



# TARGET STROKE PHASE III AND HEALTH EQUITY

American Heart Association



# DISCLOSURES

KT – NO DISCLOSURES

# OVERVIEW

- Target Stroke Phase III
  - Goals
  - Recognition Level
  - Rationale
  - Supporting Literature
- Health Equity

# TARGET STROKE PHASE III

# TARGET STROKE PHASE III NATIONAL GOALS

## PRIMARY GOALS:

- Achieve door-to-needle times within 60 minutes in 85% or more of acute ischemic stroke patients treated with IV thrombolytics
- Achieve **door-to-device** times (arrival to first pass of **thrombectomy** device) in 50% or more of eligible acute ischemic stroke patients within 90 minutes (for direct arriving patients) and within 60 minutes (for transfer patients) treated with endovascular therapy (EVT)

## SECONDARY GOALS:

- Achieve door-to-needle times within 45 minutes in 75% or more of acute ischemic stroke patients treated with IV thrombolytics
- Achieve door-to-needle times within 30 minutes in 50% or more of acute ischemic stroke patients treated with IV thrombolytics

# TARGET STROKE PHASE III RECOGNITION

EFFECTIVE JANUARY 1, 2019 (2020 AWARDS)

- HONOR ROLL
- HONOR ROLL ELITE
- HONOR ROLL ELITE PLUS
- HONOR ROLL ADVANCED THERAPY

# RECOGNITION CRITERIA

	TARGET: STROKE PHASE II	TARGET: STROKE PHASE III
HONOR ROLL	Time to thrombolytic therapy within 60 minutes in 50% or more of acute ischemic stroke patients treated with IV tPA	DTN times within 60 minutes for at least <b>75%</b> of applicable patients are required.
HONOR ROLL ELITE	Time to thrombolytic therapy within 60 minutes in 75% or more of acute ischemic stroke patients treated with IV tPA	DTN times within 60 minutes for at least <b>85%</b> of applicable patients are required.
HONOR ROLL ELITE PLUS	Time to thrombolytic therapy within 60 minutes in 75% or more of acute ischemic stroke patients treated with IV tPA AND time to thrombolytic therapy within 45 minutes in 50% of acute ischemic stroke patients treated with IV tPA	DTN times within <b>45 minutes</b> for at least 75% of applicable patients and DTN times within <b>30 minutes</b> for at least 50% of applicable patients.
HONOR ROLL ADVANCED THERAPY	-	DTD times in at least 50% of applicable patients within 90 minutes for direct arriving and within 60 minutes for transfers

# RECOGNITION ELIGIBILITY

- Must currently hold Gold, Silver or Bronze performance achievement status in Get With The Guidelines®-Stroke
- At minimum, met the goal of door-to-needle (DTN) times as specified for each award in applicable patients (minimum of six patients) for at least one calendar quarter for the initial honor roll award and 4 consecutive quarters for renewal of the honor roll and initial or renewal of honor roll elite or honor roll elite plus.
- Honor Roll Advanced Therapy requires door-to-device (DTD) times in applicable patients (minimum of six patients that qualify for the measure denominator, such that the total of direct arriving or transfer is six or more) for at least one quarter for initial award and for 4 consecutive quarters for renewal of the honor roll advanced therapy.
- Either the Time to Intravenous Thrombolytic therapy - 60 min or Door to IV rt-PA in 60 min (historic-quality) measure may be used to qualify.  
*(Comparable measure constructs for 45 minute and 30 minutes may be used as well.)*
- For Honor Roll Advanced Therapy, patients with arrival times >6 hours after last known well can be included or excluded at the discretion of participating hospitals but this decision must be applied consistently to all to all endovascular patients.



# TARGET STROKE 12 KEY BEST PRACTICE STRATEGIES

## DOOR-TO-DEVICE

1. Rapid administration of Alteplase
2. Rapid acquisition and interpretation of CT/MR Angiography
3. Rapid acquisition and interpretation of additional imaging
4. Pre-notification and rapid activation of the neurointerventional team
5. Rapid availability of the neurointerventional team
6. Time or clock attached to chart, clip board, or bed
7. Transfer directly to neuroangiography suite
8. Transfer directly from brain imaging suite to neuroangiography suite
9. Endovascular therapy ready in neuroangiography suite
10. Team based approach
11. Anesthesia access and protocols
12. Prompt data feedback

# RATIONALE

- Findings from Target Stroke Phase I and II support the favorable impact of applying performance improvement technique: identifying best practices, clinical decision support, guideline-driven care improvement tools, educational outreach, collaborative support, performance profiling, feedback, and recognition
- Programs to facilitate rapid administration of thrombolytics such as Target Stroke have substantially improved care and outcomes and should be applied globally
- Target Stroke Phase III aims to facilitate and incentivize hospitals and stroke systems of care to provide IV thrombolytic and endovascular therapy to eligible patients with AIS in a timely fashion
- Target Stroke Phase III is designed to further improve care and outcomes for patients with AIS

# SPECIFIC RATIONALE

## FIRST PASS VS SKIN PUNCTURE

- When reperfusion happens is subjective and is captured with TICl score
- Variability with time of puncture and when device accessed clot
- Science Committee felt first pass of device is best measurement for time of reperfusion as it is the most valid and consistently abstracted

