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About the Neighborhood Atlas®

Living in a disadvantaged neighborhood has been linked to a number of healthcare outcomes, including higher rates of diabetes and cardiovascular disease, increased utilization of health services, and earlier death [1-5]. Health interventions and policies that don't account for neighborhood disadvantage may be ineffective [1]. The Neighborhood Atlas website was created in order to freely share measures of neighborhood disadvantage with the public, including educational institutions, health systems, not-for-profit organizations, and government agencies, in order to make these metrics available for use in research, program planning, and policy development. The site was launched May 1, 2018. The first such metric, the 2013 Area Deprivation Index (ADI) was made available through the website at that time. An updated version, the 2015 ADI, is now available through the website. As future indices are developed, they will be added to the website.

Footnotes:

1. Link BG, Phelan J. Social conditions as fundamental causes of disease. J Health Soc Behav 1995; Spec No: 80-94.
2. Ludwig J, Sanbonmatsu L, Gennetian L, et al. Neighborhoods, obesity, and diabetes– a randomized social experiment. N Engl J Med 2011; 365: 1509-19.
3. Kind AJ, Jencks S, Brock J, et al. Neighborhood socioeconomic disadvantage and 30-day rehospitalization: a retrospective cohort study. Ann Intern Med 2014; 161: 765-74.
4. Lantos PM, Hoffman K, Permar SR, et al. Neighborhood disadvantage is associated with high cytomegalovirus seroprevalence in pregnancy. J Racial Ethn Health Disparities 2018; 5(4): 782-786
5. Hu J, Kind AJH, Nerenz D. Area Deprivation Index predicts readmission risk at an urban teaching hospital.

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The Area Deprivation Index (ADI) is based on a measure created by the Health Resources & Services Administration (HRSA) over two decades ago for primarily county-level use, but refined, adapted, and validated to the Census block group/neighborhood 🔵 level by Amy Kind, MD, PhD and her research team at the University of Wisconsin-Madison. It allows for rankings of neighborhoods by socioeconomic status disadvantage in a region of interest (e.g. at the state or national level). It includes factors for the theoretical domains of income, education, employment, and housing quality. It can be used to inform health delivery and policy, especially for the most disadvantaged neighborhood groups.

Considerations for Use

The ADI is limited insofar as it uses American Community Survey (ACS) Five Year Estimates in its construction. For example, the 2015 ADI uses the ACS data for 2015, which is a 5-year average of ACS data obtained from 2011-2015. All limitations of the source data will persist throughout the ADI. The choice of geographic units will also influence the ADI value. In the case of the ADI the Census Block Group is the geographic unit of construction, as the Census Block Group is considered the closest approximation to a "neighborhood". All results are subject to the accuracy and errors contained within the American Community Survey data release.

Changes from Previous Versions

For methodological changes between between the 2013 and 2015 ADIs available on this site, please see the ADI changelog.

How to Use This Site

This site offers several different ways to use the Area Deprivation Index (ADI).

- The Mapping function allows you to view a state or the entire country mapped by 2015 ADI. This will show areas of relatively high disadvantage as well as areas of moderate to less disadvantage. Neighborhoods may be ranked relative to the full nation or relative to other neighborhoods within just that one state. You may also use the Mapping function to select a state, then enter an address to view the ADI ranking for the Census block group that contains that address.
- In addition to exploring the ADI through the Mapping function, you may download a PDF map for the nation or by state.
- The Download function allows you to download ADI rankings by different geographic regions. Prior to downloading any ADI dataset, please read the download instructions.

Citation

University of Wisconsin School of Medicine and Public Health. *{specify year}* Area Deprivation Index *{specify version}*. Downloaded from https://www.neighborhoodatlas.medicine.wisc.edu/ *{date}*

Example: University of Wisconsin School of Medicine Public Health. 2015 Area Deprivation Index v2.0. Downloaded from https://www.neighborhoodatlas.medicine.wisc.edu/ May 23, 2019.
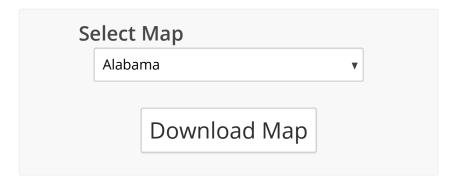
Selected Publications Using the ADI

- Jencks SF, Schuster A, Dougherty GB, Gerovich S, Brock JE, Kind AJH. Safety-net Hospitals, Neighborhood Disadvantage, and Readmissions: An Observational Study under Maryland's All-Payer Program. *Annals of Internal Medicine*, 2019. 171(2):91-98. PMCID: PMC6736732.

