

Datedeling i Danmark – Current state and future directions

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About Me

- Associate Professor at Indiana University
 - Richard M. Fairbanks School of Public Health
 - Teach classes on Public Health Informatics
 - Mentor MPH and PhD Students



- Research Scientist at Regenstrief and the VA
 - Director of Public Health Informatics
 - Partnerships with Health Systems, Government Agencies





Edited by Brian E. Dixon HEALTH INFORMATION **EXCHANGE** Navigating and Managing a Network of Health Information Systems

Book on Health Info Exchange

• ISBN 9780128031353

 Available from Academic Press, an imprint of Elsevier

- 16 chapters
- 5 case studies

 elsevier.com/books/ health-informationexchange/dixon/978-0-12-803135-3



Purpose of Visit: Profile Danmark

 Prior cases studies ONLY in USA – New York, Maryland, Indiana, Federal Government

- New Use Cases
 - Danmark
 - Israel
 - UAE / Dubai
 - Ethiopia
 - Taiwan





Agenda

Health Information Exchange in USA

- COVID-19 Response in Indiana
 - Strengthening Public Health Response
 - Strengthening Health Systems

Questions about HIE in Denmark





Digital Health in USA

- 96% of hospitals have digital EHR systems
- 86% of GP clinics have digital EHR systems

 Adoption driven by HITECH and Meaningful Use policies over the past 10 years

Now, USA seeks to <u>promote interoperability</u>...





Office of the National Coordinator for Health IT



Quality Payment Program

The Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) established the Quality Payment Program to reward eligible clinicians who provide higher-value care. Clinicians take part in the Quality Payment Program in one of two ways: the Merit-based Incentive Payment System (MIPS) and Advanced Alternative Payment Models (Advanced APMs). In MIPS, the Promoting Interoperability category focuses on meaningful use of certified EHR technology, while Advanced APMs include their own requirements for participants to use certified EHR technology.

Promoting Interoperability Programs for Hospitals

The Promoting Interoperability Programs for hospitals (previously known as the Medicare and Medicaid EHR Incentive Programs) encourage eligible hospitals and CAHs to demonstrate meaningful use of certified EHR technology.





Health Information Exchange

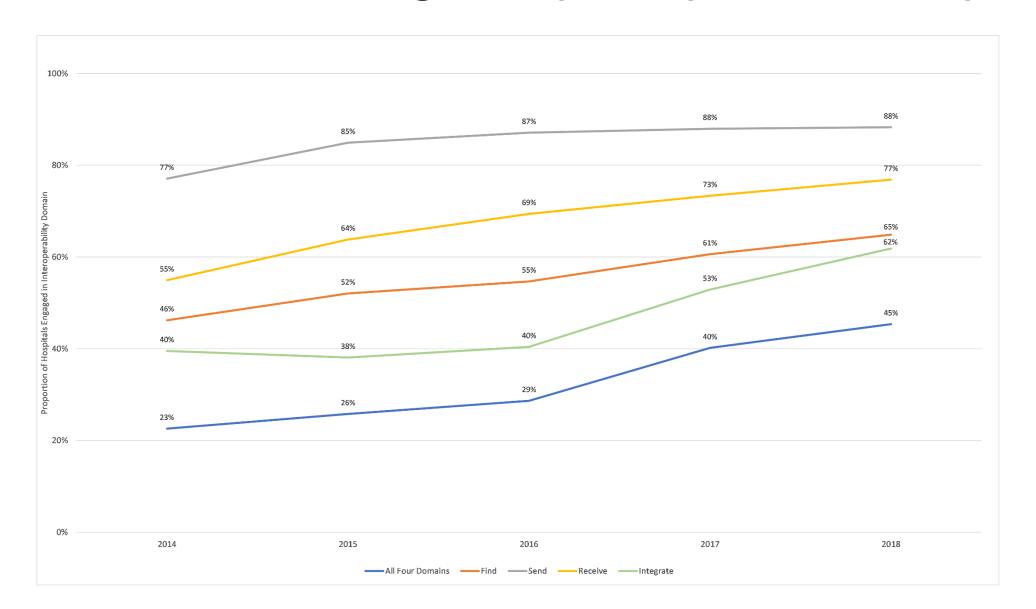
 Health information exchange (HIE) is defined as the electronic transfer of clinical and/or administrative information across diverse and often competing health care organizations

