AllianceChicago Network

- 72 Safety-net Organizations
- 400+ Delivery Sites of Care
- Providing Services in 19 States
- 3.6+ Million Unique Patients

Map showing the coverage area of AllianceChicago Network across 19 states with different colors indicating the number of delivery sites of care.
Our Mission

To improve personal, community, and public health through innovative collaboration.
What We Do

**Health Care Collaboration**
- Hosted over 50 virtual events for learning and best practice sharing
- Broadcasted our first virtual conference with 46 educational sessions, in partnership with Health Choice Network
- Led a large-scale 7-Health Center Network cohort survey to initiate the ARCH Collaborative to improve use and satisfaction of the EHR

**Health Information Technology**
- Developed 396 Clinical Content updates to athenaPractice
- Maintained an average EHR hosted uptime of 100%
- Captured 3,707,443 unique patient lives from 35 health centers

**Health Research & Education**
- Led 43 active research projects
- Engaged 32 health centers in research
- Published 12 research manuscripts
- Disseminated research findings through 12 presentations
5 Things we know about Health Equity

• Health Equity is influenced by the design of policies & the implementation of program/services

• Medical Care is insufficient for ensuring better health

• New Payment Models are prompting interest in the role of SDOH

• Frameworks for integrating social care into healthcare are emerging

• Health Information Technology adoption and standards are critical to support the integration of social care
5 Things we need to learn

• How do we collect and analyze comprehensive health equity related data to inform the design and delivery of health & social care

• What (new) data and technology solutions are needed – EHRs are necessary but not sufficient

• How to build multisector partnerships for data sharing

• How to prioritize and integrate intersectoral interventions necessary to positively impact Health Equity

• How to intervene without “medicalizing” SDOH
Learning Health System

- Assess/Identify
- Plan
- Intervene
- Evaluate Impact

Care

Patients

Clinicians

Communities

Science

Evidence

[Image of a cycle diagram with nodes connecting to the steps of the learning health system]
Assess/Identify

• Patient reported information is highly valuable, however difficult to gather (time/effort to collect, data standards, availability)

• Many data collection efforts focus on patients that present for care and frequently overlook those that are “healthy”

• Data standards have been developed (and more are under development) for SDOHs, however there are heterogenous and sometimes conflicting policy & regulatory standards related to the collection and use of SDOH data

• Physical, environment and behavioral factors have a significant impact on outcomes, however current assessment efforts are mostly focused on understanding social factors
CHCs & Health Disparities Collaborative

CHCs should develop an approach to assess patients for social care needs and implement “enabling services” to mitigate social and economic risk impacting health outcomes.

Source: ReportFinal.edits.indd (aapcho.org)
Health Disparities are Driven by Various Factors

<table>
<thead>
<tr>
<th>Economic Stability</th>
<th>Neighborhood and Physical Environment</th>
<th>Education</th>
<th>Food</th>
<th>Community, Safety, &amp; Social Context</th>
<th>Health Care System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>Housing</td>
<td>Literacy</td>
<td>Food security</td>
<td>Social integration</td>
<td>Health coverage</td>
</tr>
<tr>
<td>Income</td>
<td>Transportation</td>
<td>Language</td>
<td>Access to healthy options</td>
<td>Support systems</td>
<td>Provider &amp; pharmacy availability</td>
</tr>
<tr>
<td>Expenses</td>
<td>Parks</td>
<td>Early childhood education</td>
<td>Social integration</td>
<td>Community engagement</td>
<td>Access to linguistically and culturally appropriate &amp; respectful care</td>
</tr>
<tr>
<td>Debt</td>
<td>Walkability</td>
<td>Vocational training</td>
<td>Exposure to violence/trauma</td>
<td>Stress</td>
<td>Quality of care</td>
</tr>
<tr>
<td>Medical bills</td>
<td>Zip code/ geography</td>
<td>Higher education</td>
<td>Food security</td>
<td>Policing/juice policy</td>
<td></td>
</tr>
<tr>
<td>Support</td>
<td></td>
<td></td>
<td>Access to healthy options</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Health and Well-Being: Mortality, Morbidity, Life Expectancy, Health Care Expenditures, Health Status, Functional Limitations

