

# Worlds Apart:

## Gaps in Life Expectancy in the Indianapolis Metro Area



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IUPUI

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The following report was produced by the Richard M. Fairbanks School of Public Health at Indiana University-Purdue University Indianapolis (IUPUI) in partnership with The Polis Center at IUPUI for the SAVI Community Information System. Explore these data and create visualizations at [www.savi.org](http://www.savi.org)

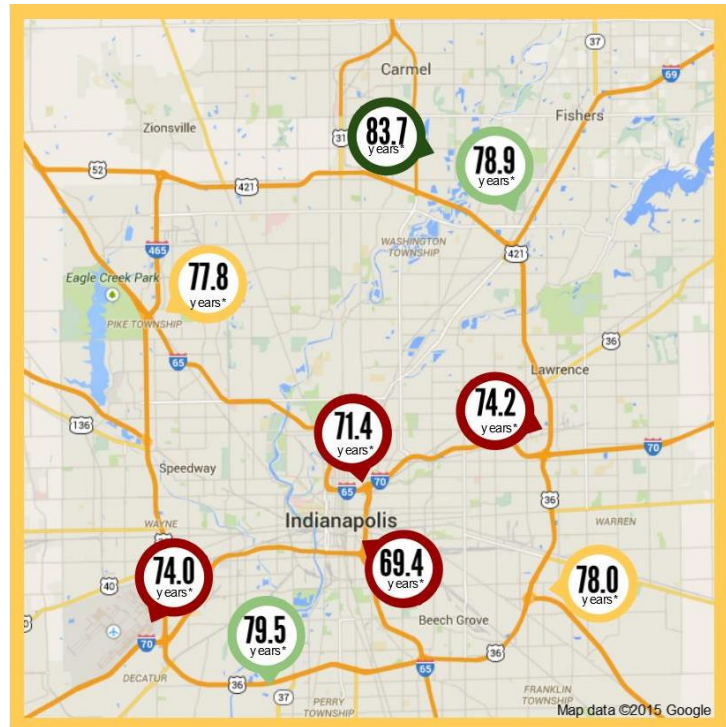
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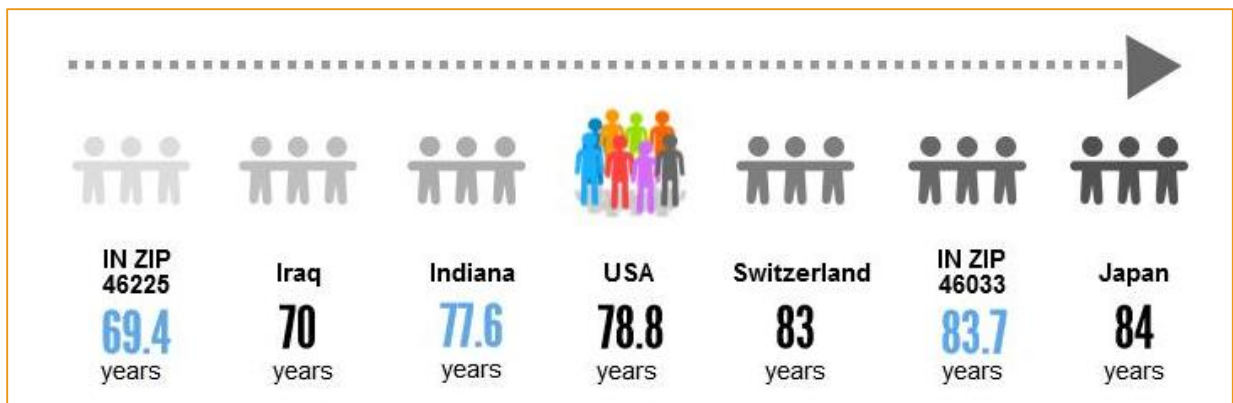
## Worlds apart

Two communities that are both situated within the Indianapolis metropolitan area and separated by only 28 miles are in reality worlds apart. One sits in a northeastern suburb of Indianapolis. Its residents have a life expectancy of 83.7 years, rivaling the top-ranking countries of the world, Switzerland (83 years) and Japan (84 years). Taking a drive from that community along I-465 and I-70 into the city, life expectancy drops off – to 78.9 years, then to 74.2 years - until you arrive in the second community, situated within the urban core directly south of Monument Circle. Its residents have a life expectancy of 69.4 years, similar to countries like Uzbekistan (69 years), Bangladesh (70 years), and Iraq (70 years).