## 30-60-90 NUMBERS

- These numbers are a continuum of the past DTN times
- Reviewed data for door-to-device times and found significant differences between transfer and direct arriving patients
- This measure is meant to push hospitals and drive care forward

# SUPPORTING LITERATURE – FROM PHASE I AND II

FONAROW, G. C., SMITH, E. E., SAVER, J. L., REEVES, M. J., BHATT, D. L., GRAU-SEPULVEDA, M. V.,...SCHWAMM, L. H. (2011). TIMELINESS OF TISSUE-TYPE PLASMINOGEN ACTIVATOR THERAPY IN ACUTE ISCHEMIC STROKE: PATIENT CHARACTERISTICS, HOSPITAL FACTORS, AND OUTCOMES ASSOCIATED WITH DOOR-TO-NEEDLE TIMES WITHIN 60 MINUTES. *CIRCULATION*, 123(7), 750-758.

- Benefits of IV tPA are time dependent
- In-hospital mortality was lower and symptomatic intracranial hemorrhage was less frequent for patients with door-to-needle times of less than 60 minutes compared to patients with door-to-needle times greater than 60 minutes

FONAROW, G. C., ZHAO, X., SMITH, E. E., SAVER, J. L., REEVES, M. J., BHATT, D. L.,...SCHWAMM, L. H. (2014). DOOR-TO-NEEDLE TIMES FOR TISSUE PLASMINOGEN ACTIVATOR ADMINISTRATION AND CLINICAL OUTCOMES IN ACUTE ISCHEMIC STROKE BEFORE AND AFTER A QUALITY IMPROVEMENT INITIATIVE. *JAMA*, 311(16), 1632-1640.

- Median DTN time for tPA decreased from 77 minutes to 67 minutes
- In-hospital all-cause mortality improve significantly from the preintervention period to the postintervention period
- Symptomatic ICH was less likely to occur
- Discharge home was more frequent

# SUPPORTING LITERATURE

SAVER, J. L., GOYAL, M., VAN DER LUGT, A., MENON, B. K., MAJOIE, C. B., DIPPEL, D. W.,...HILL, M. D. (2016). TIME TO TREATMENT WITH ENDOVASCULAR THROMBECTOMY AND OUTCOMES FROM ISCHEMIC STROKE: A META-ANALYSIS. *JAMA*, 316(12), 1279-1288.

- Endovascular thrombectomy with second-generation devices is beneficial for patients with AIS due to LVOs
- The odds of better disability outcomes at 90 days with the endovascular group declined with longer time from symptom onset to arterial puncture
- Each 1-hour delay to reperfusion was associated with a less favorable degree of disability
- Earlier treatment with endovascular thrombectomy and medical therapy compared with medical therapy alone was associated with lower degrees of disability at 3 months

# SUPPORTING LITERATURE

PIHLASVIITA, S., MATTILA, O. S., RITVONEN, J. SIBOLT, G., CURTZE, S., STRBIAN, D.,...LINDSBERG, P. J. (2018). DIAGNOSING CEREBRAL ISCHEMIA WITH DOOR-TO-THROMBOLYSIS TIMES BELOW 20 MINUTES. *NEUROLOGY*, 91(6).

- Misdiagnosis of AIS patients altered medical management including administration of unnecessary treatments, omission of thrombolysis, delays to specific treatments of stroke mimics, and delays to antiplatelet medication
- Misdiagnosis extended ED stay (6.6 hours compared to 5.8 hours) and led to unnecessary stroke unit stay in some cases
- Detailed review of each treated stroke mimic reported no adverse side effects
- Findings report the safety of highly optimized door-to-needle times

# SUPPORTING LITERATURE

CAPUTO, L. M., JENSEN, J., WHALEY, M., KOZLOWSKI, M. J., FANALE, C. V., WAGNER, J. C.,...BAR-OR, D. (2016). HOW A CT-DIRECT PROTOCOL AT AN AMERICAN COMPREHENSIVE STROKE CENTER LED TO DOOR-TO-NEEDLE TIMES LESS THAN 30 MINUTES. *THE NEUROHOSPITALIST*, 7(2).

- The safety and efficacy of IV tPA following AIS is dependent on timely administration
- To reduce DTN times, a direct to CT protocol was implemented to streamline the evaluation process of suspected AIS patients
- Median DTN times were significantly reduced (38 to 28 minutes)
- Increased number of patients with DTN times of 30 minutes or less and a decrease in patients with DTN times 31-60 minutes
- The implementation of this direct to CT protocol significantly reduced DTN times without negatively impacting patient safety

# SUPPORTING LITERATURE

ARTTO, V., PUTAALA, J., STRBIAN, D., MERETOJA, A., PIIRONEN, K., LIEBKIND, R.,...HAPPOLA, O. (2012). STROKE MIMICS AND INTRAVENOUS THROMBOLYSIS. *ANNALS OF EMERGENCY MEDICINE*, 59(1), 27-32.

- The necessity for rapid administration of IV tPA in AIS patients may lead to treatment of patients with conditions mimicking stroke
- In this study, 14 stroke mimics were treated
- No stroke mimics (treated) developed symptomatic ICH compared with 9.1% of neuroimaging-positive ischemic stroke patients and 2.2% of patients with neuroimaging-negative ischemic stroke results



# SUPPORTING LITERATURE

SIVAKUMARAN ET AL. (2016). A RETROSPECTIVE COHORT STUDY ON THE USE OF INTRAVENOUS THROMBOLYSIS IN STROKE MIMICS, JOURNAL OF STROKE AND CEREBROVASCULAR DISEASES, 25(5), 1057-1061.

