



Welcome to the NQC Disparities Calculator and NQC Guide:
Qualifying Disparities in HIV Care

The purpose of this document is to orient you to the NQC Disparities Calculator and how to use it. Further on in this document, the statistical background of the tool is included for those folks who are inclined to understand the nuts and bolts of this disparities analysis.

Contents

Part I: Using the NQC Disparities Calculator ..... 2
Section 1: Getting Started!..... 2
Section 2: The Instructions Tab..... 3
Section 3: The Statistics Basics Tab..... 5
Section 4: The Data Entry Tab ..... 6
Section 5: The Analysis Tabs..... 7
Section 6: The Summary Tabs ..... 8
Section 7: NQC Disparities Calculator Additional Resources..... 9
Part II: NQC Disparities Calculator Methodology ..... 10
Section 8: Introduction to NQC Guide Methodology..... 10
Section 9: The Absolute Disparity Method ..... 12
Section 10: The Relative Risk Method..... 13
Section 11: The Comparative Disparity Method..... 14
Section 12: The Odds Ratio Method..... 15
Section 13: The Absolute Impact Method..... 16
Section 14: Using the NQC Disparities Calculator for Quality Improvement ..... 17

Let's get started!



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## Part I: Using the NQC Disparities Calculator

### *Section 1: Getting Started!*

The NQC Disparities Calculator Workbook is a tool used in the end+disparities Learning Exchange to help participants identify the disparity population that they'll work with through the Learning Exchange.

The NQC Disparities Calculator Workbook tool is available beyond the end+disparities Learning Exchange for Ryan White HIV/AIDS Program (RWHAP) recipients to use in identifying disparity sub-populations in need of improvement along the HIV Care Continuum.

➤ **Required Data Elements:**

- Your name, agency, reporting date, and the date range included in your report
- Overall Viral Suppression (VLS) and Medical Visit Frequency (MVF) numerator and denominator data for your total HIV service population - we call this TOTAL
- Segmented VLS and MVF numerator and denominators for the identified sub-populations.

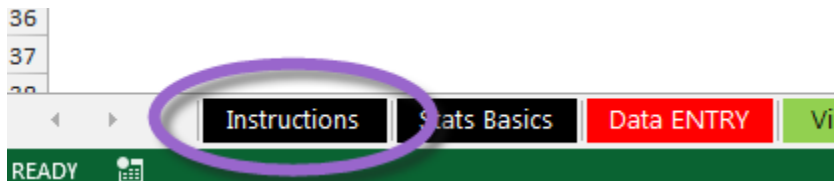
➤ **NQC Disparities Calculator:**

- The NQC Disparities Calculator workbook is a pre-programmed spreadsheet tool that helps you determine where your greatest disparities lie among the populations you serve.
- It is based on statistical calculations used by the Supreme Court of the United States in determining disparate impact (the study of whether the effect of a policy or system of policies results in discrimination or disparity as proven by math).
- The workbook has five tabs:
  - ✓ **Instructions:** descriptions of each tab and instructions on how to enter data
  - ✓ **Statistics Basics:** refresher on statistics and terminology used in the calculator
  - ✓ **Data Entry:** the SINGLE place to enter data in the calculator
  - ✓ **Summaries:** dashboard of final calculation results for quick sharing and discussion
  - ✓ **Analyses:** background statistical processes and values that inform the summary dashboard for sharing with leaders and decision makers.



## Section 2: The Instructions Tab

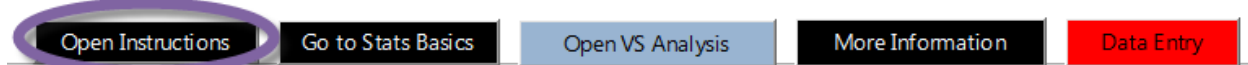
The NQC Disparities Calculator workbook contains an Instructions tab that includes helpful tips and a step-by-step set of instructions on how to use the calculator. You can access the instructions tab from anywhere in the workbook by clicking the Instructions tab at the bottom of the screen:



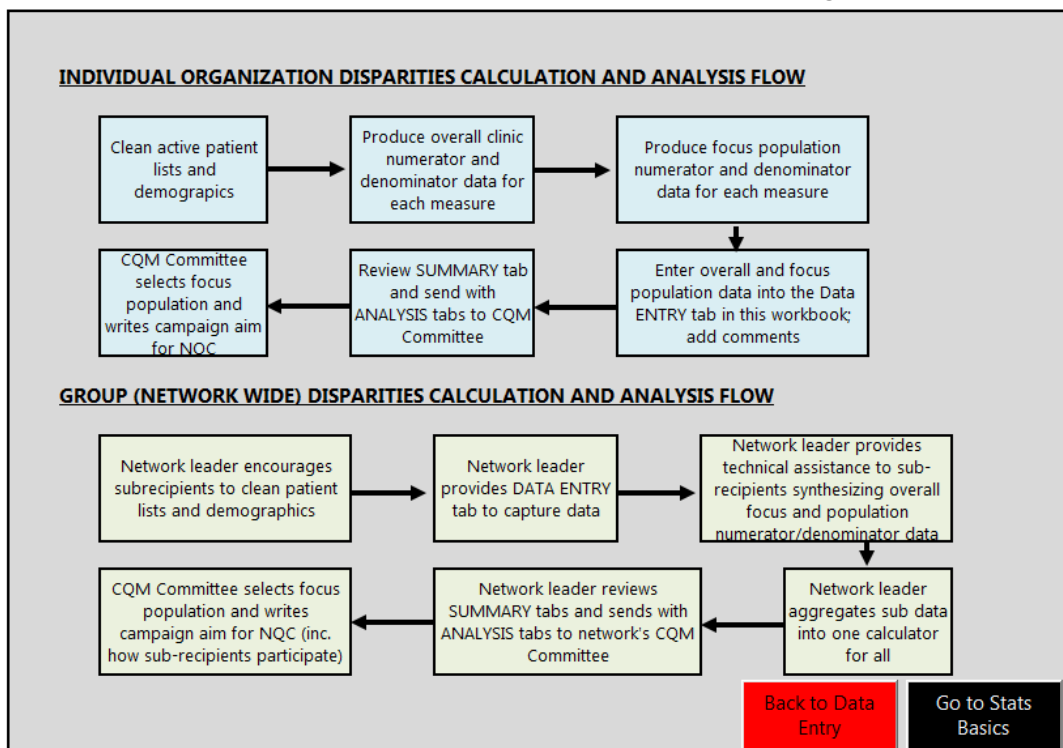
Or by clicking the Instructions button within the worksheet page:

### Questions:

[For questions related to this workbook or calculating disparities contact Michael Hager - Michael@NationalQualityCenter.org.](mailto:Michael@NationalQualityCenter.org)  
[For more information on disparities analysis resources, visit http://enddisparitiesexchange.org/portfolio\\_item/resource-one/.](http://enddisparitiesexchange.org/portfolio_item/resource-one/)



The Instructions tab includes a workflow diagram to show what information and suggested process are needed to use the NQC Disparities Calculator workbook to identify a disparity sub-populations to work with. Workflows are for individual and network organizations.





## National Quality Center (NQC) Guide: Qualifying Disparities in HIV Care

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The importance of clean data as a starting point cannot be over-emphasized. It's easier to clean data and maintain its integrity as an individual organization. Network leaders need to ensure that their sub-recipients are also engaged in data cleaning and maintenance integrity. In epidemiology we say "Garbage in, Garbage out," which means that unclean data lead to dubious results that cannot be trusted.

Selection of the sub-population population needs to be a group activity. Diverse input of team and/or committee members provide the context that you need to make an ultimate decision where you want to focus your improvement efforts.

The Instructions tab also includes a step-by-step guide on how to enter data into the data entry fields. The numbers on the image correspond to the numbered instructions below it.

### Disparities Calculator Data Entry Walk Through

Name of Reporting Agency: Best Ever ASO	 <b>NQC Disparities Calculator</b>							
Name of Staff Person Reporting: B. Leaver								
Measurement Period: 4/1/2015 - 3/31/2016								
Reporting Date: 5/31/2016								
Data Source(s): The Ether								
Aggregated Data For Disparities Analysis	# of Agencies in Dataset	Viral Load Suppression (HAB)			Medical Visit Frequency (HAB)			Data Limitations / Comments
		Num.	Denom.	%	Num.	Denom.	%	
<b>Total</b>	1	50	5500	81.82%	5372	7995	67.19%	not applicable
Transgender Women	1	34	50	68.00%	465	722	64.40%	not applicable
MSM of Color	1	3	555	71.89%	308	582	52.92%	not applicable
African American & Latina Women	1	1790	2500	71.60%	444	655	67.79%	not applicable
Youth (<25 yo)	1	90	111	81.08%	370	549	67.40%	not applicable

1. Update the Contact and Agency Name, the Measurement Period, The Reporting Date, and the Data Source
2. Provide the number of HIV provider organizations contained in the report
  - a. Tell us how many providers you have within your network (if you are reporting all together as a network)
3. Provide the HIV Viral Suppression numerator and denominator for the Total (all patients) and each sub-population group that you are assessing

**NOTE: the values for the target populations are independent of each other and don't add up to the total.**

4. Provide the Medical Visit Frequency numerator and denominator for the Total (all patients) and each sub-population group that you are assessing
5. Provide data limitation and other comments as context regarding the quality and your confidence in the data you are submitting to NQC

Back to Data Entry
Go to Stats Basics

Finally, the Instructions tab contains seven next steps important for folks looking to do this work:

1. Review the NQC Guide: Qualifying Disparities in HIV Care and the overview slides
2. Familiarize yourself with basic statistics involved with this Disparities Calculator
3. Review the instructions to learn about what data you need to use the calculator
4. Review the example and understand how data flow through the calculator
5. Practice entering your own data and seeing where you have disparities in your populations
6. Use the summary dashboards to infer your most statistically significant disparities
7. Share the tool with others in your team and in your community