- HIE refers to the sharing of clinical and administrative data across the boundaries of health care institutions, health data repositories, and States
 - AHRQ, 2009





Data Exchange Capacity in US Hospitals



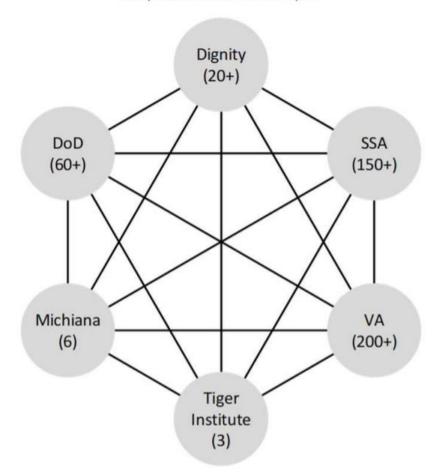




Option 1 in USA: eHealth Exchange

Today's Federated Architecture

Multiple Connections Per Participant

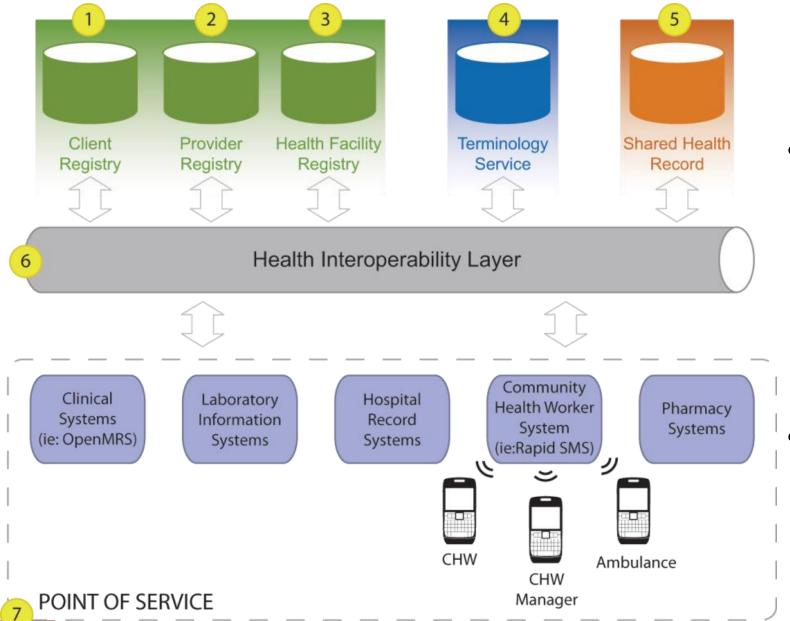


 Federated model with a standard interface for each node to interact with other nodes on the network

 Each health system or regional node queries and retrieves data from the other nodes when needed







Option 2 in USA:

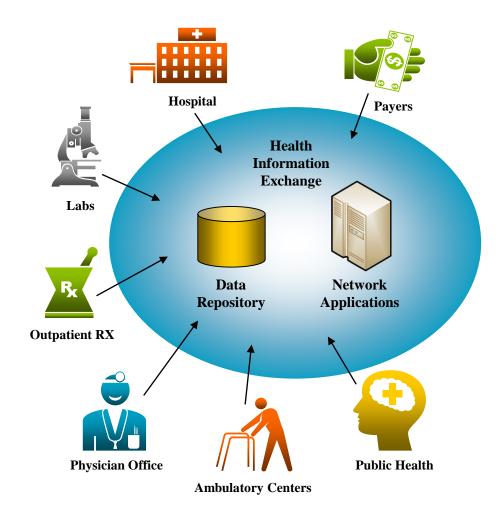
Centralized model
 with common
 interface level to
 deposit and retrieve
 data when needed