## 28 miles, 14 years...and worlds apart. Why?

In this article, we explore this question and share results of our analysis of life expectancy across the 11 counties and more than 100 ZIP codes in the Indianapolis metro area.



## More than a number

Life expectancy is measured and compared around the world, not only as an indicator of health, but of social development in a society. Based on the premise that history will repeat itself should conditions remain the same, life expectancy is a prediction of how long a baby born in a specific place today will live, given current rates of death and survival across age groups in that same place. When certain communities have shorter life expectancy, it does not simply mean that older members lose a few years at the end of life; rather, those deaths are spread across the age spectrum. Some residents die much too young – perhaps in infancy, or in early adulthood, or from the effects of chronic diseases being played out decades too soon. These premature deaths have a larger influence on a community's life expectancy than do deaths at older ages.

Our calculations of life expectancy at birth are based upon the record of deaths and corresponding population size in a given county or zip code during the five-year period from 2009-2013. [See Methods Appendix.]

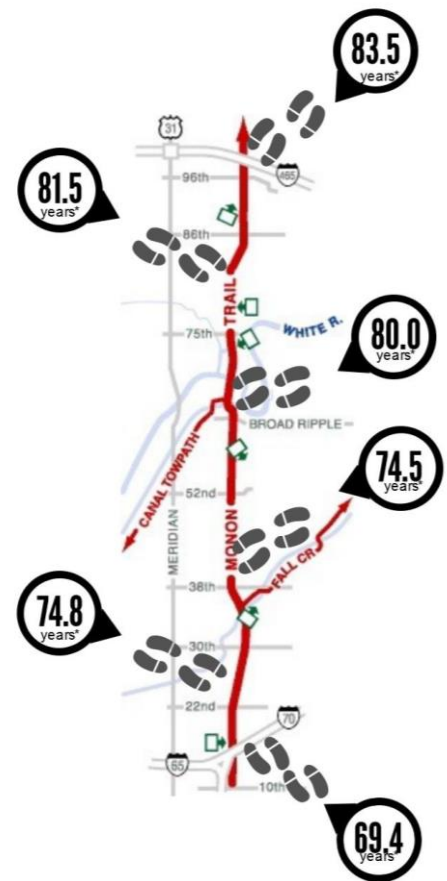
## Not all of us are living longer

Life expectancy rose dramatically in the U.S. between 1900 and 1950, largely due to improvements in basic living conditions as well as public health advances such as immunization. Since 1950, life expectancy in the U.S. has increased more slowly, yet steadily, from 68.2 years to 78.8 years in 2013 – a gain of 10 years over a span of six decades. Unfortunately, gains in the U.S. have not kept pace with other wealthy, developed nations. Despite outspending other countries in healthcare costs, we have lower life expectancy than our wealthy, developed peers, such as Australia, France, Germany, Italy, and the United Kingdom.

Additionally, these gains in U.S. life expectancy have not been shared equally across the whole of society. In 2010, a 6 year gap between the best state (Hawaii, 81.3 years) and the worst state (Mississippi, 75.0 years) was reported, with Indiana ranking 39th among the 50 states at 77.6 years.

## Where do you hit the trail?

The Monon Trail, a 10.4 mile multi-use greenway through the heart of Indianapolis, runs from 10<sup>th</sup> Street to 96<sup>th</sup> Street. Life expectancy drops 14 years from the north end of the trail to the south end (based on life expectancies by zip code).