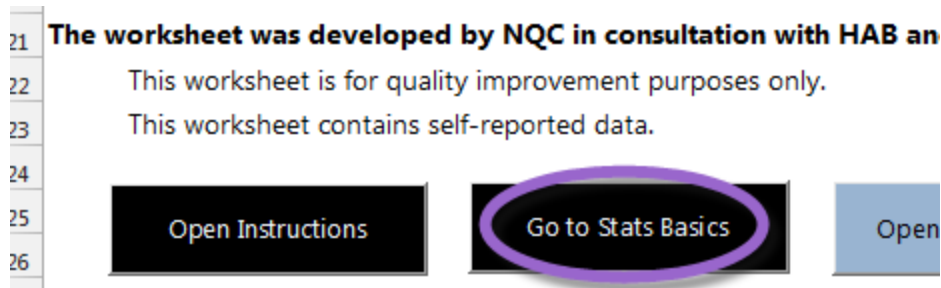


## Section 3: The Statistics Basics Tab

The NQC Disparities Calculator workbook contains Stats Basics tab that includes a quick glossary of terms used within the NQC Disparities Calculator workbook. You can access the stats basics tab from anywhere in the workbook by clicking the Stats Basics tab at the bottom of the screen:



Or by clicking the Stats Basics button within the worksheet page:



**Populations:**

1. The populations identified for analysis are important national priorities laid out in NHAS to 2020
2. Disparities are defined by "Disparate Impact" precedent set by the Supreme Court of the United States

**Statistical Terminology:**

1. DETERMINING DISPARITIES AND DEFINING RESULTS: the assumptions for each method have limitations
  - a. For our purposes, ability to determine disparities is affected by measured scores plugged into equations
  - b. If a result is showing as UNDEFINED RESULT it means we should ignore the method and move on
2. CONFIDENCE INTERVAL: the lower and upper bounds of the range containing the true result with 95% confidence
  - a. If a confidence interval contains the value "1", the calculated result is not significant and should be ignored
  - b. Narrower confidence intervals signify lower standard error, wider intervals signify higher standard error
3. YES/MAYBE/NO DISPARITY: in this workbook we use general terms for fact-finding instead of significance of results
  - a. Each method has a different way to determine whether or not there is a disparity
  - b. The important thing to remember is to pursue root cause analysis for YES DISPARITY and MAYBE DISPARITY

**Interpreting Results:**

1. Select the population that has the most significant probability results AND the greatest impact for improvement
2. See the Analysis tabs to learn specific calculation findings to add context to the Summary tabs

**Questions:**

1. For more information on calculating disparities in HIV care:
  - a. [Visit http://enddisparitiesexchange.org/portfolio\\_item/resource-one/](http://enddisparitiesexchange.org/portfolio_item/resource-one/)
2. For questions related to this workbook or calculating disparate impact:
  - a. [Contact Michael Hager - Michael@NationalQualityCenter.org](mailto:Michael@NationalQualityCenter.org)

Back to Data Entry
Open Instructions



# National Quality Center (NQC) Guide: Qualifying Disparities in HIV Care

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## Section 4: The Data Entry Tab

The document opens on the Data Entry tab where users enter their administrative information, performance measurement data, and general comments and comments related to data limitations.


In addition to the instructions that can be found within the Instructions Tab, helpful prompts and stepwise instructions are located on this form to help you fill in the required data and get started with your analysis and decision-making.

To access the Data Entry tab, you can click the Data Entry tab at the bottom of the page:



Or you can click the Back to Data Entry button within the workbook itself:



Name of Reporting Agency: Best Ever ASO		 <b>NQC Disparities Calculator</b> NATIONAL QUALITY CENTER						
Name of Staff Person Reporting: B. Leaver								
Measurement Period: 4/1/2015 - 3/31/2016								
Reporting Date: 5/31/2016								
Data Source(s): The Ether								
Aggregated Data For Disparities Analysis	# of Agencies in Dataset	Viral Load Suppression (HAB)			Medical Visit Frequency (HAB)			Data Limitations / Comments
		Num.	Denom.	%	Num.	Denom.	%	
<b>Total</b>	1	19071	23729	80.37%	13835	20713	66.79%	not applicable
Transgender People	1	3519	4103	85.77%	2375	3302	71.93%	not applicable
MSM of Color	1	3699	4792	77.19%	2462	3778	65.17%	not applicable
African American and Latina Women	1	11853	14834	79.90%	8998	13633	66.00%	not applicable
Youth (aged 13-24)	1	520	992	52.42%	339	977	34.70%	not applicable

**Complete the fields that have red boxes and blue text. All calculations throughout the workbook are driven by these data.**

Your contact information and timeframe information is important context for inclusion with your QI Project.

For more information on the disparities analysis resources, visit [www.nationalqualitycenter.org](http://www.nationalqualitycenter.org).

For questions related to this workbook or calculating disparate impact, contact Michael Hager - [Michael@NationalQualityCenter.org](mailto:Michael@NationalQualityCenter.org).

**The values of rows 9-12 are independent of each other and will not add up to equal the total in row 8. Total in row 8 represents overall clinic/organization population.**

**The worksheet was developed by NQC in consultation with HAB and partners in the field.**

This worksheet is for quality improvement purposes only.

This worksheet contains self-reported data.



# National Quality Center (NQC) Guide: Qualifying Disparities in HIV Care

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## Section 5: The Analysis Tabs

The Analysis tabs provide the statistical detail that drive what you see in the summaries. Each of the statistical methods is demonstrated using the data entered on the Data Entry tab. In addition to raw scores, confidence intervals are shown where appropriate. Visual cues appear for each individual analysis to assist you in understanding where and how disparities are occurring.