Source: Disparities in Health and Health Care: 5 Key Questions and Answers | KFF
Health Data Infrastructure

PPT - Dale Sanders SVP Strategy Health Catalyst
PowerPoint Presentation - ID:6180870 (slideserve.com)
CHILD POISONED

LEAD IDENTIFIED

REMEDICATION
MITIGATION
ABATEMENT

REACTIVE

PROACTIVE
Predictive Modeling for Lead Risk

Clinical Decision Support as a Service

Housed at the City of Chicago
<table>
<thead>
<tr>
<th>Dataset</th>
<th>Years</th>
<th>Records</th>
<th>Variables</th>
<th>Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood Lead Level</td>
<td>1995 - Present</td>
<td>2,700,000</td>
<td>First name, last name, date of birth, address, blood lead level, sample type, sample date</td>
<td>CDPH Lead Program</td>
</tr>
<tr>
<td>Home Inspection Records Summary</td>
<td>1989 -Present</td>
<td>66,000</td>
<td>Date of initial inspection, lead based paint hazard (yes/no), location of lead-based paint hazards (interior/exterior/both/), date complied, address</td>
<td>CDPH Lead Program</td>
</tr>
<tr>
<td>Women, Infants and Children Demographics</td>
<td>1994 - Present</td>
<td>180,000</td>
<td>First name, last name, date of birth, address, sociodemographics</td>
<td>CDPH WIC Program</td>
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<tr>
<td>Building Permits</td>
<td>2006 - Present</td>
<td>400,000</td>
<td>Address, issue date, permit type</td>
<td>Chicago Department of Buildings (Chicago Data Portal)</td>
</tr>
<tr>
<td>Building Violations</td>
<td>2006 - Present</td>
<td>1,500,000</td>
<td>Address, violation Date, violation description, violation ordinance, inspection status</td>
<td>Chicago Department of Buildings (Chicago Data Portal)</td>
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<tr>
<td>Building Footprints</td>
<td>2015</td>
<td>800,000</td>
<td>Year of building construction, physical condition, number of units, stories (floors), vacancy status</td>
<td>Chicago Department of Buildings (Github)</td>
</tr>
<tr>
<td>Cook County Assessor</td>
<td>2013</td>
<td>800,000</td>
<td>Address, assessed property values, building classifications, building characteristics</td>
<td>2014 Cook County Assessor</td>
</tr>
<tr>
<td>Chicago Census Boundaries</td>
<td>2010</td>
<td>800</td>
<td>Shape File</td>
<td>Chicago Data Portal</td>
</tr>
<tr>
<td>Chicago Ward Boundaries</td>
<td>2015</td>
<td>50</td>
<td>Shape File</td>
<td>Chicago Data Portal</td>
</tr>
<tr>
<td>American Community Survey</td>
<td>2005 - 2014</td>
<td>800</td>
<td>Census tract variables including socio-demographics, education, health insurance, home ownership.</td>
<td>US Census Bureau</td>
</tr>
<tr>
<td>Frequently Occurring Surnames from Census</td>
<td>2000</td>
<td>150,000</td>
<td>Census surname ethnicity</td>
<td>US Census Bureau</td>
</tr>
</tbody>
</table>
Clinical Decision Support Tool

- The predictive model is built into an EHR-based Clinical Decision Support (CDS) tool.
- The CDS can alert providers to the risk of lead exposure in a clinical setting.
- The tool provides recommendations regarding the need for visual home inspections and patient education on lead abatement strategies.
SDOH Interoperability

• AllianceChicago to partner with HL7 to pilot the newly developed FHIR IG for SDOHs

• FHIR resources referenced in the SDOH Clinical Care FHIR IG STU1 that are not included in USCDI V2 and the US Core FHIR IG
  • Consent
  • Observation (Questionnaire Response)
  • Task