Monon Trail Map, City of Indianapolis,  
<http://www.indy.gov/eGov/City/DPR/Greenways/Pages/Monon%20Trail.aspx>

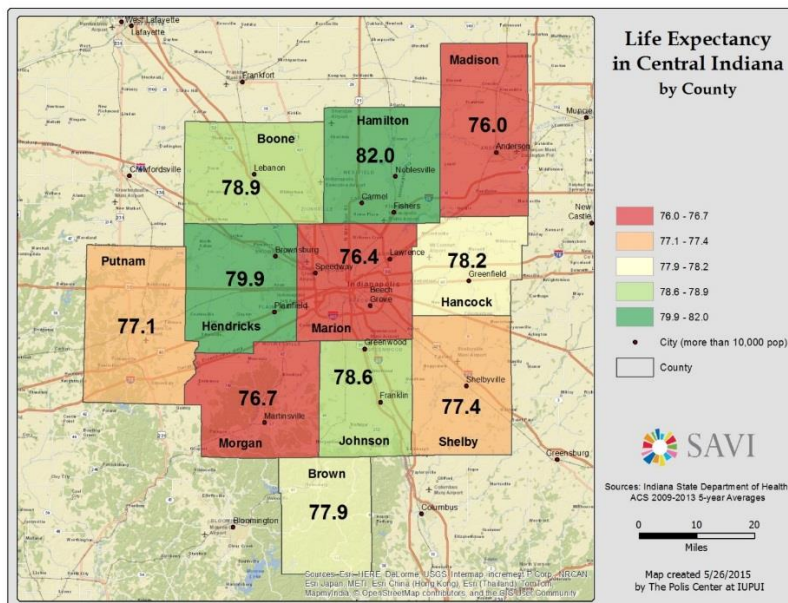
Nearly one-fourth of the ZIP codes in the Indianapolis MSA (25 of 104 analyzed), home to roughly 385,000 people, have life expectancies below the 1990 U.S. average (75.4 years) – *demonstrating more than a 20 year lag behind the country overall.*

**In the metro Indy community with the lowest life expectancy, a baby born today can expect to live only as long as a baby born in the U.S. *more than 60 years ago.***

Our results demonstrate that the benefits of progress have not been actualized in many communities of metro Indy. There is a gap of 6 years of life expectancy between the highest and lowest ranking counties in the MSA. While Hamilton and Madison share a border, they stand out in contrast to one another; Hamilton has the highest county life expectancy, while Madison has the lowest.