- Stroke mimic cohort tended to be younger and had lower NIHSS at presentation than the AIS cohort
- Time taken from the onset of symptoms to delivery of thrombolytic drugs was longer in the mimic cohort (170 minutes vs 138 minutes)
- No differences regarding blood pressure on admission time and time taken from hospital arrival to delivery of IV tPA
- No adverse events were reported in the mimic cohort
- Despite similarities in clinical presentation, thrombolysed stroke mimics are associated with fewer adverse events compared with thrombolysed AIS patients

# SUPPORTING LITERATURE

NGUYEN & CHANG (2015). STROKE MIMICS AND ACUTE EVALUATION: CLINICAL DIFFERENTIATION AND COMPLICATIONS AFTER INTRAVENOUS TISSUE PLASMINOGEN ACTIVATOR. THE JOURNAL OF EMERGENCY MEDICINE, 49(2), 244-252.

- Timely administration of fibrinolysis should be balanced with the need for an accurate diagnosis
- If stroke mimics arrive within the window for tPA, these patients may erroneously receive treatment
- Clinical outcomes in stroke mimics receiving tPA is overwhelmingly better than their stroke counterparts
- Certain presenting complaints and epidemiological risk factors may help differentiate strokes from mimics, however, detection of stroke often depends on presence of posterior vs anterior circulation strokes

# SUPPORTING LITERATURE

SEVICK, L. K., GHALI, S., HILL, M. D., DANTHUREBANDARA, V., LORENZETTI, D. L., NOSEWORTHY, T.,...CLEMENT, F. (2017). SYSTEMATIC REVIEW OF THE COST AND COST-EFFECTIVENESS OF RAPID ENDOVASCULAR THERAPY FOR ACUTE ISCHEMIC STROKE. *STROKE*, 48, 2519-2526.

- All cost-effectiveness studies in the meta analysis reported a cost per quality-adjusted life year
- Robust body of evidence for the cost and cost-effectiveness of EVT
- While EVT is associated with higher costs, it also resulted in improved patient outcomes
- From the cost-effectiveness studies, EVT seems to be a good value for money when a threshold of \$50,000 per quality adjusted life year gained is adopted

# ADDITIONAL SUPPORTING LITERATURE

- Kamal et al. (2017). Delays in door-to-needle times and their impact on treatment time and outcomes in Get With The Guidelines-Stroke.
- Kamal et al. (2018). Thrombolysis: Improving door-to-needle times for ischemic stroke treatment – a narrative review.
- Joo, Wang, & George (2017). A literature review of cost-effectiveness of intravenous recombinant tissue plasminogen activator for treating acute ischaemic stroke.
- Sheikhi et al. (2017). Early experience on intravenous tissue plasminogen activator delivery in mobile stroke unit patients with stroke mimics.
- Quenardelle et al. (2016). Stroke mimics in a stroke care pathway based on MRI screening.
- Anathhanam & Hassan (2017). Mimics and chameleons in stroke.

**QUESTIONS?**

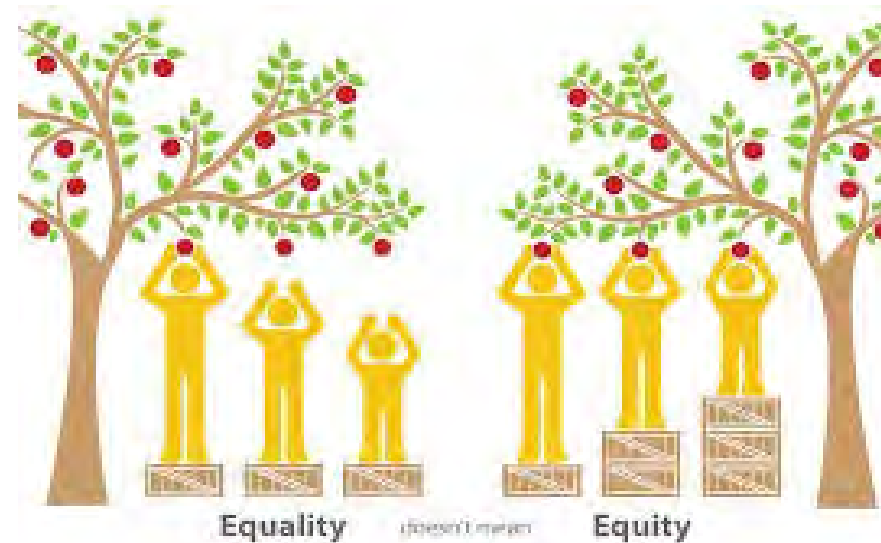
# HEALTH EQUITY

## WHAT IS HEALTH?

Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity (World Health Organization)

