A collective impact approach to advancing health equity in Nebraska

Josie Rodriguez, Administrator
Office of Health Disparities and Health Equity,
NDHHS Division of Public Health

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

1

Helping People Live Better Lives.

2

Co-Launch Partners

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

NALHD
Nebraska Association of Local Health Directors

NHA Nebraska Hospital Association
The influential voice of Nebraska's hospitals

PHAN
Public Health Association of Nebraska

UNIVERSITY OF NEBRASKA MEDICAL CENTER
COLLEGE OF PUBLIC HEALTH

www.dhhs.ne.gov/SHIP

nebraska SHIP state health improvement plan

SHIP Priority Areas & Objectives

- **Integrated health system** – Address major determinates of population health among health system partners.
- **Depression and Suicide** – Promote collaboration to support prevention, education, and integration strategies.
- **Obesity** – Promote equitable access to healthy lifestyles by empowering communities and promoting effective use of local strategies and policies.
- **Utilization and Access** – Enhance culturally responsive healthcare with data driven decision making and increased coordination across preventive health systems.
- **Health Equity** – Support organizational capacity to address equity through systems, policy, and program efforts.

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

4

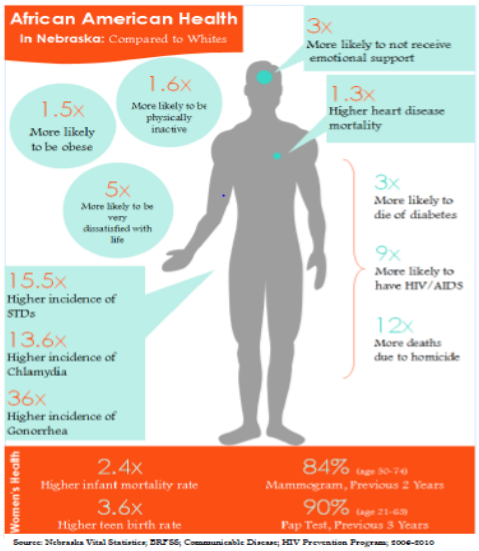
NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

6

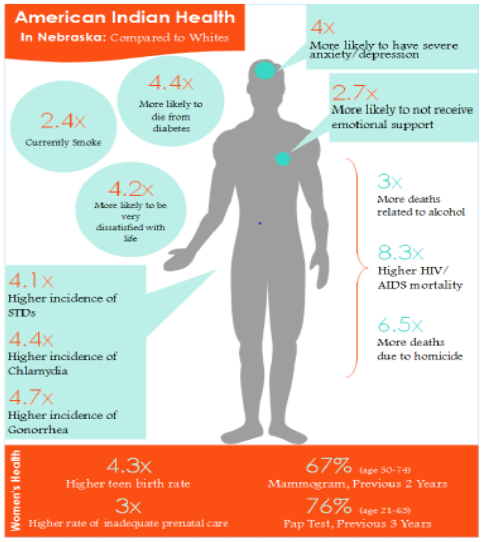
Infographics

African Americans



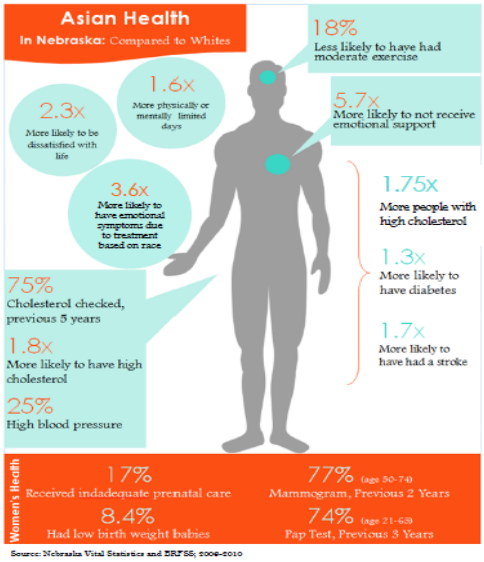
Nebraska DHHS Office of Health Disparities and Health Equity

American Indians



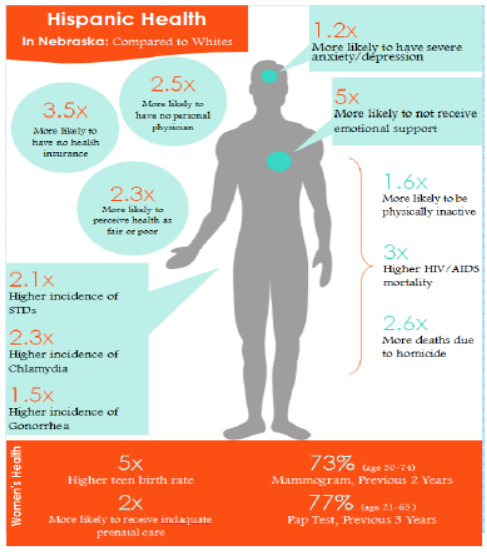
Nebraska DHHS Office of Health Disparities and Health Equity