Source: HL7.FHIR.US.SDOH-CLINICALCARE\Home Page - FHIR v4.0.1
Plan

• Prioritizing the information from screenings/assessments are difficult as patients often have multiple concerns

• A Patient-centered, multisector, sharable plan of care is essential

• A longitudinal, dynamic, and event driven plan of care is needed

• Multisector coordination of care planning are necessary including synchronization of other health-related public benefits programs (e.g., WIC, TANAF/SNAP)

• Expansion and harmonization of the IT Infrastructure among social care and community providers is necessary to support multisector data sharing and coordination of interventions
Average # of SDOH Risks Per Patient

Source: Collecting SDOH in the Clinical Setting - Findings from the National PRAPARE Pilot 2019.pdf
Nursing Care Plan (NCP)

• The initial concept of the Nursing Care Plan was documented in the early 1930s by

• The proposed care plan included information on all of the family members, their current health status, socioeconomic information, housing conditions, nationality, as well as social and emotional health status

• Today five required components the NCP are 1) assessment, 2) expected outcomes, 3) interventions, 4) rationale for interventions and 5) evaluation of the impact/outcomes of the plan

Source: The American Journal of Nursing
Vol. 30, No. 4 (Apr., 1930), pp. 399-407 (9 pages)
FHIR Care Plan

The 4 cornerstones of a care plan

1. Health Concern
2. Goal
3. Intervention (care activity)
4. Milestone

Corresponding FHIR standards:
- Care Plan
- Condition
- Goal
- Request-type resources
  - ServiceRequest, MedicationRequest, etc.
- Observation
- Questionnaire & Response

Content:
- Health concern(s)
- Health goal(s)
- Activity/intervention
- Progress/outcome
  and more...

Dynamic behavior:
- Machine assisted care coordination

Source: HL7 Patient Care Work Group “Care Plan Standards Overview for ONC” April 19, 2017
Intervene

• Lack information on which social care interventions have the most impact on health equity

• Broaden HIT policy and regulatory efforts to include the growing direct to consumer HIT marketplace

• Ensure direct to consumer HIT mediated program/services are credible and ethical

• Efforts to improve Digital Health Literacy are important to ensure equitable technology-enabled healthcare
## Broadband Access

According to the tests collected,

- **65% (1,362)** of counties are **experiencing the internet at levels below the FCC’s definition of broadband** including:
  - **77%** of all **small counties**
  - **51.5%** of **medium counties**
  - **19%** of **large counties**

Source: https://www.naco.org/resources/featured/understanding-true-state-connectivity-america
Digital Health Literacy

The Infrastructure Investment and Jobs Act will improve access to broadband services, however the effort won’t be effective if people can’t use online application.

- Invest in the development of digital health tools that address the needs of diverse populations (age, races, ethnicity, gender, sexual orientation, primary language, and socioeconomic)
- Track digital health access and usage across sociodemographic populations
- Develop a robust infrastructure to support the use and optimization of digital health tools which account for varied digital literacy levels
- Support multidisciplinary workforce training programs that promote the use of digital health tools with diverse patients and consumers
Evaluation

• Support investments in the further generation of scientific knowledge relative to digital health, health literacy, and multisector interventions

• Promote policy and standards to address bias in machine learning algorithms which can perpetuate health disparities

• Intensify efforts to increase the diversity of individuals involved in community engaged research and evaluation
Underrepresentation in Clinical Trials

Source: https://www.sciencedirect.com/science/article/pii/S0146280618301889
Equitable Learning Health System

• Expand IT policy and standards to increase availability and use of heterogenous, multisectoral data

• Support the development of information technology to encourage the coordination of intersectoral care planning and intervention

• Promote the development of community-based training programs to optimize the use of digital health tools which account for varied digital literacy levels

• Intensify efforts to increase the diversity of individuals involved in community engaged research and evaluation