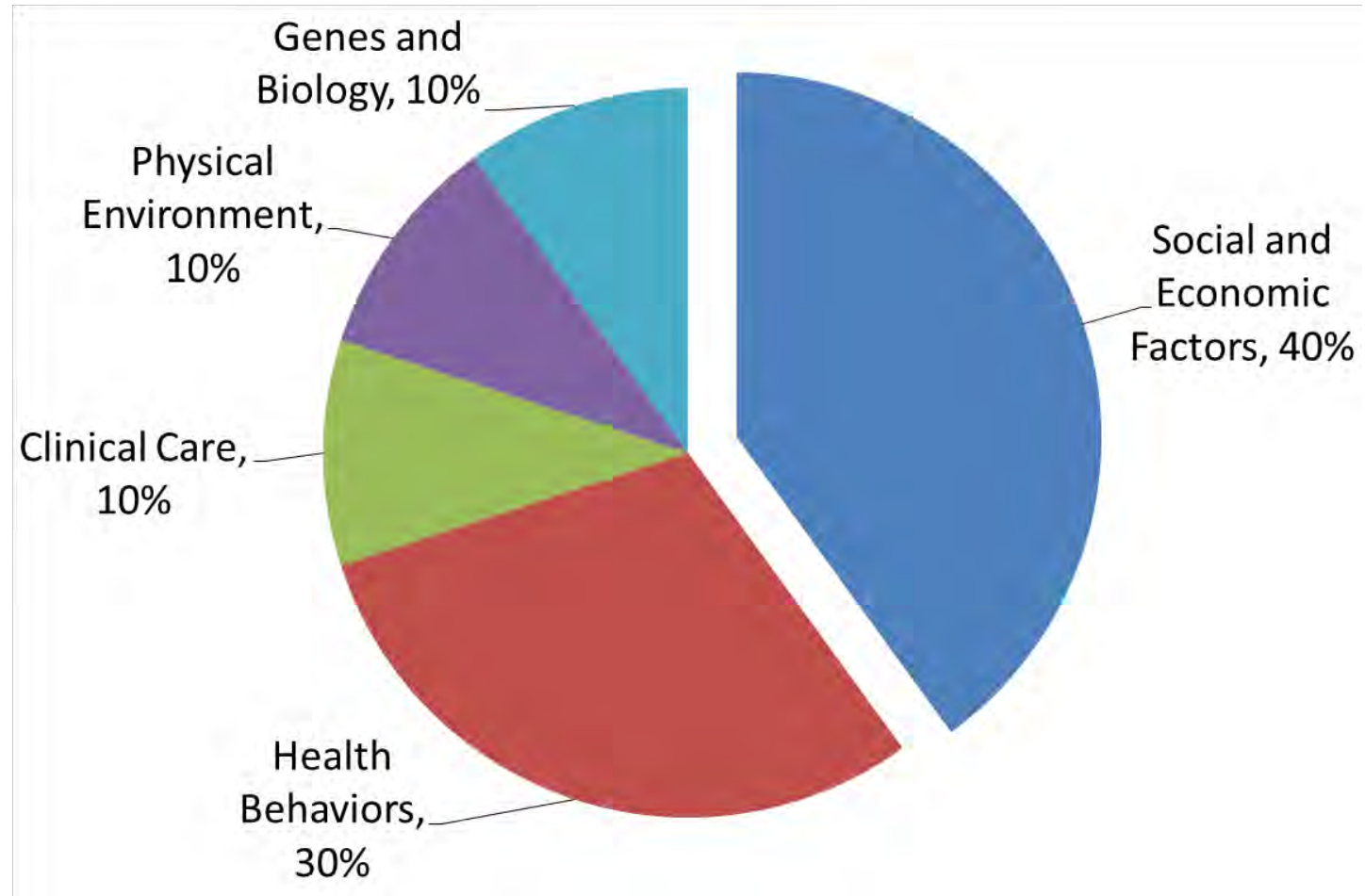
# HEALTH EQUITY

ATTAINMENT OF THE HIGHEST LEVEL OF HEALTH POSSIBLE FOR ALL PEOPLE. ACHIEVING HEALTH EQUITY REQUIRES VALUING EVERYONE WITH FOCUSED AND ONGOING SOCIETAL EFFORTS TO ADDRESS AVOIDABLE INEQUALITIES, HISTORICAL AND CONTEMPORARY INJUSTICES, AND THE ELIMINATION OF HEALTH DISPARITIES AND HEALTH CARE DISPARITIES.