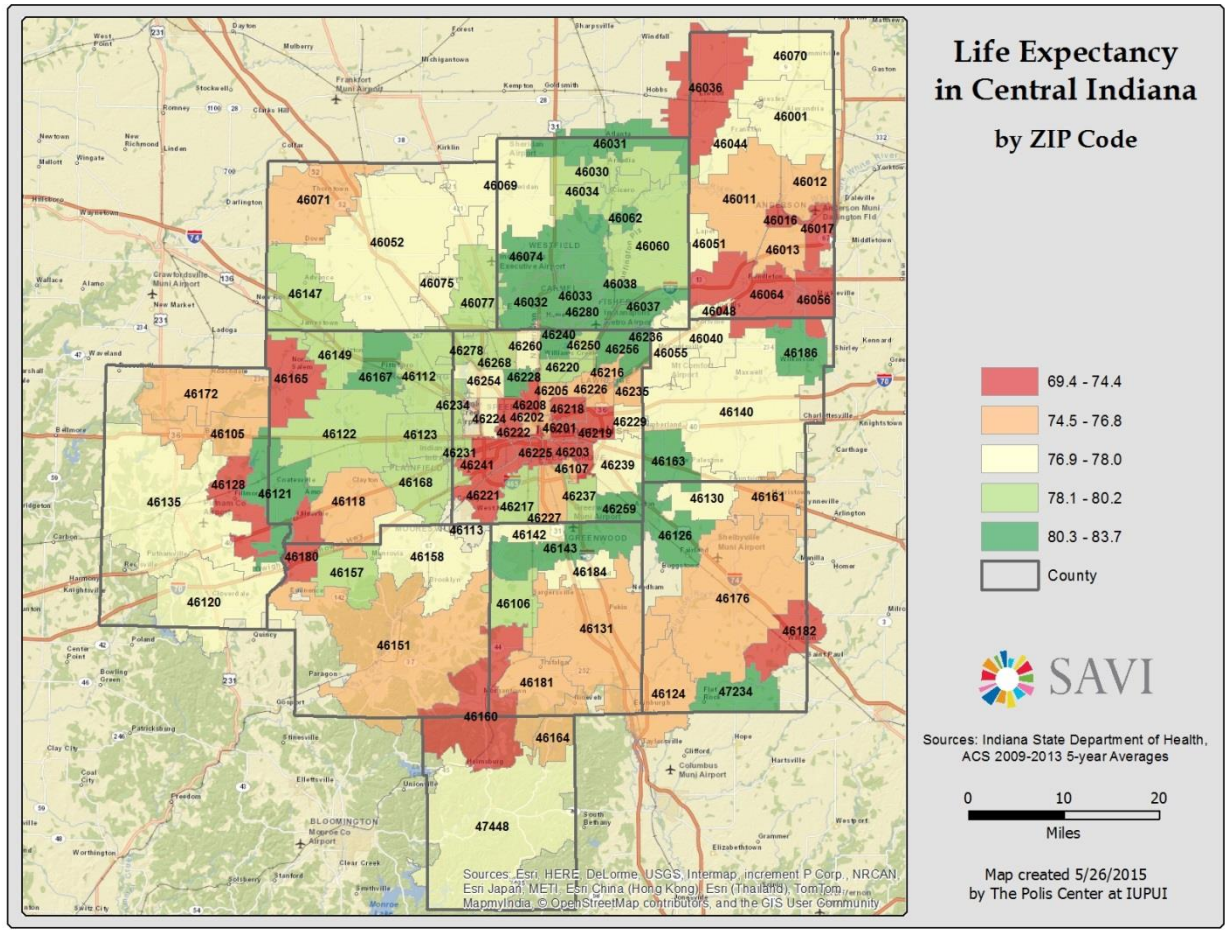
### RANKING FOR LIFE EXPECTANCY BY COUNTY

Rank	County	County Life Expectancy at Birth in Years (2009-2013)	Gap in Years Compared to Rank 1
1	Hamilton	82.0	--
2	Hendricks	79.9	-2.1
3	Boone	78.9	-3.1
4	Johnson	78.6	-3.4
5	Hancock	78.2	-3.8
6	Brown	77.9	-4.1
7	Shelby	77.4	-4.6
8	Putnam	77.1	-4.9
9	Morgan	76.7	-5.3
10	Marion	76.4	-5.6
11	Madison	76.0	-6.0