- Kind AJH, Buckingham W. Making Neighborhood Disadvantage Metrics Accessible: The Neighborhood Atlas. *New England Journal of Medicine*, 2018. 378: 2456-2458. DOI: 10.1056/NEJMp1802313. PMCID: PMC6051533.

- Hu J, Kind AJH, Nerenz D. Area deprivation index predicts readmission risk at an urban teaching hospital. *Am J Med Qual*, 2018. 33(5): 493-501. PMCID: PMC6027592. *Cited in Medicare Payment Advisory Commission (MedPAC). Report to the Congress: Medicare and the Healthcare Delivery System. 2018 (June).*

- Kind AJH, Jencks S, Brock J, Yu M, Bartels C, Ehlenbach W, Greenberg C, Smith M. Neighborhood Socioeconomic Disadvantage and 30 Day Rehospitalization: A Retrospective Cohort Study. *Annals of Internal Medicine*, 2014. 161(11):765-774. PMCID: PMC4251560.

For more abstracts and publications using the ADI, please see the full list of citations.

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deciles, please choose your region below, then click "Download PDF". If you would like to explore the ADI through an interactive map, please see the Mapping function.

Select Map

Alabama   ▾

Download Map

Frequently Asked Questions

- What do the ADI values mean?
- What methodology was used to create these ADI datasets?
- Why are there two versions of the ADI available for download?
- Why are some block groups missing ADI ranks?
- How can I use the ADI?
- What is the difference between a percentile and a decile?
- What is the difference between a raw score and a ranking?
- Why are some ZIP codes missing ADI ranks?
- Do you have a 5-digit ZIP code dataset available, or a ZCTA-level dataset?
- Why is there no 2015 v1.0?

What do the ADI values mean?

The ADIs on this website are provided in national percentile rankings at the block group level from 1 to 100. The percentile are constructed by ranking the ADI from low to high for the nation and grouping the block groups/neighborhoods into bins corresponding to each 1% range of the ADI. Group 1 is the lowest ADI and group 100 is the highest ADI. A block group with a ranking of 1 indicates the lowest level of "disadvantage" within the nation and an ADI with a ranking of 100 indicates the highest level of "disadvantage".

Similarly, ADIs are also available in deciles from 1 to 10 for each individual state. The state deciles are constructed by ranking the ADI from low to high for each state alone without consideration of national ADIs. Again, group 1 is the lowest ADI (least disadvantaged) and 10 is the highest ADI (most disadvantaged).

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- Singh GK. Area deprivation and widening inequalities in US mortality, 1969-1998. Am J Public Health 2003;93(7):1137-43.
- Kind AJH, Jencks S, Brock J, et al. Neighborhood socioeconomic disadvantage and 30-day rehospitalizations: an analysis of Medicare data. Ann Intern Med 2014;161(11):765-74.

Why are there two versions of the ADI available for download?

There are two versions of the ADI available for download through the website. The 2013 version was created using 2009-2013 American Community Survey (ACS) data; the 2015 version was created using 2011-2015 ACS data. In addition to the methodology noted above, construction of the 2015 ADI and 2013 ADI v2.0 included suppression of block groups containing any of the following: less than 100 people, less than 30 housing units or more than 33% of the population living in group quarters to address concerns regarding face validity of the 2013 ADI v1.0 [6]. Methodological changes are also recorded in the ADI changelog.

Footnotes:

6. Diez Roux AV, Kiefe CI, Jacobs DR, Haan M, Jackson SA, Nieto FJ, Paton CC, Schulz. Area Characteristics and Individual-Level Socioeconomic Position Indicators in Three Population-Based Epidemiological Studies. Annals of Epidemiology, 2001,11(6):395-405

Why are some block groups missing ADI ranks?