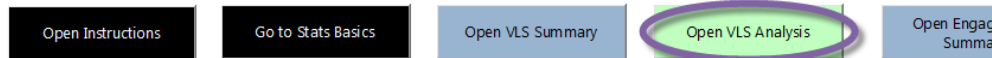
There is an analysis tab for each measure and a corresponding button – one for viral suppression and one for engagement.

To access the Analysis tabs, you can click the Viral Suppression Analysis or Engagement Analysis Tab at the bottom of the page:



Or you can click the Open VLS Analysis or Open Engagement Analysis button within the workbook itself:

This worksheet is for quality improvement purposes only.  
This worksheet contains self-reported data.



	Viral Load Suppression (HAB)		
	%	Numerator	Denominator
Total	80.37%	19071	23729
Total Excluding Transgender People	79.24%	15552	19626
Total Excluding MSM of Color	81.17%	15372	18937
Total Excluding African American and Latina Women	81.15%	7218	8895
Total Excluding Youth (aged 13-24)	81.59%	18551	22737
Transgender People	85.77%	3519	4103
MSM of Color	77.19%	3699	4792
African American and Latina Women	79.90%	11853	14834
Youth (aged 13-24)	52.42%	520	992

1) **Absolute Disparity** - The absolute difference in scores between two groups.  
Method works best when scores are all >0.5.

Any Initial Scores <0.5	UNDEFINED RESULT
Comparison Result <0.05	NO DISPARITY
Comparison Result Between 0.05 and 0.1	MAYBE DISPARITY
Comparison Result >0.1	YES DISPARITY

Using the Absolute Disparity method, does a Viral Load Suppression (HAB) disparity exist?

Transgender People -> Total Excluding Transgender People	Absolute Disparity: 0.07	NO DISPARITY
MSM of Color -> Total Excluding MSM of Color	Absolute Disparity: 0.04	NO DISPARITY
African American and Latina Women -> Total Excluding African American and Latina Women	Absolute Disparity: 0.01	NO DISPARITY
Youth (aged 13-24) -> Total Excluding Youth (aged 13-24)	Absolute Disparity: 0.29	YES DISPARITY

5) **Absolute Impact** - Absolute disparity multiplied by the size of the population experiencing the disparity. Helpful to create action around activities perceived to affect many people.

Using the Absolute Impact method, how many lives are affected by bringing scores of one group to be equivalent to another group? Color scale is based on the relative values of absolute impact - greater impacts are darker red, lesser impacts are lighter red

Transgender People -> Total Excluding Transgender People	268
MSM of Color -> Total Excluding MSM of Color	191
African American and Latina Women -> Total Excluding African American and Latina Women	184
Youth (aged 13-24) -> Total Excluding Youth (aged 13-24)	289



# National Quality Center (NQC) Guide: Qualifying Disparities in HIV Care

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## Section 6: The Summary Tabs

The Summary tabs provide the at-a-glance findings for your disparity analysis. Everything you see on this tab is driven by what was entered in the Data Entry tab. For more detail on the math happening behind the summary, visit the Analysis tabs.

There is a Summary tab for each measure and a corresponding button – one for viral suppression and one for engagement.

To access the Summary tabs, you can click the Viral Suppression Summary or Engagement Summary Tab at the bottom of the page:



Or you can click the Open VLS Summary or Open Engagement Summary button within the workbook itself:

This worksheet is for quality improvement purposes only.  
This worksheet contains self-reported data.



**Viral Suppression (HAB) Overall Performance Average: 90%**

	Transgender People	MSM of Color	African American and Latina Women	Youth (aged 13-24)
<b>Population Sample</b>	5	40	50	12
<b>Pop Performance</b>	80.00%	87.50%	82.00%	66.67%
<b>Absolute Disparity</b>	YES DISPARITY	NO DISPARITY	YES DISPARITY	YES DISPARITY
<b>Relative Risk</b>	UNDEFINED RESULT	UNDEFINED RESULT	UNDEFINED RESULT	UNDEFINED RESULT
<b>Comparative Disparity</b>	UNDEFINED RESULT	UNDEFINED RESULT	UNDEFINED RESULT	UNDEFINED RESULT
<b>Odds Ratio</b>	NO DISPARITY	NO DISPARITY	YES DISPARITY	YES DISPARITY
<b>Absolute Impact</b>	1	2	8	3

**Interpretation:**  
 Refer to Stats Basics tab or to the NQC Guide on Qualifying Disparities for more detailed information on interpretation. Refer to Analysis tab to view statistical calculations and their results with confidence intervals where appropriate. Identify targets for QI Projects based on highest impact (number of lives) and highest probability (number of YES DISPARITY findings). In the figure to the right, probability is represented above in rows 5-8 for each population. In the figure to the right, impact is represented above in row 9. This tool is for use in decision making on how to best utilize QI resources. There are no "right" answers in how to best utilize your QI resources. Review scientific literature and www.nqcsharelab.org for QI project intervention ideas. Continue to update data entered in the DATA ENTRY sheet to test if disparities change. Explore the reasons why disparities could exist using Fishbone Root Cause Analysis. Visit www.NQCShareLab.org for appropriate QI strategies to implement.

**Limitations:**  
 Calculations are based on self-reported data. While based on statistical sciences and proven methods, this tool provides best estimates of disparity and is not fully precise. This calculator is intended for quality management purposes only. It is not intended for monitoring and evaluation or research.