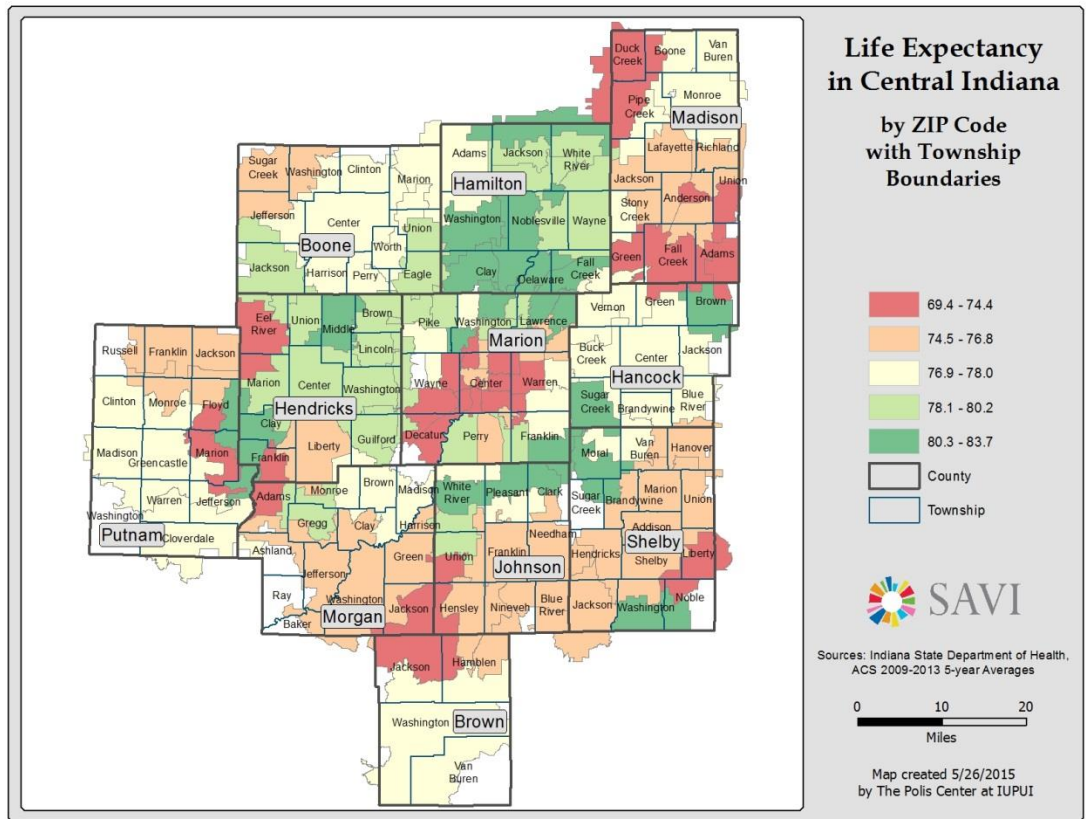
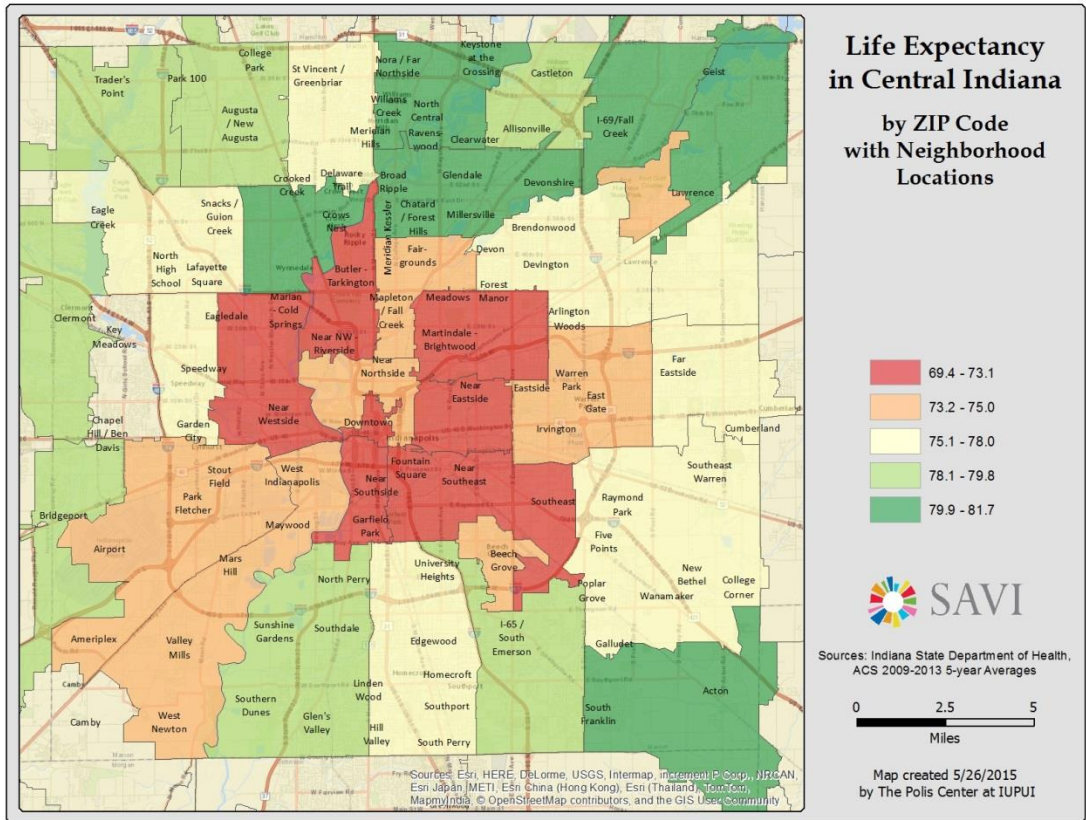




