

NYC MACROSCOPE ELECTRONIC HEALTH RECORD SURVEILLANCE INDICATOR FACT SHEET



INDICATOR DEFINITION 2013 NYC Macroscopic

Numerator: Men ≥ 40 years of age and women ≥ 45 years of age with a hyperlipidemia ICD-9 code in the electronic health record (EHR) problem list or assessment section during or prior to 2013

Denominator: Men ≥ 40 years of age and women ≥ 45 years of age 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 high cholesterol *and* reported seeing a doctor or other healthcare professional in the last 12 months for primary care

SUMMARY

The NYC Macroscopic estimate of hyperlipidemia prevalence using the diagnosis indicator was statistically equivalent to the estimate from CHS, but not to the estimate from NYC HANES. There was low to moderate sensitivity and low specificity of this indicator when comparing NYC HANES participants' EHRs with their survey responses. Additional validation is strongly recommended.

RECOMMENDATION FOR USE

May be suitable for use

Hyperlipidemia (diagnosis)

Prevalence and comparisons by data source

Prevalence estimates of hyperlipidemia using the diagnosis indicator were 49.3% in the NYC Macroscopic, 46.9% in NYC HANES, and 47.9% in CHS. The prevalence estimate from the NYC Macroscopic was statistically equivalent to the estimate from CHS ($p < 0.01$), but not to the estimate from NYC HANES ($p = 0.12$). The hyperlipidemia diagnosis indicator met four out of five a priori criteria for agreement when comparing the NYC Macroscopic with NYC HANES and met all criteria when comparing the NYC Macroscopic with CHS.

Prevalence of hyperlipidemia (diagnosis) in NYC Macroscopic and NYC HANES

	2013 NYC Macroscopic	2013-14 NYC HANES	2013 CHS
Total sample size	N=394,888	N=625	N=4,269
Prevalence, % (95% CI)	49.3% (49.1%, 49.5%)	46.9% (42.6%, 51.3%)	47.9% (45.7%, 50.1%)
NYC Macroscopic providers reporting data, n (%)	383 (98%)		
NYC Macroscopic 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 hyperlipidemia was defined as "no hyperlipidemia."

Prevalence comparison statistics for hyperlipidemia (diagnosis) in NYC Macroscopic vs. NYC HANES and CHS

	2013 NYC Macroscopic* vs. 2013-14 NYC HANES	2013 NYC Macroscopic† vs. 2013 CHS
Prevalence comparison statistics (a priori criterion for agreement)	Value (meets criterion?)	Value (meets criterion?)
Absolute difference (<5%)	2.4% (Yes)	1.3% (Yes)
Prevalence ratio (0.85–1.15)	1.05 (Yes)	1.03 (Yes)
Two-tailed t-test (p-value ≥ 0.05)	p=0.29 (Yes)	p=0.19 (Yes)
Two one-sided t-tests (p-value <0.05)	p=0.12 (No)	p<0.01 (Yes)
Spearman's rank correlation of age- and sex-stratified estimates (r ≥ 0.80)	r=0.80 (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 Macroscopic estimates were weighted to NYC HANES in-care population.

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

Prevalence by data source, sex, and age group

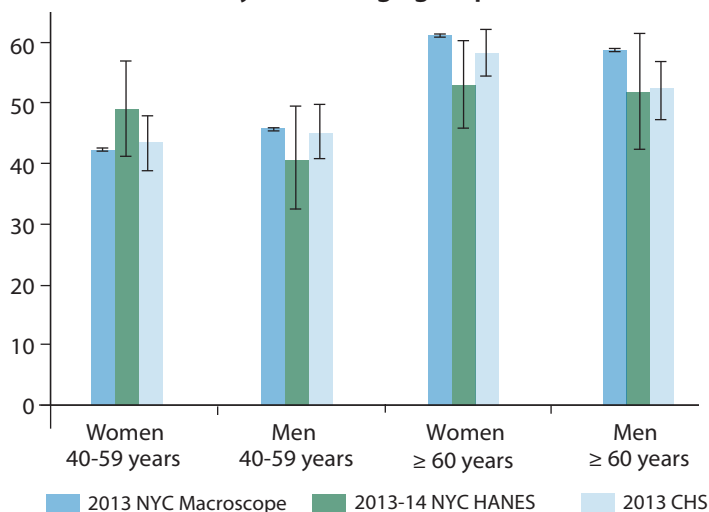
Among women 60 years of age and older, the NYC Macroscopic estimate of hyperlipidemia prevalence using the diagnosis indicator was significantly higher compared with the NYC HANES estimate (60.1% vs. 52.2%; $p = 0.03$).

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Hyperlipidemia (diagnosis)

In addition, the NYC Macroscopic estimate was significantly higher compared with the CHS estimate for men 60 years of age and older (57.9% vs. 51.4%; $p < 0.01$). No other comparisons of stratified estimates were significantly different.

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



Error bars represent 95% confidence intervals.

Indicator validity

In the sample of NYC Macroscopic practice EHRs (N=26), there was fair agreement, low sensitivity, and low specificity. In the sample of non-NYC Macroscopic practice EHRs (N=84), there was fair agreement, moderate sensitivity, and low specificity. When restricting this group to a subsample of practices that attested to Stage 1 Meaningful Use (N=52), there was fair agreement, moderate sensitivity, and low specificity.

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

	NYC Macroscopic practice EHRs N=26	Non-NYC Macroscopic practice EHRs	
		All N=84	Stage 1 Meaningful Use* N=52
Kappa coefficient	0.31	0.30	0.23
Sensitivity (95% CI)	0.69 (0.39-0.91)	0.72 (0.57-0.84)	0.70 (0.50-0.86)
Specificity (95% CI)	0.62 (0.32-0.86)	0.58 (0.41-0.74)	0.52 (0.31-0.72)
Positive predictive value	0.64	0.67	0.61
Negative predictive value	0.67	0.63	0.62

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: Hyperlipidemia (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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