**Questions:**  
 For questions related to this workbook or calculating disparities contact Michael Hager - Michael@NationalQualityCenter.org. For more information on disparities analysis resources, visit [http://enddisparitiesexchange.org/portfolio\\_item/resource-one/](http://enddisparitiesexchange.org/portfolio_item/resource-one/).

Open Instructions | Go to Stats Basics | Open VS Analysis | More Information | Data Entry





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***Section 7: NQC Disparities Calculator Additional Resources***

National Quality Center supports you in this work. In addition to the NQC Disparities Calculator workbook and this How-To Guide, there are a number of end+disparities Learning Exchange slide sets that provide an overview of the Learning Exchange and this calculator tool.

- **NQC Disparity Calculator Presentation Slide Sets:**
  - ✓ Part I: Why Disparities: an overview of the end+disparities Learning Exchange and its purpose
  - ✓ Part II: Subpopulations: an overview of the subpopulations selected for focus in the Learning Exchange
  - ✓ Part III: Calculating Disparities: an overview of the calculator and how to use it
  - ✓ Part IV: Calculator Assumptions: a statisticians guide to the background calculations made
  - ✓ Part V: Selecting QI Projects: a culmination of impact and probability analysis for the purpose of selecting the best fit QI project for your needs
- NQC Guide: Qualifying Disparities in HIV Care:
  - ✓ The remainder of this guide aims to describe the background statistics that drive the NQC Disparities Calculator. An introduction provides further information and context around this tool and its statistical methodology.



## Part II: NQC Disparities Calculator Methodology

### Section 8: Introduction to NQC Guide Methodology

Eliminating disparities in health outcomes continues to be a major focus across the health care industry. In HIV care, the US President's [National HIV/AIDS Strategy](#)<sup>1</sup> (NHAS) has made addressing disparities a national public health priority. Simply put, disparity is defined as a lack of similarity or equality; an inequality; a difference<sup>2</sup>. In late 2000, the US Congress clarified the definition of health disparities: *A population is a health disparity population if {...} there is a significant disparity in the overall rate of disease incidence, prevalent, morbidity, or survival rates in the population as compared to the health status of the general population*<sup>3</sup>.

How do we determine whether disparities as defined above exist in available data sets and how are these disparities consistently defined across Ryan White HIV/AIDS Program (RWHAP)-funded recipients? This guide was developed by NQC in consultation with the HIV/AIDS Bureau (HAB) and partners in the field. It includes five methods established by [the Supreme Court of the United States](#) (SCOTUS) that are commonly used to statistically identify disparate impact.<sup>4</sup> Disparate impact is a way to "prove discrimination has occurred based on the *effect* of a system policy or practice rather than focusing on the *intent* of the policy or practice." This provides a rationale for considering healthcare disparities based on measured performance across groups. SCOTUS has applied the disparate doctrine to employment, housing, jury selection, and other key social justice issues.<sup>5</sup> <sup>6</sup> This guide seeks to outline these methods to identify opportunities for discussion around health disparities in HIV care.

How do we determine which of the disparities we identify will give us the greatest potential success for our efforts? The most effective Quality Improvement (QI) Projects are designed based on current and relevant performance measurement data, and by finding the intersection of the probability that disparities exist and the impact of the disparity in terms of number of people affected.<sup>7</sup> <sup>8</sup> <sup>9</sup> <sup>10</sup> In the graphic below (Figure 1), the red squares indicate where to prioritize by focusing on high impact and high probability

<sup>1</sup> *AIDS.gov*. (2015, July) retrieved from: <https://www.aids.gov/federal-resources/national-hiv-aids-strategy/nhas-update.pdf>

<sup>2</sup> *Dictionary.com*. Retrieved (June, 2016) from: <http://www.dictionary.com/browse/disparity?s=t>

<sup>3</sup> *Public Law 106-525 (2000, November)*. Retrieved from: <http://www.nimhd.nih.gov/documents/Public%20Law%20106-525.pdf>

<sup>4</sup> "Calculating Adverse Impact" *Adverse Impact*. Retrieved June 2016 from <http://adverseimpact.org/CalculatingAdverseImpact.htm>

<sup>5</sup> *Supreme Court Upholds the Fair Housing Act* "The Week" (June, 2015). Retrieved from: <http://www.natlawreview.com/article/us-supreme-court-upholds-disparate-impact-claims-fair-housing-act-cases>

<sup>6</sup> Peresie, Jennifer L. (2009) "Toward a Coherent Test for Disparate Impact Discrimination," *Indiana Law Journal*. Vol. 84: Iss. 3, Article 1. (Page 776 Understanding Disparate Impact, The Doctrine) Available at: <http://www.repository.law.indiana.edu/ilj/vol84/iss3/1>

<sup>7</sup> *National Academies Health and Medicine* Division. Retrieved (June 2016) from: <http://nationalacademies.org/hmd/About-HMD.aspx>

<sup>8</sup> Shojania, K and Grimshaw, J. "Evidence-Based Quality Improvement". *Health Affairs* Vol 35 No 6. June 2016.