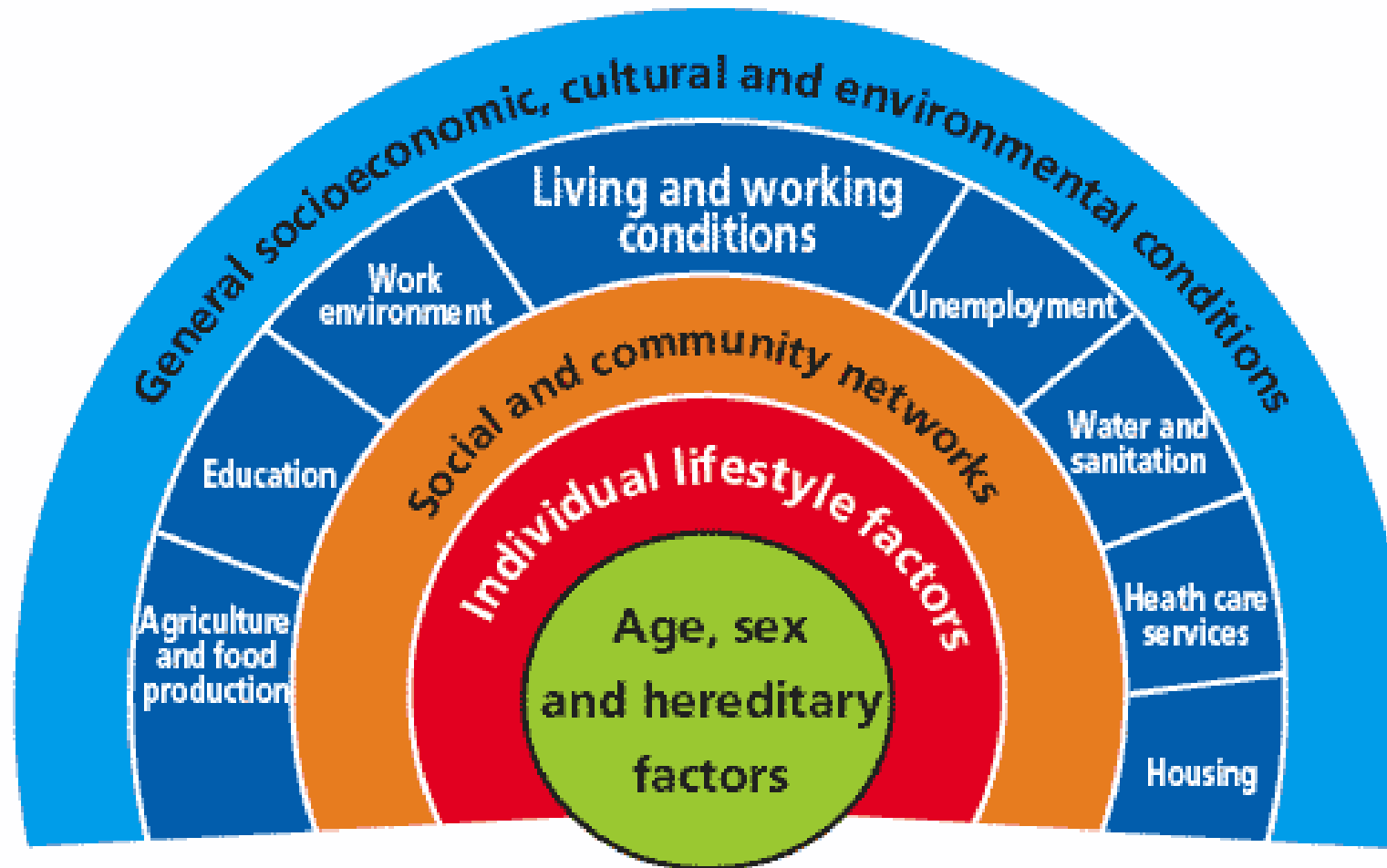




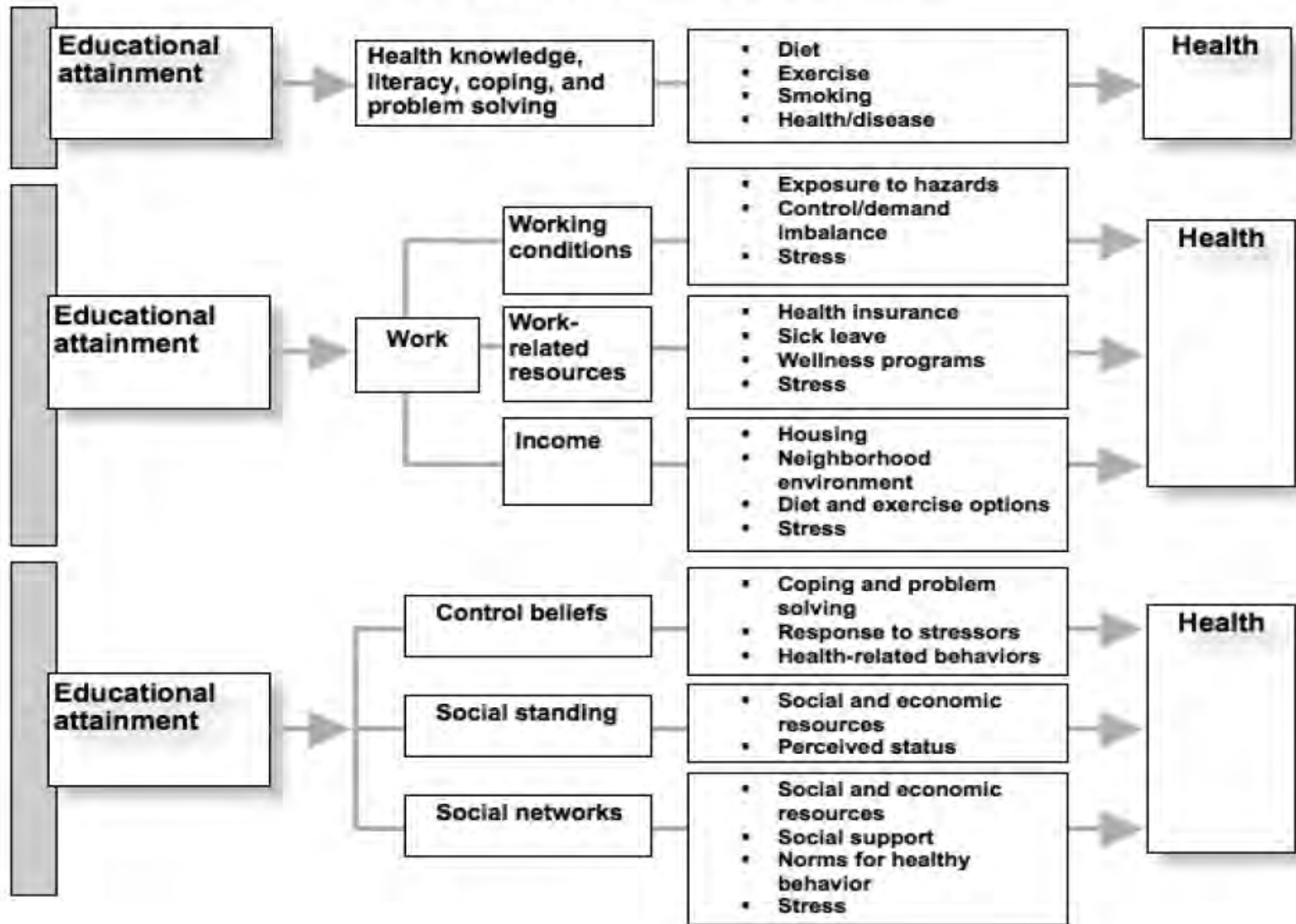
# FACTORS THAT DETERMINE HEALTH



# SOCIAL DETERMINANTS OF HEALTH



# How could education affect health?



