to the White rate. Clearly, Chicago has some work to do to improve this situation.

Nationally we know that more than half of cervical cancer cases are detected in women who have never been screened or have not been screened as frequently as recommended in guidelinesⁱⁱⁱ

Unlike other female cancers such as breast or ovarian cancers, where the natural history of the cancer remains unknown, the natural history of cervical cancer is well established. Human papilloma virus (HPV) is responsible for >93% of cervical cancers.^{iv} HPV is the most common sexually transmitted infection (STI) in the US and is often acquired soon after initiation of sexual activity. The majority of people who have had intercourse have been exposed.^v Today, 80 million adult Americans (1 in 4) are infected with a strain of HPV.^{vi} Of the more than 40 HPV strains that can cause cancer, two (16 and 18) are responsible for about 70% of cervical cancer cases (CDC. (2014)).^{vii} In 2006, the Food and Drug Administration (FDA) approved a vaccine against HPV and since then an improved vaccine has been approved that guards against 9 strains of HPV including strains 16 and 18 with FDA expanding approval in October 2018 for use in individuals age 9 to 45.

Therefore, cervical cancer today is one of the most preventable cancers through vaccination and screening for cervical dysplasia and/or HPV.



More detailed research information from Equal Hope-RUMC-NM-University of Chicago team:

Table 1: Mortality rates by ethnicity and by periods, and the 1999-2013 APC

	1999-2001		2002-2004		2005-2007		2008-2010		2011-2013		APC 1999-2013	
	NHB	NH	NHB	NH	NHB	NHW	NHB	NH	NHB	NH	NHB	NHW
		W		W		W		W		W		W
United States	5.39	2.39	4.87	2.14	4.5	2.11	4.25	2.03	4.02	2.09	-2.44 *	-1.1
DC	6.03	2.96	4.34	1.00	5.14	1.85	2.71	1.64	5.71	0.5	-0.67	-7.5
Baltimore	5.98	4.66	4.78	1.61	5.78	5.34	5.35	4.35	4.79	3.95	-1.2	-0.7
New York City	6.29	2.08	5.3	2.30	5.42	2.14	4.87	1.68	4.75	1.81	-2.24 *	-1.88
Philadelphia	6.13	3.07	6.51	3.01	4.85	2.82	4.61	3.41	5.4	2.77	-1.97	-0.07
Chicago	6.69	3.78	7.55	2.45	6.20	3.22	6.99	2.63	6.33	2.56	-0.67	-2.9
Detroit	3.62	3.55	4.31	5.21	5.80	5.90	4.75	5.89	5.15	3.06	2.16	0.89
Memphis	10.28	2.5	6.34	3.32	6.18	1.75	8.66	1.85	5.68	2.67	-3.1	-1.46
Dallas	6.51	1.36	5.77	2.81	6.17	1.79	6.09	2.36	6.44	2.47	0.06	0.98
Houston	7.58	3.56	6.88	2.42	5.27	3.68	5.39	2.43	5.23	1.89	-3.43 *	-3.47
Los Angeles	6.72	2.07	5.08	2.44	4.76	2.59	6.79	1.95	5.41	2.43	-0.58	0.37

* Pvalue < 0.05

Table 2: Mortality rate ratio (RR) by ethnicity and time period

	1999-2001		2002-2004		2005-2007		2008-2010		2011-2013	
	NHB	NHW	NHB	NHW	NHB	NHW	NHB	NHW	NHB	NHW
		RR		<CI - CI>		RR		<CI - CI>		RR
United States	2.26	2.16 - 2.36	2.27	2.17 - 2.38	2.13	2.04 - 2.24	2.10	2.00 - 2.20	1.92	1.83 - 2.01
DC	2.04	0.91 - 4.57	4.35	1.31 - 14.42	2.78	1.08 - 7.19	1.65	0.55 - 4.97	11.41	47.51
Baltimore	1.28	0.74 - 2.22	2.96	1.24 - 7.08	1.08	0.61 - 1.92	1.23	0.64 - 2.37	1.21	0.60 - 2.46
New York City	3.02	2.41 - 3.78	2.31	1.84 - 2.9	2.53	2.01 - 3.19	2.90	2.26 - 3.73	2.63	2.05 - 3.36
Philadelphia	2.00	1.35 - 2.96	2.16	1.45 - 3.24	1.72	1.11 - 2.65	1.35	0.87 - 2.1	1.95	1.25 - 3.03
Chicago	1.77	1.29 - 2.42	3.08	2.15 - 4.40	1.92	1.35 - 2.73	2.66	1.82 - 3.87	2.47	1.69 - 3.62
Detroit	1.02	0.46 - 2.28	0.83	0.39 - 1.75	0.98	0.45 - 2.15	0.81	0.32 - 2.02	1.68	0.53 - 5.39
Memphis	4.11	2.15 - 7.88	1.91	1.01 - 3.61	3.52	1.57 - 7.9	4.67	1.87 - 11.7	2.12	0.94 - 4.79
Dallas	4.80	2.43 - 9.48	2.06	1.16 - 3.65	3.45	1.75 - 6.79	2.58	1.41 - 4.71	2.61	1.41 - 4.82
Houston	2.13	1.41 - 3.23	2.84	1.76 - 4.59	1.43	0.92 - 2.23	2.22	1.36 - 3.62	2.76	1.62 - 4.72
Los Angeles	3.25	2.13 - 4.95	2.08	1.34 - 3.25	1.84	1.18 - 2.88	3.49	2.28 - 5.35	2.23	1.45 - 3.43

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- i **The projected timeframe until cervical cancer elimination in Australia: a modelling study**
Michaela T Hall, Kate T Simms, Jie-Bin Lew, Megan A Smith, Julia ML Brotherton, Marion Saville, Ian H Frazer, Karen Canfell **Lancet Public Health** 2019;4: e19–27
- ii **Progress in HPV vaccination in low- and lower-middle income countries**, Montagne D. et al Int. J. Gynecol Obstet 2017, 138 (Suppl 1)
- iii Downs LS, et al. **The disparity of cervical cancer in diverse populations** *Gynecol Oncol.* 2008 May;109(2 Suppl):S22-30. doi: 10.1016/j.ygyno.2008.01.003..
- iv Bosch FX, Manos MM, Munoz N, et al. **Prevalence of human papillomavirus in cervical cancer: a worldwide perspective. International biological study on cervical cancer (IBSCC) Study Group.** J Natl Cancer Inst. 1995 Jun 7;87(11):796-802.
- v (CDC. (2018). **Trends in Human Papillomavirus—Associated Cancers—United States, 1999-2015.** MMWR 67(33).)
- vi CDC https://www.cdc.gov/hpv/parents/about-hpv.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fhpv%2Fparents%2Fwhatishpv.html
- vii **Human Papillomavirus Vaccination: Recommendations of the Advisory Committee on Immunization Practices (ACIP).** *MMWR* 63(rr05.)