Asians

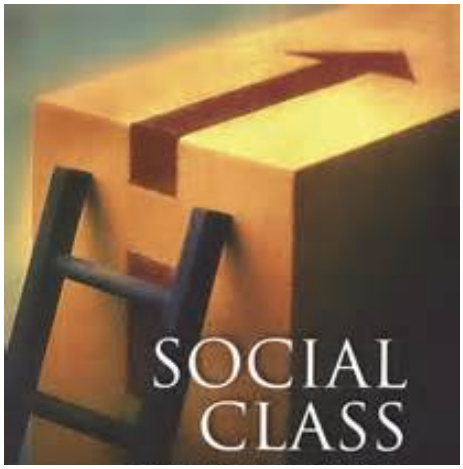


Nebraska DHHS Office of Health Disparities and Health Equity

Hispanics



Nebraska DHHS Office of Health Disparities and Health Equity



NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

9

Social Determinants of Health

Employment

4.3x — American Indians were the most likely to be unemployed at 17.5% of the population, compared to Whites at 4.1%.

Household Income

2.2x — American Indians experienced the lowest household median income at approximately $25,700 compared to Whites at $55,100.

Poverty

American Indians were most likely to be living in poverty at 40.5% of the population, compared to Whites at 10.9%.

Education

3x — American Indians (9.8%) and Hispanics (10.1%) were the least likely to have more than a Bachelor's degree, compared to Whites at approximately 30%.

How do social indicators affect health?

The conditions where individuals live, work and learn can have a large and lasting effect on health. For example, poverty can limit an individual's access to healthy food options, and education and stable housing have been linked to better health. Understanding these social determinants of health and how they affect certain populations is important to improving health outcomes for all groups.

SHIP Health Equity Priority

Vision: Nebraskans will experience health equity and decreased health disparities

Goals:

- Improve **organizational capacity** among stakeholders
  - Develop a common language and framework to improve understanding of health equity
  - Develop toolkit to assist with practical application of health equity.
  - Provide training and technical assistance.
- Enhance the collection, analysis, and use of demographic **data**
  - Promote demographic data recommendations report published by DHHS Division of Public Health.
  - Provide technical assistance to collect and utilize data.

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

11

SHIP Health Equity Priority Progress

- Improve **organizational capacity** among stakeholders
  - Common Language and Framework
    - Health Equity definition created
    - Development of common terminology, and a framework
  - Toolkit
    - Creation of health equity survey
      - Survey target date November – December 2018
      - Gather baseline assessment for health equity work taking place in Nebraska
      - Gathering resources for toolkit

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

12

SHIP Health Equity Priority

Common Language and Framework

SHIP Definition of Health Equity

"Health Equity is when all people have full and equal access to opportunities that enable them to lead healthy lives. Achieving health equity involves an underlying commitment to reduce and, ultimately eliminate disparities in health and in its determinates, including social determinants."

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

13

SHIP Health Equity Priority Progress

- Enhance the collection, analysis, and use of demographic **data**
  - Developed survey for partners to gauge use of demographic data recommendations report.
    - Sent out to local health departments
  - Continue promotion of demographic data recommendations reports

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

14

DHHS Division of Public Health
Demographic Data Recommendations Report

Provides recommendations for collection of demographic data for a core group of **six factors**

Race and ethnicity

Primary language

Gender

Age

Disability

Geographic location (urban/rural)

collection of others socio-economic data also recommended to identify factors that influence health outcomes

http://dhhs.ne.gov/publichealth/Pages/healthdisparities_index.aspx

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

15

American Hospital Association
#123Equity of Care Campaign

Goals:

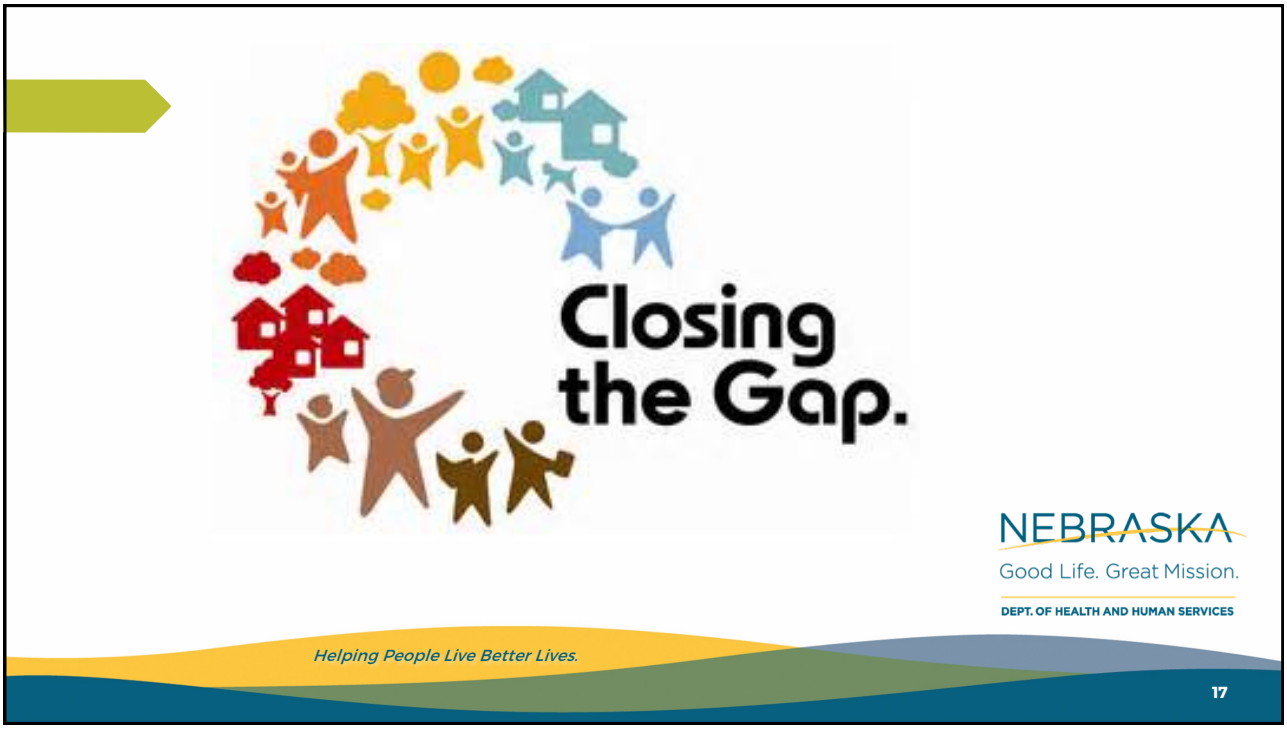
- Increasing the collection and use of race, ethnicity, language preference and other socio-demographic data
- Increasing cultural competency training
- Increasing diversity in leadership and governance
- Improve and advance community partnerships