## COMMUNITY PLANNING OBJECTIVES



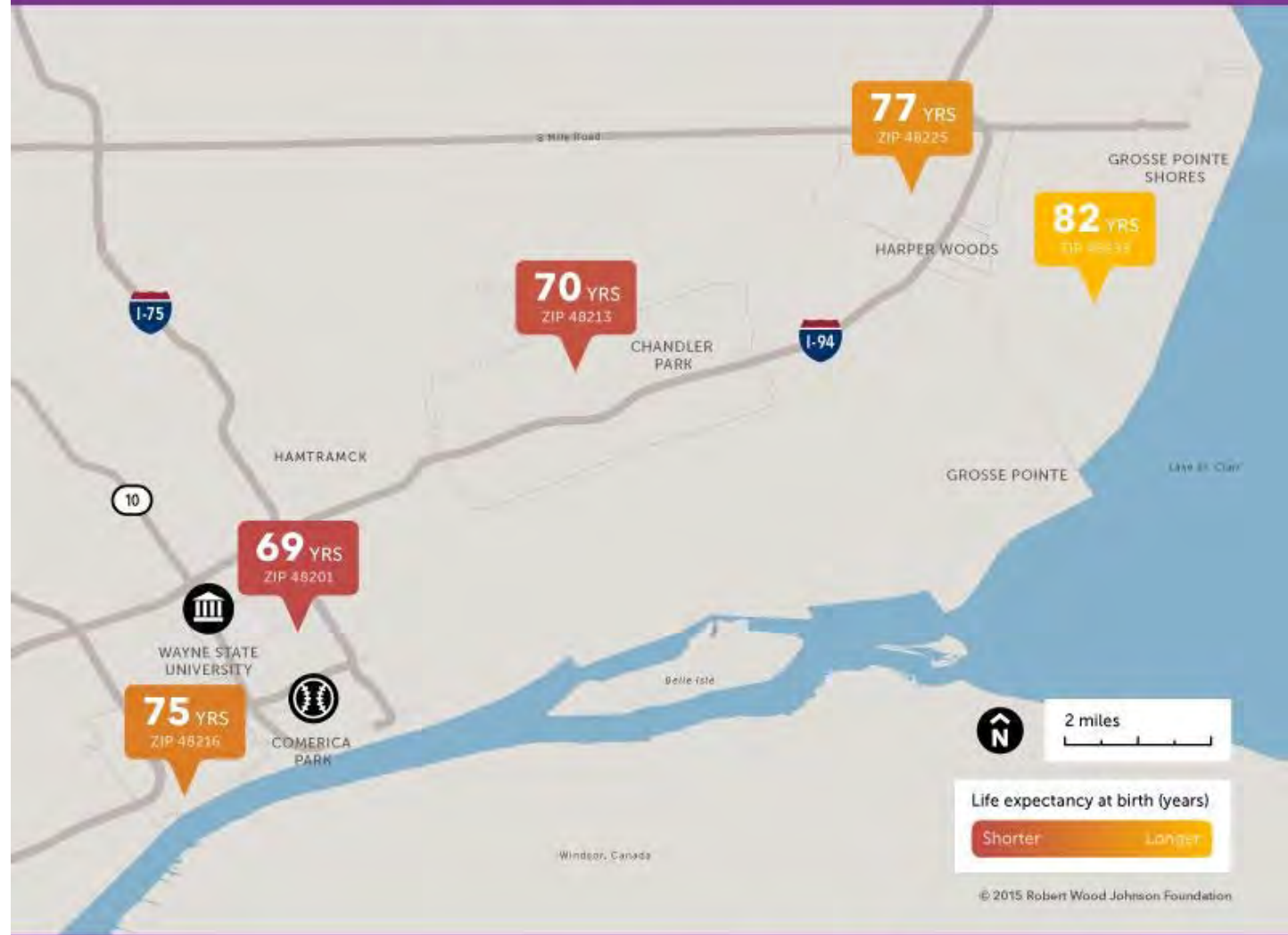
Your zip code determines how long you live more than your genetic makeup.