By looking at smaller geographic areas, such as ZIP codes, neighborhoods, or townships, the place-to-place variation becomes even more apparent. Consistent with patterns noted in other U.S. cities, there is a cluster of low life expectancy in the **ZIP codes** of the urban core, while areas of high life expectancy form a ring around that core along the suburban transitions from the city. Outside that ring of advantage are several pockets of low life expectancy in the outer periphery of the MSA.



People often identify socially with a **neighborhood** or **township** more than a ZIP code. In the two maps that follow, we visualize life expectancy by neighborhoods within Marion County and by townships across the Indianapolis metropolitan area. Again we see clear differences between neighborhoods or townships separated by a few miles or even a few blocks of distance. “Place” in this case represents much more than a point on a map.



## Upstream drivers of health and length of life

These gaps in life expectancy do not occur randomly. While only 25% of the health of a population is attributed to genes, biology, and health behaviors, roughly 75% of population health is attributed to upstream “social determinants of health.” Some populations have greater access to health-promoting and health-protecting resources and opportunities than others, and this differential access plays out repeatedly in the everyday “circumstances in which people are born, grow up, live, work, and age...” (U.S. Centers for Disease Control and Prevention).

In many places, meeting fundamental human needs is difficult due to economic and social disadvantage. Accessing resources that many of us take for granted such as: quality childcare and quality education, safe and affordable housing, a secure job with decent pay, air and soil free of toxic pollutants, and a place to play, shop, or socialize with neighbors without fear of crime and discrimination is extremely difficult in some communities. All of these differences in opportunity contribute to variations in the number of years certain populations can expect to live.

## Progress toward equity is possible

What is possible in one central Indiana community is also possible in another. A distance of 28 miles should not place our children worlds apart in terms of their life chances. Visualizing life expectancy in the Indianapolis metropolitan area through a variety of lenses is useful to invite reflection on why such gaps in life expectancy exist and how varying forms of civic engagement and policy change might spur action for health equity. History has provided examples of both rapid increases and rapid decreases in life expectancy.

**Social and economic policies are the underlying drivers; health and life chances cannot be separated from the societal context in which people live.**

Whether our society provides each child the opportunity to attend a quality kindergarten program, for example, is as much a health policy as it is an education policy. Applying lessons learned around the world, we know a great deal about how to reshape our society in ways that give all our children, no matter their ZIP code, a fair opportunity for long and healthy lives.

### What is health equity?

*“Health equity is the absence of unfair and avoidable or remediable differences in health among social groups.”*