 Similar to Danish model



The Fabulous Indiana HIE









Responding to COVID-19



Contact • Events • Careers • Podcast • Donate



Indiana data partnership supports State response to COVID-19



Regenstrief Institute and partners release an updated data dashboard with new look and user-friendly statistics

Regenstrief Institute and its partners have introduced a new version of their interactive COVID-19 data dashboard featuring hospital statistics for the pandemic in Indiana. The new look provides easy-to-read statistics on hospitalizations, emergency department visits, intensive care stays and more. It also breaks down









Pillars of Population Health Response to a Pandemic

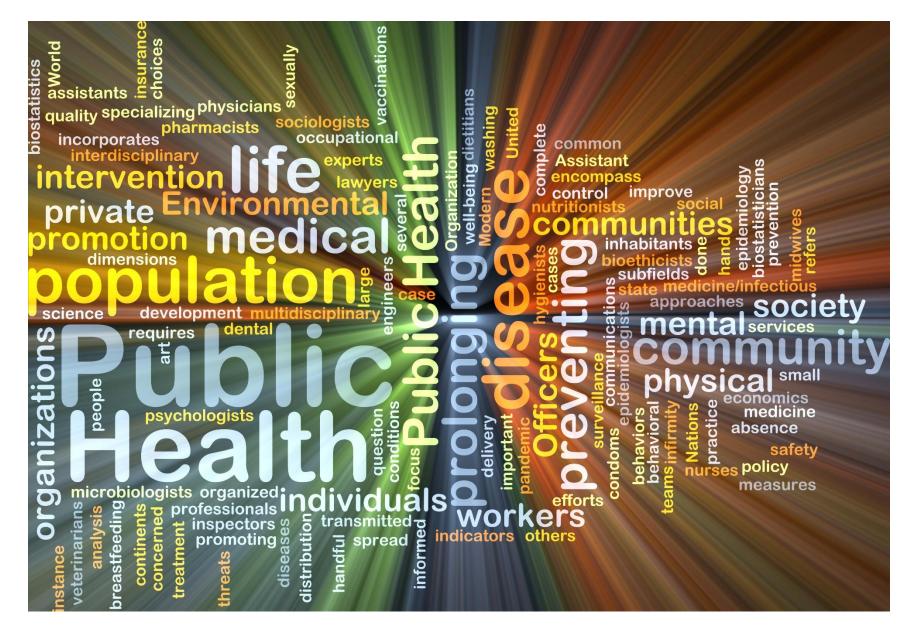
- Strengthening Public Health
 - Epidemiology / Disease Surveillance
 - Contact Tracing / Quarantine
 - Vaccinations / Prevention

- Strengthening Health Systems
 - Hospitals / Health System Preparedness
 - Health Care Utilization / Capacity / Resources
 - Therapeutics / Management of Diseased Individuals