DETROIT, MICHIGAN

## Short Distances to Large Gaps in Health

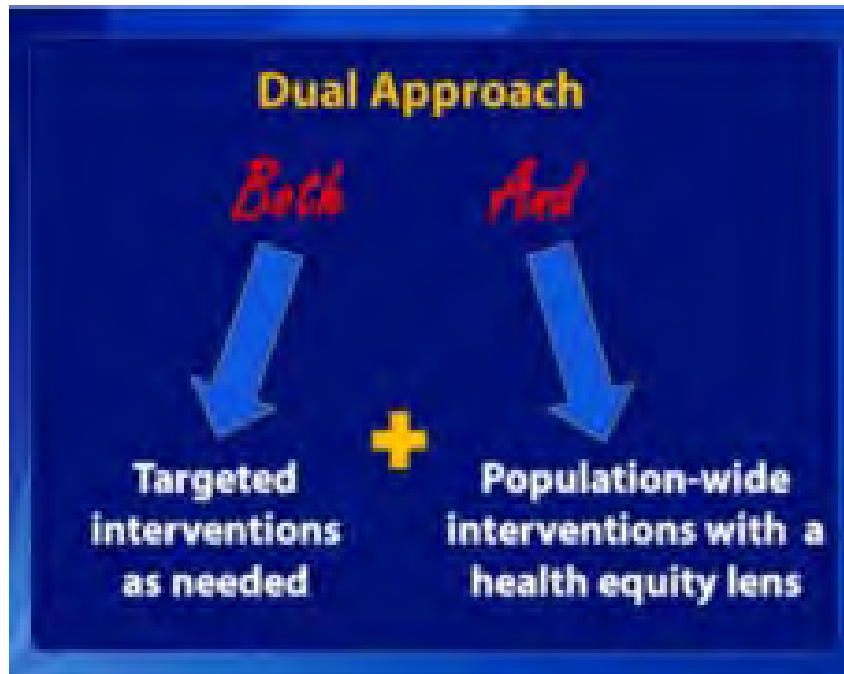
Follow the discussion

#CloseHealthGaps



# IMPORTANCE OF EVALUATING HEALTH EQUITY

Health equity oriented evaluations can be designed to understand what works, for whom, under what conditions and reveal whether health inequalities have decreased, increased, or remained the same.



# LETS LOOK AT OBESITY AND HEALTH EQUITY

- Overweight and Obesity leads to...
  - Coronary Heart Disease
  - High Blood Pressure
  - Stroke
  - Type 2 Diabetes
  - Abnormal lipids
  - Metabolic Syndrome
  - Wait, there's more...

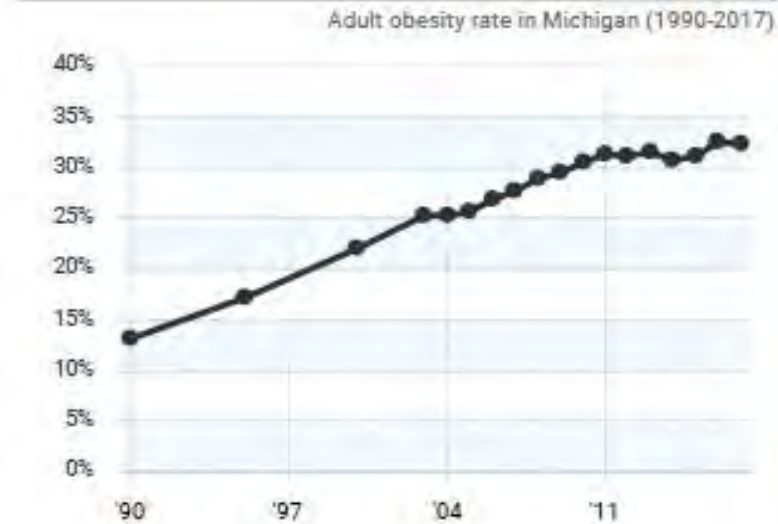
# LETS LOOK AT OBESITY AND HEALTH EQUITY

- Leads to...
  - Cancer
  - Osteoarthritis
  - Sleep Apnea
  - Obesity Hypoventilation Syndrome
  - Reproductive problems
  - Gallstones
- Overweight and Obese children are also likely to be overweight or obese adults