When a Census Block Group falls into one or more of the suppression criteria mentioned about the ADI rank is replaced with a code describing the suppression reason. Three possible codes will appear in the ADI field: PH for suppression due to low population and/or housing, GQ for suppression due to a high group quarters population, and PH-GQ for suppression due to both types of suppression criteria.

How can I use the ADI?

The ADI can be used for several different purposes. Health systems and health care providers can use the ADI to target program delivery by geographic location based on the area of greatest disadvantage. For example, the Centers for Medicare and Medicaid (CMS) is currently using the ADI to target program delivery of the Everyone with Diabetes Counts program.

The ADI can also be used for research purposes. For example, using the ADI based on 2000 Census data, Kind et al (2014) found that the risk of living in a disadvantaged neighborhood is similar to that of having a chronic lung disease, like emphysema, and worse than that of health conditions such as diabetes when it comes to readmission risk.

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disadvantaged neighborhoods; over half would have seen a decline in their readmission penalty if such an adjustment had been applied.

What is the difference between a percentile and a decile?

A percentile splits the ADI scores into 100 equal sections, categorizing the individual block group/neighborhood, with those in the first percentile being the least disadvantaged, and those in the hundredth being the most. A decile groups the ADI scores into 10 equal sections.

Percentiles are created using the ADI scores for the entire nation, and deciles are created for each state individually.

What is the difference between a raw score and a ranking?

A raw score is the actual score a neighborhood receives based on the theoretical domains that the ADI measures, while the rankings sort the scores by disadvantage at either the state or national level, allowing for easier comparison between neighborhoods.

Because of the way that it is statistically constructed, the ADI should always only be used in a rank-type format. When we released our first public use ADI data set (2000 ADI), we released these as raw scores. However, to appropriately employ such scores, the raw scores always must be converted to ranks. This extra step was a burden to some of our users. As such, to ensure statistically appropriate interpretation of the metric, we decided that for newer ADI releases using the Neighborhood Atlas, all would be converted to ranks to ensure ease of use. We do not currently have plans to release the raw scores for the ADIs available through the Neighborhood Atlas.

Why are some ZIP codes missing ADI ranks?

When ADI values are not represented in the nine digit ZIP code file, it is due to one of three conditions. First, a P indicates that the ZIP code is a post office box and not geographically representative nor included within ACS metrics. Second, a U indicates a unique ZIP code, often these are assigned to businesses or large footprint entities who have large volume of mail delivery and would also be omitted from the ACS. Lastly, a blank ADI value indicates that the conversion of the block group ADI score to ZIP+4 did not produce a match. These are most common in coastal areas where a generalized ZIP+4 may be outside of a block group or offshore.

Do you have a 5-digit ZIP code dataset available, or a ZCTA-level dataset?

No. In recent validation work that used 2009-2013 American Community Survey data, it became clear that the ADI should not be used at any levels other than those core geographic units defined by the Census (see diagram of Census levels). Those with interest in using a

"Employment of ZIP Code Tabulation Areas to link geographic data is a convenient but, ultimately, inferior method for this sort of assessment [7]. It results in relatively large geographic zones with linkages that can lead to less precise estimates, especially in areas in which concentrated poverty abuts more wealthy regions." - Excerpt drawn directly from Kind et al., *Health Affairs*, Sept 15, 2016.

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Footnotes:

7. Grubesic TH, Matisziw TC. On the use of ZIP codes and ZIP code tabulation areas (ZCTAs) for the spatial analysis of epidemiological data. Int J Health Geog 2006;5:58.

Why is there no 2015 v1.0?

The 2015 vintage ADI was constructed exclusively using the v2.0 methodology. Subsequently the 2013 ADI was updated to use the 2.0 methodology. However, the 2015 was not calculated using the prior versions and no plan exists to construct the 2015 using earlier methodological versions.

Create an Account

ADI rankings are free and available to the public, but we ask that you create a login with our system to download them. If you do not have an account, please sign up below!

Name

Email

Password Minimum length: 12 characters

Confirm Password

Place of Employment

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