World Health Organization,  
2010

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## Bibliography

- Braveman, P., Sadegh-Nobari, T., & Egerter, S. (2008). Early childhood experiences: Laying the foundation for health across a lifetime. Retrieved from <https://folio.iupui.edu/handle/10244/613>
- Centers for Disease Control and Prevention. Social Determinants of Health - Frequently Asked Questions. (2014, March 21). Retrieved March 30, 2015, from <http://www.cdc.gov/socialdeterminants/FAQ.html>
- Braveman, P., Egerter, S., & Williams, D. R. (2011). The Social Determinants of Health: Coming of Age. *Annual Review of Public Health*, 32(1), 381–398. <http://doi.org/10.1146/annurev-publhealth-031210-101218>
- Centers for Disease Control and Prevention. (2013). CDC Health Disparities and Inequalities Report - United States, 2013. *Morbidity and Mortality Weekly Report*, 62(3), Supplement. Retrieved from <http://www.cdc.gov/mmwr/pdf/other/su6203.pdf>
- Centers for Disease Control and Prevention. Life Expectancy - Deaths: Final Data for 2013 (Table 8: Life expectancy at birth...: United States, 1940, 1950, 1960, 1970, and 1975-2013. Retrieved March 20, 2015, from [http://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64\\_02.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_02.pdf)
- Fitzpatrick, J. (2001). *Calculating life expectancy and infant mortality rates* (report). Retrieved from <http://www.lho.org.uk/viewResource.aspx?id=7656>
- Kaiser Family Foundation. (2015). Life Expectancy at Birth (in years), 2010. Retrieved from <http://kff.org/other/state-indicator/life-expectancy/>
- National Center for Health Statistics. (2014). *Health, United States, 2013* (DHHS Publication No. 2014-1232) (Table 17, page 1 of 2). Life expectancy at birth, by sex: Organisation for Economic Co-operation and Development (OECD) countries, selected years 1980–2011). Retrieved from <http://www.cdc.gov/nchs/data/hus/2013/017.pdf>
- National Institute on Aging. (2012, March 26). Living Longer. Retrieved March 27, 2015, from <http://www.nia.nih.gov/research/publication/global-health-and-aging/living-longer>
- London Health Observatory (2001, October 25). Life expectancy template [table]. Retrieved September 11, 2014, from <http://www.lho.org.uk/viewResource.aspx?id=7657>
- Robert Wood Johnson Foundation, Commission to Build a Healthier America. Birth Place and Life Expectancy: A Look at American Cities. (n.d.). Retrieved October 21, 2014, from <http://www.rwjf.org/en/about-rwjf/newsroom/features-and-articles/Commission/resources/city-maps.html>
- Rowland, D. T. (2003). Chapter 8: Life Tables. In *Demographic Methods and Concepts*, (pages 265-343). New York: Oxford University Press.

Sullivan, P. (2013, July 10). U.S. life expectancy on the rise, but progress lags global peers'. *The Washington Post*. Retrieved from [http://www.washingtonpost.com/national/health-science/us-life-expectancy-on-rise-but-progress-lags-global-peers/2013/07/10/dff836c4-e8c3-11e2-aa9f-c03a72e2d342\\_story.html](http://www.washingtonpost.com/national/health-science/us-life-expectancy-on-rise-but-progress-lags-global-peers/2013/07/10/dff836c4-e8c3-11e2-aa9f-c03a72e2d342_story.html)

World Health Organization. Key concepts. (2015). Retrieved March 30, 2015, from [http://www.who.int/social\\_determinants/thecommission/finalreport/key\\_concepts/en/](http://www.who.int/social_determinants/thecommission/finalreport/key_concepts/en/)

World Health Organization, Commission on Social Determinants of Health. (2008). *Closing the gap in a generation: Health equity through action on the social determinants of health* (Executive Summary). Retrieved from [http://whqlibdoc.who.int/hq/2008/WHO\\_IER\\_CSDH\\_08.1\\_eng.pdf?ua=1](http://whqlibdoc.who.int/hq/2008/WHO_IER_CSDH_08.1_eng.pdf?ua=1)

World Health Organization. (2015). Life Expectancy at Birth, 1990-2013, Both Sexes, 2013. Retrieved June 29, 2015, from [http://gamapserv.who.int/gho/interactive\\_charts/mbd/life\\_expectancy/atlas.html](http://gamapserv.who.int/gho/interactive_charts/mbd/life_expectancy/atlas.html)

# Appendix A

## Methods

Life expectancy at birth is a prediction of the number of years a baby born in a certain place today will live based upon the death rates of those who lived in the area during the time period studied, *should all things remain the same*.