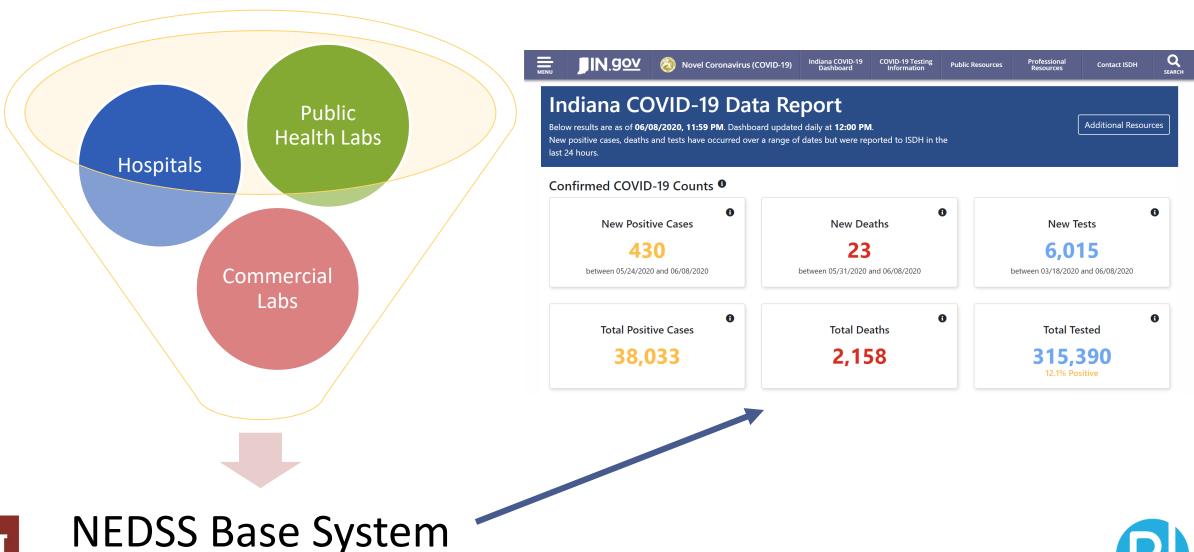
Strengthening Public Health







Integrating Lab Results from Multiple Sources









Enhanced Contact Tracing

- Query HIE for HL7 C-CDA document following positive laboratory result
- C-CDA document contains
 - Demographics
 - Co-morbidities
 - Recent encounters
 - Hospitalization history along with discharge summaries





Support for Vaccination Efforts

- In Indiana, pre-COVID, >95% of children, adolescents and adults possessed at least 1 vaccine recorded in the state immunization information system (IIS)*
 - CHIRP is the name of our statewide IIS

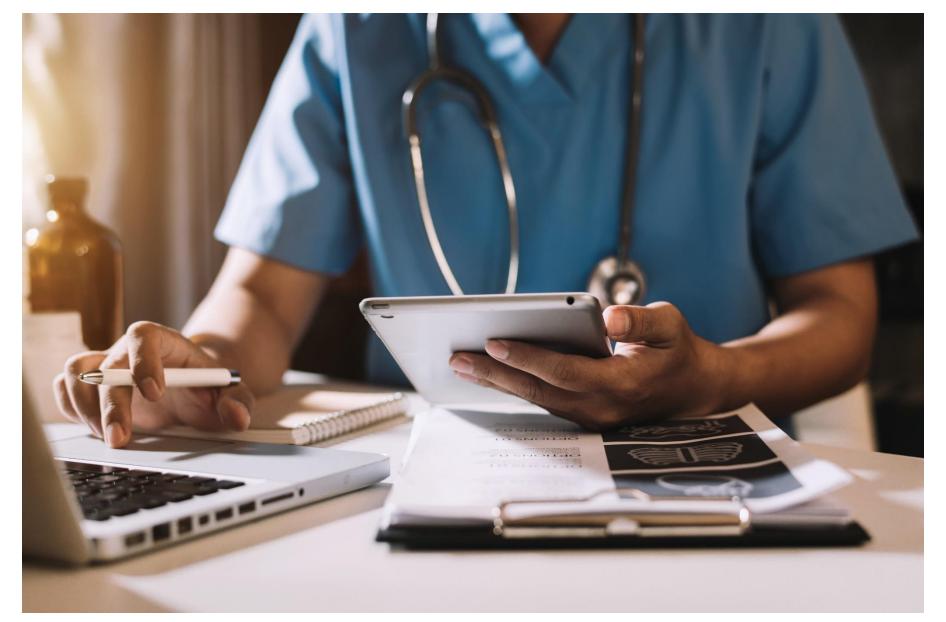
- IHIE quickly worked to interface with CHIRP
 - Provide clinicians information on whose vaccinated