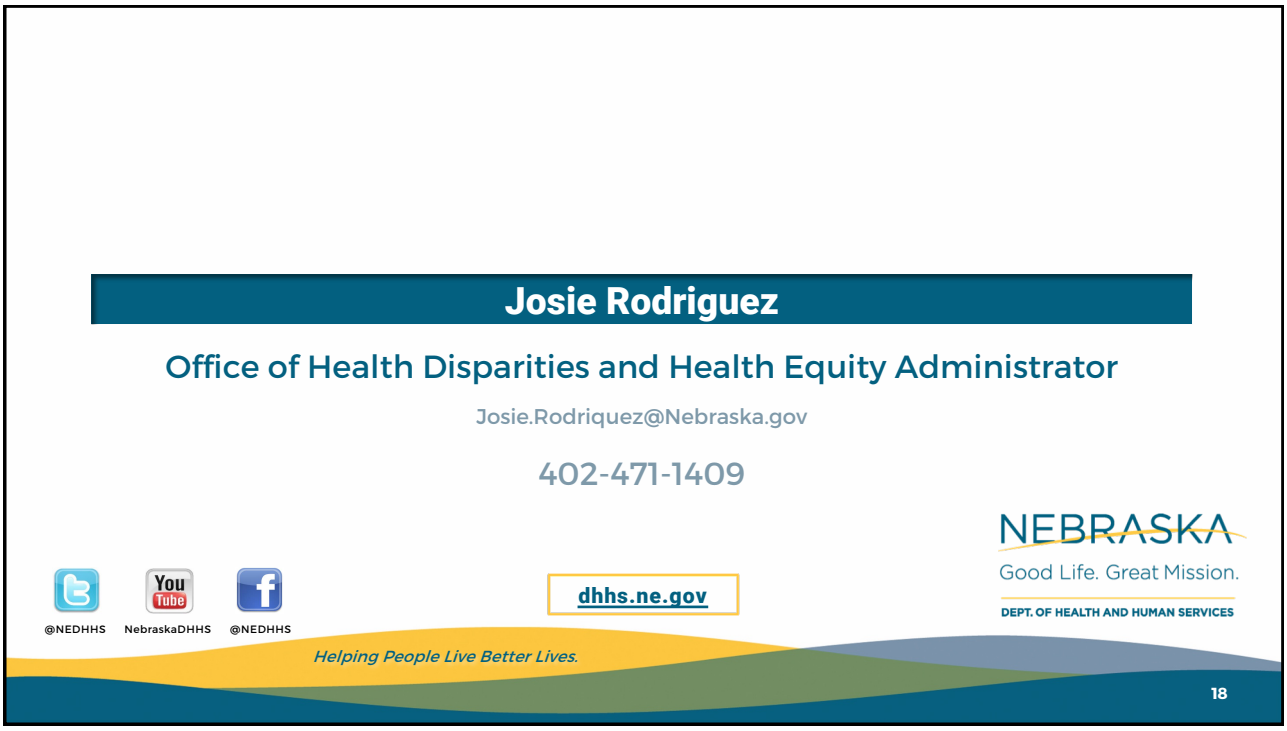
www.equityofcare.org

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

16


Closing
the Gap.
NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES
Helping People Live Better Lives.
17


Josie Rodriguez
Office of Health Disparities and Health Equity Administrator
Josie.Rodriquez@Nebraska.gov
402-471-1409
@NEDHHS
NebraskaDHHS
@NEDHHS
dhhs.ne.gov
NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES
Helping People Live Better Lives.
18

Introduction to Syndromic Surveillance Systems

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

19

What is Syndromic Surveillance?

Syndromic surveillance systems were developed to collect information about patients' sign and symptoms (e.g., cough, fever, sore throat) before clinical or laboratory confirmation.

- e.g., Chief complaint or reason of patient visit to ED

- Signs and symptoms are then categorized into syndromes (e.g. influenza like illness, gastrointestinal disease), or subsyndromes (e.g., fever, rash).

By relying on the ongoing collection, monitoring and analysis of EHR data, Syndromic Surveillance allows public health practitioners to monitor EDs without having to contact ED staff.

https://www.cdc.gov/mmwr/preview/mmwrhtml/su5301a3.htm

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

20

Syndromic Surveillance (updated definition):

"Syndromic surveillance is the ongoing, systematic collection, analysis and reporting of the timeliest data available from any type of data source (clinical and non-clinical) to provide actionable public health information."

Katz *et al.* J Epidemiol Glob Health 2011

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

21

Syndromic Surveillance

- Syndromic Surveillance (SyS): Initially used for detection of communicable diseases
- Studies have demonstrated the use of near-real–time SyS data for monitoring and analysis of non-communicable diseases

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

22

Meaningful Use of Electronic Health Records

- **The American Reinvestment & Recovery Act (ARRA) was enacted in 2009.**
- **ARRA supports the concept of electronic health records - meaningful use [EHR-MU] through the "Health Information Technology for Economic and Clinical Health (HITECH) Act",**
  - **Led by Centers for Medicare & Medicaid Services (CMS) and the Office of the National Coordinator for Health IT (ONC)**
  - **Proposes the meaningful use (MU) of interoperable electronic health records (EHRs)**

https://www.cdc.gov/ehrmeaningfuluse/introduction.html

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

23

Meaningful Use of Electronic Health Records

- **Meaningful Use rests on the '5 pillars' of health outcomes policy priorities:**
  1. **Improving quality, safety, efficiency, and reducing health disparities**
  2. **Engage patients and families in their health**
  3. **Improve care coordination**
  4. **Improve population and public health**
  5. **Ensure adequate privacy and security protection for personal health information**
- **Eligible Professionals or Eligible Hospitals who can demonstrate engaged in efforts to adopt, implement or upgrade certified EHR technology are eligible for CMS incentive payments.**

https://www.cdc.gov/ehrmeaningfuluse/introduction.html

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

24

Potential uses of near-real time EHR data

- **Situational Awareness**
  - Mass gatherings (Super bowl, Eclipse 2017)
  - Events that could affect multiple jurisdictions (wildfires, chemical spills, hurricanes)
- **Finding additional outbreak-related cases**
  - Food borne
- **Monitoring Seasonal Health Hazards**
  - Influenza
  - Heat related illness
  - Asthma
- **Evaluation of interventions**
  - Preventable infectious diseases (influenza)
  - Injury (MVC, opioid overdoses, etc.)
  - Chronic disease (cardiovascular disease, diabetes, etc.)
  - Health disparities
  - Health care utilization

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

25

Potential use of SyS to enhance equity of care activities

2011: The National Call to Action to Eliminate Health Care Disparities was launched

- SyS could help improve health equity through data collection and use by:
  - Enhancing the collection and use of race and ethnicity data
  - Enhancing the monitoring of clinical outcomes, resource utilization, length of stay and frequency of readmissions within a hospital

http://www.nqfdc.org/Reports-HPOE/equity-of-care-toolkit.pdf

http://www.equityofcare.org/resources/resources/2018%20EOC%20Toolkit.pdf

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

26

Use of SyS to monitor high frequency ED utilization

ISDS 2014 Conference Abstracts

OJPHI

Using Syndromic Surveillance Data to Describe Chronic High Frequency ED Utilization