<sup>9</sup> McPheeters ML, Kripalani S, Peterson NB, Idowu RT, Jerome RN, Potter SA, Andrews JC. *Quality Improvement Interventions To Address Health Disparities. Closing the Quality Gap: Revisiting the State of the Science*. Evidence Report No. 208. (Prepared by the Vanderbilt University Evidence-based Practice Center under Contract No. 290-2007-10065.) AHRQ Publication No. 12-E009-EF. Rockville, MD: Agency for Healthcare Research and Quality. August 2012

<sup>10</sup> *Medscape*. Retrieved (June, 2016) from: <http://www.medscape.org/viewarticle/561651>



# National Quality Center (NQC) Guide: Qualifying Disparities in HIV Care

groups. In this guide, we discuss four probability methods, one impact method, and the limitations and interpretations for each method. Each method is defined and examples demonstrate how each method is applied to health disparities analyses. All mathematical methods have limitations that are important to understand when using these tools. This means not all of the methods will work in every case, but one of the probability methods should always work.

FOCUS

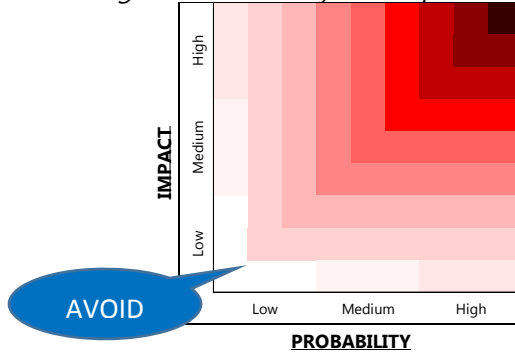
### ***Probability Methods***

1. [Absolute Disparity Method](#)
2. [Relative Risk Method](#)
3. [Comparative Disparity Method](#)
4. [Odds Ratio Method](#)

### ***Impact Method***

5. [Absolute Impact Method](#)

Figure 1: Probability and Impact



For more resources on statistically qualifying disparities visit [the end+disparities Learning Exchange website](#). Together we can #GETTOZERO! Let's all work to begin eliminating HIV health disparities.



**Section 9: The Absolute Disparity Method**

Definition: The absolute difference in scores between two groups.

Limitations: This method works best when the measured scores are all greater than 0.5 or 50%. If measured scores are less than 0.5 or 50%, the method loses ability to detect disparities.

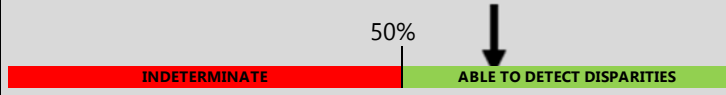
Interpretation: You should explore any differences greater than 0.05 or 5%. A difference greater than 0.1 or 10% is considered a true actionable disparity (this is the threshold used by SCOTUS to determine disparities).

*Example: Absolute Disparity Method*

VLS	%	Num.	Den.
Black Group A	83%	407	490
White Group B	90%	450	500
Asian Group B	92%	55	60
TOTAL	87%	912	1050

Does the Absolute Disparity Method qualify a disparity?

➤ Are all scores > 0.5 or 50%? **YES.**



- Group A: population of interest (Black) = 0.83 or 83%.
- Group B: everyone EXCEPT population of interest (average of White and Asian) =  $((450+55)/(500+60)) = 0.9$  or 90%.

Using Absolute Disparity Method, does a VLS disparity exist? **MAYBE.**

➤  $0.9 - 0.83 = 0.07$ .

- 0.07 is greater than 0.05, but less than 0.1.
- It is important to investigate **why** there might be a disparity through further analysis.



Based on the Absolute Disparity Method, there is possibly a disparity in viral suppression outcomes between Black patients and other patients based on the data provided. We will need to review the results from each of the other methods in order draw a conclusion and make a decision on what to do next. You need to complete all the probability methods for each group to make sure the results from each method confirm or contradict each other.



**Section 10: The Relative Risk Method**

Definition: The ratio of the scores of two different groups divided into each other.

Limitations: This method works best with low measured scores, like gap measures, with the goal of having the lowest possible score. This method loses ability to detect disparities with measured scores > 0.8 or 80%.

Interpretation: You should explore any result less than 0.875 (1-1/8). A result less than 0.8 (1-1/5) is considered an actionable disparity (SCOTUS threshold to determine disparities). Confidence intervals need to be taken into account as well – a confidence interval that includes the value 1.0 or values greater than 1.0 are not disparities we will act on.

Example: Relative Risk Method

VLS	%	Num.	Den.
<b>Black Group A</b>	<b>83%</b>	407	490
<b>White Group B</b>	90%	<b>450</b>	<b>500</b>
<b>Asian Group B</b>	92%	<b>55</b>	<b>60</b>
<b>TOTAL</b>	87%	912	1050

Does the Relative Risk Method qualify a disparity?

➤ Are the measured scores < 0.8 or 80%? **NO.**



- Group A: population of interest (**Black**) = **0.83** or **83%**.
- Group B: everyone EXCEPT population of interest (average of **White** and **Asian**) =  $((450+55)/(500+60)) = 0.9$  or 90%.

In Relative Risk Method, we would use a guide like the one below to determine if a disparity is detected using the method. Since the method is not able to detect disparity in this example based on the method assumptions (undefined result), we skip the Comparative Disparity Method analysis.