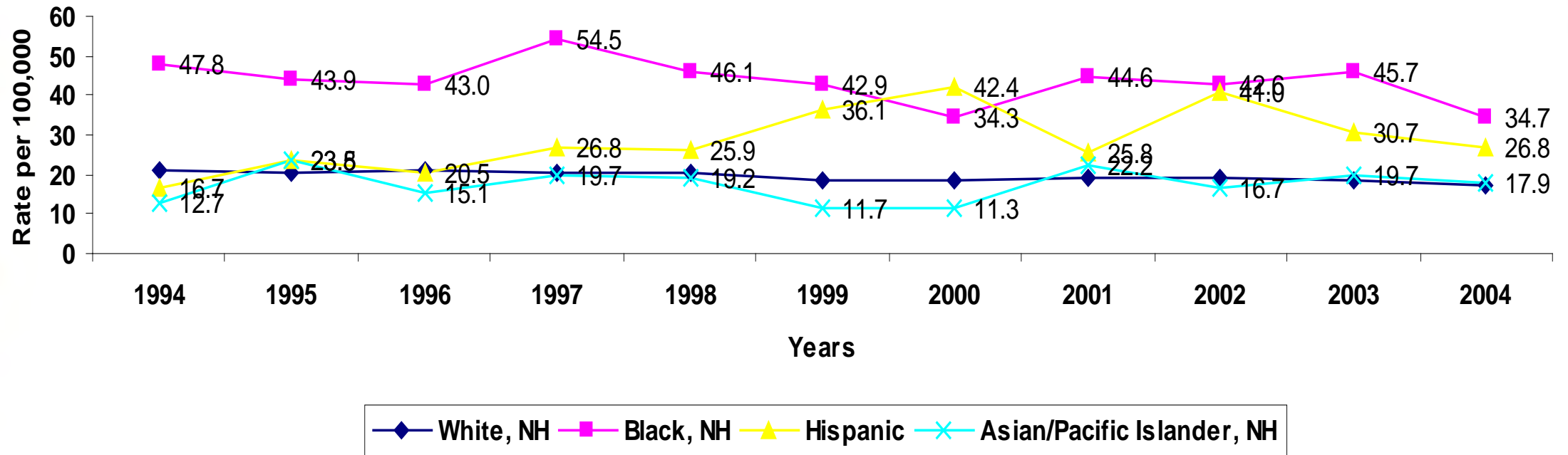
# OBESITY IN MICHIGAN

## Adult Obesity in Michigan **New Data**



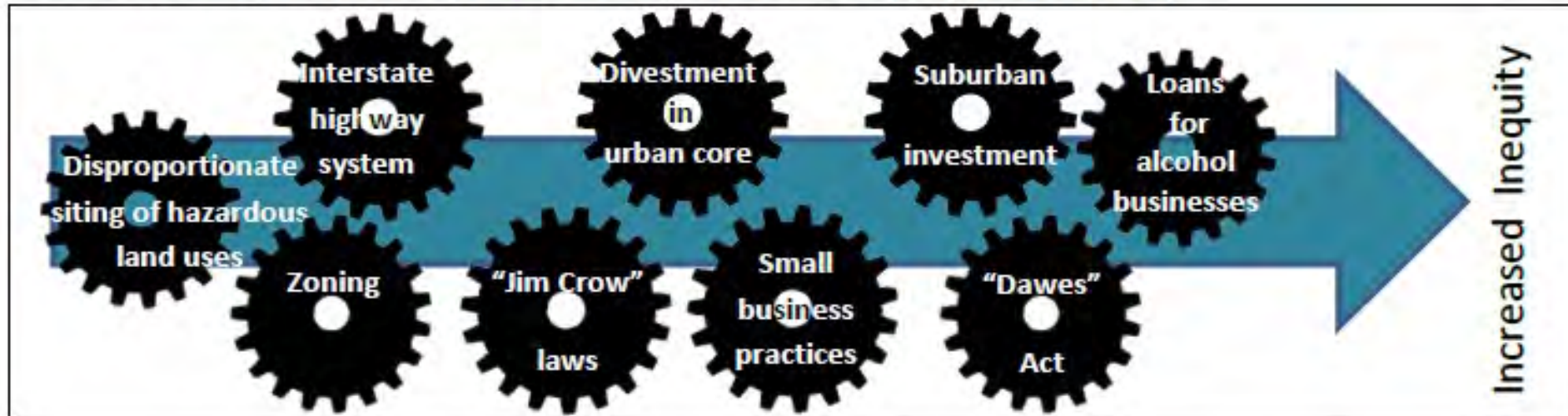
Note: A change in methodology makes direct comparisons to data collected prior to 2011 difficult. Read the full rates and ranks methodology for more information. Source: Trust for America's Health and Robert Wood Johnson Foundation. The State of Obesity 2018. Washington, D.C.: 2018.

## Mortality Rates for Diabetes as the Primary Cause of Death, by Race, 1994 - 2004



# THE PRODUCTION OF INEQUALITIES

*Sample Policies, Practices and Procedures that Produce Inequity (What & How)*



It is unreasonable to expect that people will change their behavior easily when so many forces in the social, cultural, and physical environment conspire against such change.

# A COMMUNITY EFFORT

HEALTH, AND HEALTH EQUITY, ARE CREATED IN THE COMMUNITY BY PEOPLE WORKING TOGETHER TO CREATE JUST ECONOMIC, SOCIAL, AND ENVIRONMENTAL CONDITIONS THAT PROMOTE HEALTH.



## WHAT NEEDS TO BE DONE

Achieving health equity and eliminating health disparities requires valuing everyone and making intentional, consistent efforts to address avoidable systematic inequalities, as well as historical and contemporary injustices.

# Possible Solutions

## Culturally competent health care providers.

Cultural competence courses.  
Desegregation and immersion.  
Health care multi-lingualism

## Disparities-Targeted Health Programming.

Private and government offices of minority health.  
Recruitment of health workers from underrepresented groups (will fail without addressing preschool, K-12, and college disparities).  
More clinics, pharmacies and outreach in under-served communities.  
Interpreter services.

## Addressing Socioeconomic Castes.

Ending substandard schools and neighborhoods,  
Ending disparities in transportation, libraries, housing segregation, access to loans, etc.  
Universal health care so that all people have comparable health opportunities.

**QUESTIONS?**



# THANK YOU!

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