Erin E. Austin*

Division of Surveillance and Investigation, Virginia Department of Health, Richmond, VA, USA

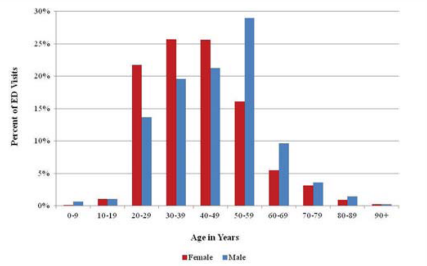


Figure 1. Percent of Emergency Department (ED) Visits among Chronic High Frequency ED Users by Age and Sex, Virginia, January 2012 – December 2013.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4512461/pdf/ojphi-07-e64.pdf

ISDS 2012 Conference Abstracts

Use of Syndromic Data to Determine Oral Health Visit Burden on Emergency Departments

Howard Burkom*[1], Sherry Burrer[1], Laurie Barker[3], Valerie Robison[3], Peter Hicks[1] and Amy Ising[2]

[1]CDC, OSELS, Public Health Surveillance Program Office, Atlanta, GA, USA; [2]University of North Carolina Department of Emergency Medicine, Chapel Hill, NC, USA; [3]CDC, NCCDPHP, Div. of Oral Health, Atlanta, GA, USA

Table 1. NC Statewide Oral Health Medicaid Visits to Emergency Departments per 10,000 Eligibles

Visits per 10,000 Eligibles	SFY 2008	SFY 2009	SFY 2010
All Age	9.5	9.9	9.2
0-14 yrs	1.9	1.8	1.8
15-19 yrs	8.4	9.0	7.9
20-29 yrs	42.6	43.4	39.6
30-49 yrs	22.9	24.2	22.5
50+ yrs	9.5	2.5	2.4

https://stacks.cdc.gov/view/cdc/19127

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

27

NEDHHS Syndromic Surveillance System

- In 2009, NEDHHS developed Syndromic Surveillance and Event Detection of Nebraska (SSEDON)
  - Emergency Departments
  - Inpatient
  - Outpatient: FQHCs

- **Medical facilities submit EHR data to SSEDON by:**
  - Direct transmission
  - Through an HIE (NeHII)
  - Partnerships between facilities

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

28

Nebraska's SyS Data Elements

Required	ED	IP	OP
Treating Facility Name	R	R	R
Treating Facility Type	R	R	R
Patient Class	R	R	R
Patient ID	R	R	R
Patient Visit ID	R	R	R
Visit Date	R	R	R
Discharge Date	R	R	NA
Discharge Disposition	R	R	RE
Patient Date of Birth	R	R	R
Patient Gender	R	R	R
Patient Race	R	R	R
Patient Ethnicity	R	R	R
Patient City of Residence	R	R	R
Patient County of Residence	R	R	R
Patient State of Residence	R	R	R
Patient Zip Code of Residence	R	R	R
Blood Pressure (initial)	R	R	R
Body Height	R	R	R
Body Weight	R	R	R
Body Temperature (initial)	R	R	R
Smoking Status	R	R	R
Cause Of Death	R	R	NA
Chief Complaint	R	R	R
Diagnosis Codes	R	R	R

Required but can be sent empty	ED	IP	OP
Treating Facility Address	RE	RE	RE
Hospital Unit	RE	RE	NA
Type of primary payer	RE	RE	RE
Total Charges	RE	RE	RE
Mode Of Arrival	RE	RE	RE
Admit Reason	RE	RE	NA
Triage Note	RE	RE	RE
Acuity Assessment Level	RE	RE	NA
Condition Onset Date	RE	RE	RE
Pulse Oximetry (initial)	RE	RE	RE
Pregnancy Status	RE	RE	RE
Patient Country of Residence	RE	RE	RE
Transferred to/from ICU	RE	RE	NA
Procedures (e.g. x-rays, or ventilator)	RE	RE	RE
Census Tract	RE	RE	RE
Education Level	RE	RE	RE
Current Problem List*	RE	RE	RE
Active Medication list*	RE	RE	RE
Discharge Medication list*	RE	RE	RE

Optional	ED	IP	OP
Clinical Impresion	O	O	O
Patient Age	O	O	O
Patient Age Units	O	O	O
Heart Rate (initial)	O	O	O
Respiration Rate (initial)	O	O	O
Lab Orders (e.g. lipids, HA1C)*	O	O	O
Lab Test Results (e.g. lipids, HA1C)*	O	O	O
Employment Indicators*	O	O	O
Occupation/Industry of patient*	O	O	O

ED = Emergency Department
IP = Inpatient
OP = Outpatient

R = Required
RE = Required but can be sent empty
O = Optional
NA = Not Applicable