Based on Relative Risk Method we cannot determine whether or not there is a disparities, because the method is not able to detect a disparity based on the available data and the assumptions of this method. Let's finish our review of the other probability methods before we draw any conclusions since we need to perform multiple tests in order to confirm or dispel these findings.



**Section 11: The Comparative Disparity Method**

**Definition:** The relative risk minus 1. This method is used to highlight the work that has yet to be done and supportively frames the values in terms of need.

**Limitations:** This method works well with low measured scores, similar to the gap measure. This method loses ability to detect disparities with measured scores > 0.8 or 80%.

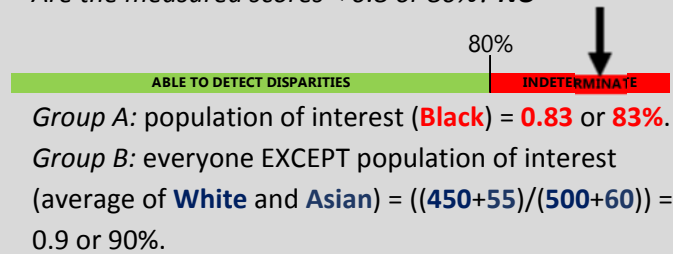
**Interpretation:** You should explore any comparative disparity that is less than -0.125 (0-1/8). A comparative disparity that is less than -0.2 (0-1/5) is considered a true actionable disparity.

*Example: Comparative Disparity Method*

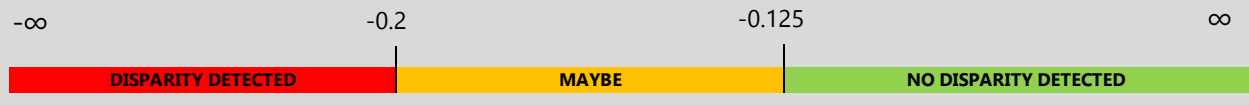
VLS	%	Num.	Den.
<b>Black Group A</b>	<b>83%</b>	407	490
<b>White Group B</b>	90%	<b>450</b>	<b>500</b>
<b>Asian Group B</b>	92%	<b>55</b>	<b>60</b>
<b>TOTAL</b>	<b>87%</b>	<b>912</b>	<b>1050</b>

Does the Comparative Disparity Method qualify a disparity?

➤ Are the measured scores < 0.8 or 80%? **NO**



In Comparative Disparity Method, we would use a guide like the one below to determine if a disparity is detected using the method. Since the method is not able to detect disparity in this example based on the method assumptions (undefined result), we skip the Relative Risk Method analysis.



Based on Comparative Disparity Method we cannot determine whether or not there is a disparity, because the method is not able to detect a disparity based on the available data and the assumptions of this method. Let's review the Odds Ratio Method before we draw our inferences since we need to perform multiple tests in order to confirm or dispel these findings.



**Section 12: The Odds Ratio Method**

**Definition:** A measure of association between a status (race) and an outcome (the number of patients achieving or not achieving VLS) based on odds.

**Limitations:** More manipulation is needed here to determine the odds ratio. First, we must discover how many people did NOT meet the indicator using simple cross-multiplication. To determine the odds ratio, you will need to *cross-multiply* ( $a*d/b*c$ ).

	YES	NO
Group A	a	b
Group B	c	d

**Interpretation:** An actionable disparity is less than 0.67 (1 – 1/3). Confidence Intervals need to be taken into account as well – a confidence interval that includes the value 1.0 or values greater than 1.0 are not disparities we will act on.

**Example: Odds Ratio Method**

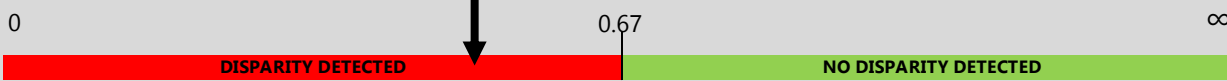
VLS	VLS (YES)			Not VLS (NO)
	%	Num.	Den.	X = Den. – Num.
<b>Black Group A</b>	83%	<b>407</b>	490	<b>83</b>
<b>White Group B</b>	90%	<b>450</b>	500	<b>50</b>
<b>Asian Group B</b>	92%	<b>55</b>	60	<b>5</b>
<b>TOTAL</b>	87%	912	1050	138

Does the Odds Ratio Method statistically qualify disparity? **YES**

- Limitations are related to precision. An odds ratio can always be calculated, but it is not as precise the other methods and should be used as a last resort (other methods not available).
- Group A: population of interest (**Black**)
- Group B: everyone EXCEPT population of interest (average of **White** and **Asian**)

Using Odds Ratio Method, does a VLS disparity exist? **YES**

- Calculate the Not VLS (NO) values by subtracting the numerator from the denominator for each population group
- Cross-multiply the YES from Group A (**Black**) and NO from Group B (Average of **White** and **Asian**) with the NO from Group A (**Black**) and the YES from Group B (Average of **White** and **Asian**)
- $(407*(50+5))/(83*(450+55)) = (407*55)/(83*505) = 0.53$
- 0.53 is less than 0.67.



Based on Odds Ratio Method, there is a disparity in viral suppression outcomes between Black patients and other patients according to the data. Now that we have run through the probability methods, it appears there is moderate evidence that a true disparity exists across the applied methods (see page 7 for summary). Before we draw conclusions, let's review the Absolute Impact Method. Finding the intersection of impact and probability will help us determine the best way to use our limited QI resources.



