

# NYC MACROSCOPE ELECTRONIC HEALTH RECORD SURVEILLANCE INDICATOR FACT SHEET



## INDICATOR DEFINITION 2013 NYC Macroscope

**Numerator:** Patients with an ICD-9 code for diabetes in their electronic health record (EHR) problem list or assessment section during or prior to 2013

**Denominator:** Patients with a visit in 2013

## 2013-14 NYC Health and Nutrition Examination Survey (HANES) and 2013 Community Health Survey (CHS)

Participants who reported being told by a doctor or other healthcare professional that they had diabetes *and* reported seeing a doctor or other healthcare professional in the last 12 months for primary care

## SUMMARY

The NYC Macroscope estimate of diabetes prevalence using the diagnosis indicator was statistically equivalent to estimates from NYC HANES and CHS. There was moderate to high sensitivity and high specificity of this indicator when comparing NYC HANES participants' EHRs with their survey responses.

## RECOMMENDATION FOR USE

Recommended

# Diabetes (diagnosis)

## Prevalence and comparisons by data source

Prevalence estimates of diabetes using the diagnosis indicator were 13.9% in the NYC Macroscope, 12.6% in NYC HANES, and 12.5% in CHS. The prevalence estimate from the NYC Macroscope was statistically equivalent to estimates from NYC HANES and CHS ( $p < 0.01$  for both comparisons). The diabetes diagnosis indicator met all five a priori criteria for agreement when comparing the NYC Macroscope with NYC HANES and met four out of five criteria when comparing the NYC Macroscope with CHS.

## Prevalence of diabetes (diagnosis) in NYC Macroscope, NYC HANES, and CHS

	2013 NYC Macroscope	2013-14 NYC HANES	2013 CHS
Total sample size	N=700,752	N=1,135	N=6,149
Prevalence, % (95% CI)	13.9% (13.8%, 14.0%)	12.6% (10.6%, 14.8%)	12.5% (11.5%, 13.6%)
NYC Macroscope providers reporting data, n (%)	383 (98%)		
NYC Macroscope patients with missing data, n (%)	NA*		

Table adapted from Thorpe LE, McVeigh KH, Perlman SE, et al. Monitoring prevalence, treatment, and control of metabolic conditions in New York City adults using 2013 primary care electronic health records: A surveillance validation study. eGEMS. 2016;4(1):28. DOI: <http://dx.doi.org/10.13063/2327-9214.1266>.

CI, confidence interval; NA, not applicable.

\*Not applicable because lack of an ICD-9 code for diabetes was defined as "no diabetes."

## Prevalence comparison statistics for smoking in NYC Macroscope vs. NYC HANES and CHS

Prevalence comparison statistics (a priori criterion for agreement)	2013 NYC Macroscope* vs. 2013-14 NYC HANES	2013 NYC Macroscope† vs. 2013 CHS
	Value (meets criterion?)	Value (meets criterion?)
Absolute difference (<5%)	1.4% (Yes)	1.5% (Yes)
Prevalence ratio (0.85–1.15)	1.10 (Yes)	1.12 (Yes)
Two-tailed t-test (p-value $\geq 0.05$ )	p=0.19 (Yes)	p=0.01 (No)
Two one-sided t-tests (p-value <0.05)	p<0.01 (Yes)	p<0.01 (Yes)
Spearman's rank correlation of age- and sex-stratified estimates ( $r \geq 0.80$ )	r=1.00 (Yes)	r=1.00 (Yes)

Table adapted from Thorpe LE, McVeigh KH, Perlman SE, et al. Monitoring prevalence, treatment, and control of metabolic conditions in New York City adults using 2013 primary care electronic health records: A surveillance validation study. eGEMS. 2016;4(1):28. DOI: <http://dx.doi.org/10.13063/2327-9214.1266>.

\*NYC Macroscope estimates were weighted to NYC HANES in-care population.

†NYC Macroscope estimates were weighted to CHS in-care population.

## Prevalence by data source, sex, and age group

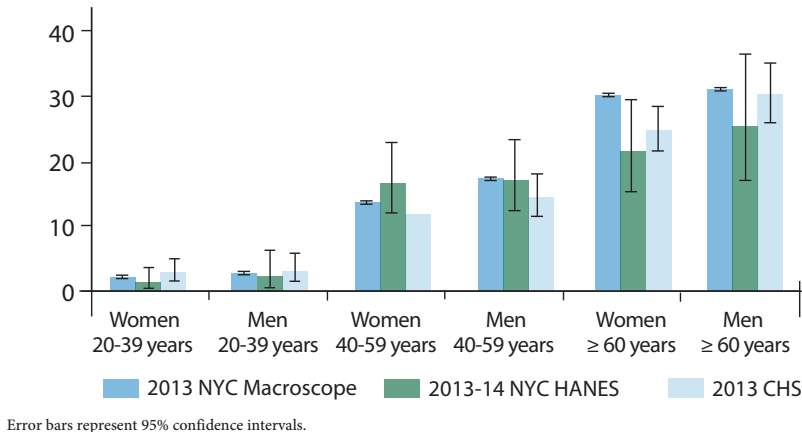
Among women 60 years of age and older, the NYC Macroscope estimate of diabetes prevalence using the diagnosis indicator was significantly higher compared with the NYC HANES estimate (30.5% vs. 21.7%;  $p=0.01$ ).

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Similarly, the NYC Macroscopic estimate was significantly higher in this subgroup compared with the CHS estimate (30.5% vs. 24.9%;  $p < 0.01$ ). No other comparisons of stratified estimates were significantly different.

### Diabetes (diagnosis) prevalence in NYC Macroscopic, NYC HANES, and CHS by sex and age group



### Indicator validity

In the sample of NYC Macroscopic practice EHRs (N=48), there was near perfect agreement, high sensitivity, and high specificity. In the sample of non-NYC Macroscopic practice EHRs (N=142), there was substantial agreement, moderate sensitivity, and high specificity. When restricting this group to a subsample of practices that attested to Stage 1 Meaningful Use (N=86), there was near perfect agreement, moderate sensitivity, and high specificity.

### Validity of diabetes indicator (diagnosis) in a sample of EHRs from NYC HANES participants

	NYC Macroscopic practice EHRs	Non-NYC Macroscopic practice EHRs	
		All	Stage 1 Meaningful Use*
	N=48	N=142	N=86
Kappa coefficient	0.87	0.80	0.81
Sensitivity (95% CI)	1.00 (0.66-1.00)	0.81 (0.58-0.95)	0.83 (0.52-0.98)
Specificity (95% CI)	0.95 (0.83-0.99)	0.98 (0.93-0.99)	0.97 (0.91-1.00)
Positive predictive value	0.82	0.85	0.83
Negative predictive value	1.00	0.97	0.97

Table adapted from McVeigh KH, Lurie-Moroni E, Chan PY, et al. Generalizability of indicators from the New York City Macroscopic Electronic Health Record Surveillance System to Systems Based on Other EHR Platforms. eGEMS. 2017;5(1):25. DOI:<http://doi.org/10.13063/egems.247> CI, confidence interval; EHRs, electronic health records.

\*Restricted to EHRs from providers or practices attesting to Stage 1 Meaningful Use as of December 31, 2013.

### ACKNOWLEDGMENTS

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### SUGGESTED CITATION

NYC Macroscopic team. NYC Macroscopic electronic health record surveillance indicator fact sheet: Diabetes (diagnosis). New York City Department of Health and Mental Hygiene; 2017.

### NYC MACROSCOPE TEAM

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For more information about this project, please visit

<http://www1.nyc.gov/site/doh/data/health-tools/nycmacroscopic.page>

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