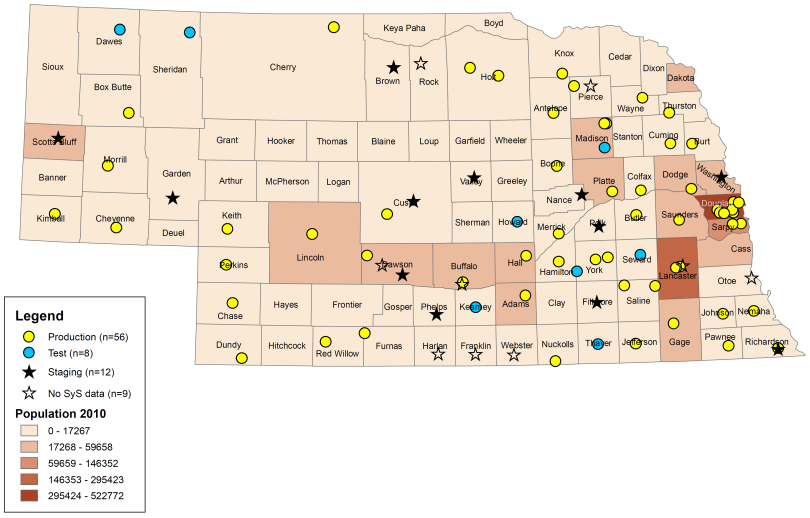
= data element requirement differs by facility type

= * future data elements

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

29



Syndromic Surveillance ED Onboarding Status

Total # Meaningful Use registrations for SyS in Nebraska: 85

Proportion of Production EDs = 56/85 = 66%

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

30

Use of Near-Real–Time EHR Data to Support and Enhance Surveillance of Health Disparities

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

31

Pilot Study 1: Cross-Validation of Nebraska's Inpatient Syndromic Surveillance System for Chronic and Infectious Diseases

Sandra Gonzalez[1,2], Ming Qu[1], Thomas Safranek[1] and Bryan Buss[1]

[1]Nebraska Department of Health and Human Services (NEDHHS)

Office of Epidemiology, Epidemiology & Informatics Unit

[2]University of Nebraska-Lincoln

University of Nebraska Lincoln

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

CSTE 2014

32

Objective

- **To evaluate NEDHHS IPSyS data quality by cross-validating reporting of primary diagnostic codes**

  -completeness

  -consistency

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

33

Methods

- Percentage of completeness calculated for NEDHHS IPSyS required data elements
- Consistency was assessed by comparing specified ICD9-CM primary diagnostic codes between 2012 NEDHHS IPSyS and 2012 IP HDD data from Hospital A
  - By date of admission: January 1 to December 31, 2012
  - Monthly counts of these specified IPSyS and HDD diagnosis code frequency distributions were compared using Pearson correlation coefficients.

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

34

Methods: Inpatient SyS and HDD Data Sets

	Inpatient HDD	Inpatient SyS
Timeliness	12-18 months	2-4 weeks*
Who codes the records?	Billing Department	Billing Department
Records Available	94% of UB – 04 claims ≤ 50 % self pay claims	All admissions
Data Elements	Clinical and demographic Limited to UB – 04 claim form requirements	Additional information not collected in the UB – 04 form: chief complaint, height, weight, blood pressure and temperature

*Initial IPSyS data is received within 24 hours of admission.

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

35

Methods

- Cross-validation focused on:
  - 4 chronic diseases which represent leading causes of death and disability in the US
    - Myocardial Infarction
    - Stroke
    - Diabetes
    - Osteoarthritis
  - Influenza

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

36

Results: Completeness

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

37

Data Quality of Hospital A Inpatient Admissions — Hospital A - Nebraska, 2012

Required data elements

Data Element	% of completeness
Facility Identifier	100%
Admission Date	100%
Patient ID	100%
Patient Visit ID	100%
Patient Age	100%
Patient Sex	100%
Patient Race	100%
Patient Ethnicity	99%
Patient Zip Code	100%
Diagnostic Codes	100%
Discharge date	100%

- Data quality assessed by calculating percentage completeness of required data elements

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

38

Results: Consistency

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

39

Summary

Chronic Diseases	Total Admissions, r	
Cardiovascular: Myocardial Infarction	r = 0.97	p < 0.0001
Stroke: Ischemic	r = 0.94	p < 0.0001
Stroke: Hemorrhagic	r = 0.91	p < 0.0001
Diabetes	r = 0.96	p < 0.0001
Osteoarthritis	r = 0.95	p < 0.0001
Infectious Diseases	**Total Admissions, r**	
Influenza	r = 0.99	p < 0.0001

Significantly high correlations (≥ 0.90) were observed between IPSyS and HDD for all the conditions analyzed.