**Section 13: The Absolute Impact Method**

Definition: The absolute disparity multiplied by the size of the population experiencing the disparity. This method is helpful to galvanize action around activities that are perceived to affect many people.

Limitations: Beware of the direction of the disparity. We seek to improve the measured scores of all groups. Disparities are never fixed by decreasing measured scores of the highest performing population.

Interpretation: Larger numbers denote larger numbers of lives affected. Critical thinking is needed - sometimes greater disparities are identified than in one group, but you may prefer to take action that affects the group with lesser disparities if the number of people impacted by your intervention will be greater.

*Example: Absolute Impact Method*

VLS	%	Num.	Den.
<b>Black Group A</b>	<b>83%</b>	407	490
<b>White Group B</b>	90%	<b>450</b>	<b>500</b>
<b>Asian Group B</b>	92%	<b>55</b>	<b>60</b>
<b>TOTAL</b>	<b>87%</b>	<b>912</b>	<b>1050</b>

*Using Absolute Impact Method, how many lives are affected by bringing Black patients up to the overall average level of performance? **34***

- What is the difference between **Black** patient performance and the average performance of other patients (**White** and **Asian**)?
  - $((450+55)/(500+60)) - 0.83 = 0.90 - 0.83 = 0.07$   
 \* 490 = 34
  - 34 additional **Black** people would be virally suppressed

Based on the Absolute Impact Method, 34 lives are affected by addressing this disparity. This information is important context to provide when presenting to the broader community – be specific regarding the group, i.e., Black people in this case. On the next page, we will review how to compare this absolute impact result with the probability method results. To draw a conclusion you need to consider the four probability methods and one impact method all together.





**Section 14: Using the NQC Disparities Calculator for Quality Improvement**

For the purposes of our examples, we analyzed disparities for Black patients, but we will also need to do this for White and Asian patients in our practice. When we put together the outcomes of all our probability and impact method analyses across populations, we can compute a table like this one:

*Example: Using Disparity Calculations in Quality Improvement*

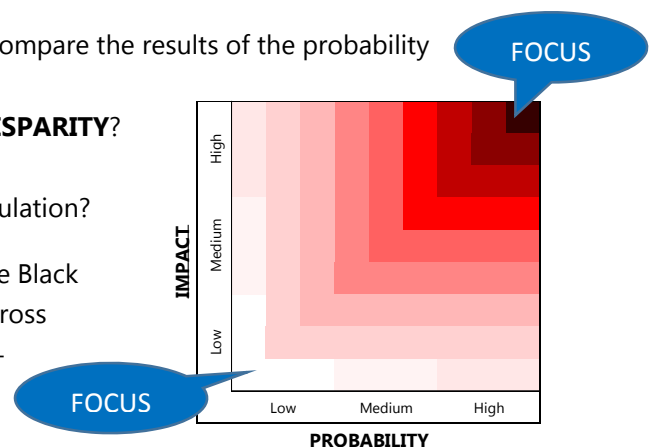
Viral Suppression (HAB) Overall Performance Average: 87.0%			
	White	Black	Asian
Population Sample	500	490	60
Population Performance	90%	83%	92%
Absolute Disparity	NO DISPARITY	<b>MAYBE DISPARITY</b>	NO DISPARITY
Relative Risk	NO DISPARITY	UNDEFINED RESULT	NO DISPARITY
Comparative Disparity	NO DISPARITY	UNDEFINED RESULT	NO DISPARITY
Odds Ratio	NO DISPARITY	<b>YES DISPARITY</b>	NO DISPARITY
Absolute Impact	30	34	3
<b>YES DISPARITY</b>	Real under-performance disparity found. <u>Try to do a QI Project on this group.</u>		
<b>MAYBE DISPARITY</b>	Possible under-performance disparity found. <u>Further investigation needed.</u>		
NO DISPARITY	No under-performance disparity found. <u>No immediate action is needed.</u>		
UNDEFINED RESULT	No disparity calculation is possible since initial scores are outside the threshold.		

In statistics, we use the term SIGNIFICANT. We use different, more direct language here, because our methods in this calculator are not an exact science. This tool is intended for use as a discussion instrument for QI purposes. True disparities are shaded **red** in this tool and labeled **YES DISPARITY**. In this tool, groups that do not have disparities are labeled **NO DISPARITY**. From our previous work focusing on Black patients, we noted that there **MAYBE DISPARITY** using Absolute Disparity Method, but we identified **YES DISPARITY** using the Odds Ratio Method. **UNDEFINED RESULT** was seen for Relative Risk and Comparative Disparity Methods, because the initial scores used in the analysis were above the 80% threshold to detect disparities.

To determine where best to place our resources, we need to compare the results of the probability methods with the impact method as it shown to the right.

- Which population or group has the most (**red**) **YES DISPARITY**?
- Which population is performing least well?
- How many lives are affected by focusing on each population?

In answering these questions, we might select to work with the Black population. While there is obvious differential performance across populations, the Black population is the group that has under-performance disparities that should to be addressed.



**You will find a Disparities Calculator workbook for you to practice**

**these concepts with your own patient populations at [the end+disparities website](#).** The calculator allows comparison of up to four population groups. Instructional slides demonstrate how to use the tool.