In our analysis, life expectancy at birth was derived for 11 counties and 104 ZIP codes in the Indianapolis Metropolitan Statistical Area (MSA) through the calculation of abridged life tables for the years 2009-2013, consistent with established methodology (Fitzpatrick, 2001 and Rowland, 2003). A Life Table Template was obtained from the London Health Observatory, was annotated and utilized for automated calculations in Excel. The abridged life tables use death and population data that are aggregated by the following age groups: less than 1 year, 1-4 years, 5-year age groups for ages 5-9 to ages 80-84, and a group for age 85+.

- The count of deaths occurring by age group in the five-year period 2009-2013, by county and ZIP code, was obtained from the Indiana State Department of Health. Only 6 of 75,000+ deaths in the 5-year period were to individuals of unknown age, therefore, these were not considered to have any effect on life expectancy results.
- Five-year population estimates by county and ZIP code, also for the period of 2009-2013, were drawn from the American Community Survey, and provided by The Polis Center. The population of those age <1 and 1-5 were attributed at 20% and 80% of the total population 0-5, given that population estimates are not available for <1 and 1-5. This is consistent with approach taken by Place Matters teams in affiliation with Virginia Commonwealth University and the Robert Wood Johnson Foundation.

(<http://www.societyhealth.vcu.edu>)

Using multiple years of data is recommended for small geographies such as ZIP codes to improve accuracy of the estimates, thus our selection of the five year period 2009-2013. For additional caution, we suppressed results for any ZIP codes with fewer than 1000 residents or fewer than 10 deaths annually. Areas with too few deaths or too small a total population can result in unstable age-specific death rates and life expectancy estimates. Also, life expectancy for three ZIP codes were not reported because the population of the age group 85+ was estimated to be zero, however 1 or more deaths were reported. A total of 398 annual deaths (<3% of the total annual deaths) occurred in these suppressed ZIP codes.

## Appendix B

**Life Expectancy at Birth by ZIP Code, Based on 2009-2013 Deaths and ACS Population Estimates**

<b>ZIP CODE</b>	<b>LIFE EXPECTANCY</b>	<b>ZIP CODE</b>	<b>LIFE EXPECTANCY</b>	<b>ZIP CODE</b>	<b>LIFE EXPECTANCY</b>
46001	77.4	46121	82.9	46208	72.6
46011	75.6	46122	79.7	46216	75.0
46012	76.8	46123	79.1	46217	79.5
46013	76.7	46124	76.0	46218	70.6
46016	70.4	46126	80.7	46219	74.2
46017	74.4	46128	71.9	46220	80.0
46030	78.2	46130	77.9	46221	74.0
46031	81.1	46131	76.3	46222	73.1
46032	82.0	46135	76.9	46224	77.0
46033	83.7	46140	77.4	46225	69.4
46034	80.2	46142	78.0	46226	76.2
46036	73.7	46143	81.3	46227	76.8
46037	81.6	46147	78.3	46228	81.6
46038	80.4	46149	80.0	46229	77.1
46040	77.0	46151	76.0	46231	78.3
46044	77.1	46157	78.9	46234	79.4
46048	74.4	46158	77.9	46235	75.5
46051	77.7	46160	74.2	46236	80.6
46052	77.8	46161	76.5	46237	78.8
46055	77.5	46163	80.9	46239	78.0
46056	73.7	46164	75.7	46240	81.5
46060	78.2	46165	74.3	46241	73.5
46062	83.6	46167	81.3	46250	78.9
46064	72.3	46168	80.2	46254	77.8
46069	77.9	46172	76.1	46256	81.7
46070	77.2	46176	76.6	46259	80.8
46071	76.5	46180	73.1	46260	78.0
46074	82.2	46181	75.5	46268	79.8
46075	77.6	46182	72.5	46278	79.2
46077	79.6	46184	77.7	46280	83.5
46105	74.8	46186	80.6	47234	81.4
46106	79	46201	70.5	47448	77.2
46107	74.9	46202	74.8		
46112	79.2	46203	71.5		
46118	75.5	46204	71.4		
46120	77.5	46205	74.5		