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

40

Conclusions

- The use of SyS IP data could improve the ability to identify and describe chronic disease and influenza inequalities, thus complementing the surveillance of health disparities in Nebraska.

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

41

Pilot Study 2: Validation of SyS Data to Inform Surveillance of Health Disparities in Nebraska

Sandra Gonzalez[1,2], Ashley Newmyer[1], Ming Qu[1] and Thomas Safranek[1]

[1]Nebraska Department of Health and Human Services (NEDHHS)

Office of Epidemiology, Epidemiology & Informatics Unit

[2]University of Nebraska-Lincoln

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

University of Nebraska Lincoln

Helping People Live Better Lives.

ISDS 2015

42

Surveillance of health disparities in minority populations

Key for the advancement of health equality

Challenges:

- Need for improvement in documentation of race and ethnicity has been identified across various public health data sets
- Lack of reporting of race and ethnicity in Nebraska HDD
  - Alternative data sources:
    - Behavioral Risk Factor Surveillance System and Vital Records

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

43

Objectives:

1. To determine if near-real–time ED and IP SyS data provide a more complete documentation of race and ethnicity than HDD.

2. To determine the reporting consistency of ICD9-CM ECODES associated with injury related health disparities between 2013 NEDHHS SyS and HDD ED data.

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

44

Methods: Data Quality

- **Completeness**
  - Percentage of completeness of required data elements was determined for 2013 NEDHHS HDD ED and IP, and for 2013-2015 NEDHHS SyS ED and IP data from Hospital A.
    - Douglas County, NE
- **Consistency**
  - Specified ICD9-CM ECODES were compared between 2013 NEDHHS ED SyS and ED HDD data from Hospital A.
  - ICD9-CM ECODES associated with assault-related injury (E960–E969, E979 and E999.1), and suicide and self-inflicted injury (E950-E959).
  - Pearson correlation coefficients were used to compare frequency distribution of monthly counts for the specified ECODES.

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

45

Results: Data Quality

-Completeness

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

46

Completeness of IP data — Hospital A – Nebraska, 2013

Data Element	% Completeness IP HDD	% Completeness IP SyS
Facility ID	100%	100%
Admission Date	100%	100%
Patient ID	100%	100%
Patient Visit ID	100%	100%
Patient Age	100%	100%
Patient Gender	100%	100%
Patient Zip Code	100%	100%
Chief Complaint	NA	100%
ICD9 Diagnostic Codes	100%	100%
Patient Race	0%	100%
Patient Ethnicity	0%	92%

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

47

Completeness of SyS IP data — Hospital A – Nebraska, 2014-2015

Data Element	% Completeness IP 2014	% Completeness IP Jan-July, 2015
Facility ID	100%	100%
Admission Date	100%	100%
Patient ID	100%	100%
Patient Visit ID	100%	100%
Patient Age	100%	100%
Patient Gender	100%	100%
Patient Zip Code	100%	100%
Chief Complaint	100%	100%
ICD9 Diagnostic Codes	100%	100%
Patient Race	100%	100%
Patient Ethnicity	100%	100%

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

48

Completeness of ED data — Hospital A – Nebraska, 2013

Data Element	% Completeness ED HDD	% Completeness ED SyS
Facility ID	100%	100%
Admission Date	100%	100%
Patient ID	100%	100%
Patient Visit ID	100%	100%
Patient Age	100%	100%
Patient Gender	100%	100%
Patient Zip Code	100%	100%
Chief Complaint	NA	100%
ICD9 Diagnostic Codes	100%	75%
Patient Race	0%	100%
Patient Ethnicity	0%	0%

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

49

Completeness of SyS ED data — Hospital A – Nebraska, 2014-2015

Data Element	% Completeness ED 2014	% Completeness ED Jan-July, 2015*
Facility ID	100%	100%
Admission Date	100%	100%
Patient ID	100%	100%
Patient Visit ID	100%	100%
Patient Age	100%	100%
Patient Gender	100%	100%
Patient Zip Code	100%	100%
Chief Complaint	100%	100%
ICD9 Diagnostic Codes	77%	100%
Patient Race	100%	100%
Patient Ethnicity	100%	100%

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

50

Summary of Results

NEDHHS SyS data provides more complete documentation of race and ethnicity than HDD.

Significant correlations were observed for the conditions analyzed.

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

51

Conclusions

- The use of SyS ED data could improve the ability to identify and describe injury inequalities and complement the surveillance of health disparities.
- SyS ED data can be used for the timely identification and monitoring of intentional injuries in Nebraska.

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

52

Data Quality: 2015-2017

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

53

Completeness of ED data – Nebraska, 2015

Data Element	% Completeness ED HDD	% Completeness ED SyS
Facility ID	100%	100%
Admission Date	100%	100%
Patient ID	100%	100%
Patient Visit ID	100%	100%
Patient Age	100%	100%
Patient Gender	100%	100%
Patient Zip Code	100%	100%
Chief Complaint	NA	99%
ICD Diagnostic Codes	100%	92%
Patient Race	8%	96%
Patient Ethnicity	8%	96%

N = 16 EDs

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

54

Completeness of ED data – Nebraska, 2016

Data Element	% Completeness ED HDD	% Completeness ED SyS
Facility ID	100%	100%
Admission Date	100%	100%
Patient ID	100%	100%
Patient Visit ID	100%	100%
Patient Age	100%	100%
Patient Gender	100%	100%
Patient Zip Code	100%	100%
Chief Complaint	NA	99%
ICD Diagnostic Codes	100%	74%
Patient Race	6%	97%
Patient Ethnicity	6%	97%

N = 30 EDs

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

55

Completeness of SyS ED data — Nebraska, 2017

Data Element	% Completeness ED 2017
Facility ID	100%
Admission Date	100%
Patient ID	100%
Patient Visit ID	100%
Patient Age	100%
Patient Gender	100%
Patient Zip Code	99%
Chief Complaint	97%
ICD Diagnostic Codes	77%
Patient Race	98%
Patient Ethnicity	98%

N = 50 EDs

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

56

2017 Emergency Department SyS Data (NE_NSSP)

Frequency Distribution of Race and Ethnicity

- ED SyS data from 24 NE hospitals

Race	Proportion
White	77% (125,638/163,304)
Black or African American	13% (20,505/163,304)
Asian	1% (1,302/163,304)
American Indian or Alaska Native	1% (1,434/163,304)
Native Hawaiian or Other Pacific Islander	0% (467/163,304)
Other Race	7% (10,845/163,304)
Not Reported	2% (3,113/163,304)

Ethnicity	Proportion
Not Hispanic or Latino	90% (147,648/163,304)
Hispanic or Latino	7% (11,720/163,304)
Unknown (Declined)	0% (318/163,304)
Not Reported	3% (4,328/163,304)

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

57

2017 Emergency Department SyS Data (NE_NSSP)

Myocardial Infarction related ED visits by Race and Ethnicity

- ED SyS data from 24 NE hospitals

Race	Proportion
White	95% (427/450)
Black or African American	2% (10/450)
Asian	0% (2/450)
American Indian or Alaska Native	0% (1/450)
Native Hawaiian or Other Pacific Islander	0% (1/450)
Other Race	2% (7/450)
Not Reported	0% (2/450)

Ethnicity	Proportion
Not Hispanic or Latino	97% (435/450)
Hispanic or Latino	2% (9/450)
Not Reported	1% (6/450)

Syndromic surveillance definition:
ICD9: 410
ICD10: I21

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

58

Strengths and Limitations of SyS data

Strengths

- High percent of completeness of required data elements, including race and ethnicity.
- Near-real–time EHR data.
- Additional data elements not in HDD (e.g., Chief Complaint, Triage Note, Clinical Impression).
- 60% of EDs, 30% of IPs and 55% FQHCs sending production data to NEDHHS.

Limitations

Format of text fields (e.g., chief complain, triage notes) varies by facility.

Information can change as more records are received.

Identification of primary cause of patient encounter can be challenging.

Onboarding is still ongoing.

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

59

Summary

- Syndromic surveillance could enhance the surveillance of health disparities and equity of care by providing timely and complete patient encounter information.

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

60

Electronic Laboratory Reporting

- Approximately 90 infectious disease are reportable to NEDHHS
  - Almost all of these conditions are diagnosed with a laboratory test
- Patient address is an important data element
  - Used to identify and describe disparities in the community that you serve
  - Patient address can be geocoded to help prioritize and target prevention and education efforts
  - Address helps local health departments respond to outbreaks in a more timely manner
    - Fewer people get sick and end up in the hospital
- It is important that providers include patient address when they send a specimen to a laboratory so the laboratory can pass that information on to NEDHHS
  - During Apr to Sep 2018, 7% of the lab reports were missing address which translates to about 8,200 labs.

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

61

Acknowledgements

- **Nebraska DHHS**
  - Bryan Buss, DVM, MPH
  - David DeVries
  - Michelle Hood
  - Alison Keyser-Metobo, MPH
  - Ashley Newmyer, MPH
  - Mark Nielsen
  - Ming Qu, PhD
  - Tom Safranek, MD
  - Gary White
  - Anthony Zhang, MA
  - Lianlin Zhao
  - Josie Rodriguez

University of NE-Lincoln

Nebraska Health Information Initiative (NeHII)

Nebraska Hospital Association

NEBRASKA
Good Life. Great Mission.
DEPT. OF HEALTH AND HUMAN SERVICES

Helping People Live Better Lives.

62