Post-marketing surveillance to calculate vaccine efficacy**





Strengthening Health Systems





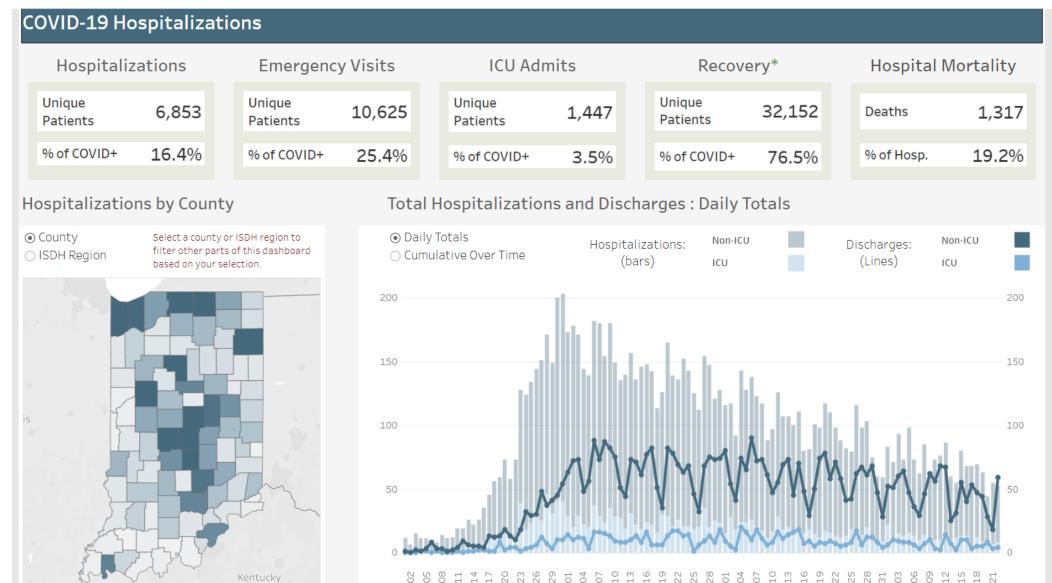




@ Mapbox @ OSM

https://www.regenstrief.org/covid-dashboard/











Morbidity and Mortality Weekly Report

July 21, 2020

Population Point Prevalence of SARS-CoV-2 Infection Based on a Statewide Random Sample — Indiana, April 25–29, 2020

Nir Menachemi, PhD1,2; Constantin T. Yiannoutsos, PhD1; Brian E. Dixon, PhD1,2; Thomas J. Duszynski, MPH1; William F. Fadel, PhD1; Kara K. Wools-Kaloustian, MD3; Nadia Unruh Needleman, MS1; Kristina Box, MD4; Virginia Caine, MD5; Connor Norwood, PhD6; Lindsay Weaver, MD4; Paul K. Halverson, DrPH1



Proceedings of the National Academy of Sciences of the United States of America

Bayesian estimation of SARS-CoV-2 prev Indiana by random testing

Constantin T. Yiannoutsosa, Paul Halverson, and Nir Menachemi

*Department of Public Health; 6

PLOS ONE





RESEARCH ARTICLE

Symptoms and symptom clusters associated with 2 infection in community-based populations: Res statewide epidemiological study

Brian E. Dixon , Kara K. Wools-Kaloustian, William F. Fadel, Thomas J. Duszynski, Constantin Yiannou Paul K. Halverson, Nir Menachemi

Published: March 24, 2021 • https://doi.org/10.1371/journal.pone.0241875



The NEW ENGLAND JOURNAL of MEDICINE

https://doi.org/10.7326/M20-5352

ORIGINAL ARTICLE

Effectiveness of Covid-19 Vaccines in Ambulatory and Inpatient Care Settings

M.G. Thompson, E. Stenehjem, S. Grannis, S.W. Ball, A.L. Naleway, T.C. Ong, M.B. DeSilva, K. Natarajan, C.H. Bozio, N. Lewis, K. Dascomb, B.E. Dixon, R.J. Birch, S.A. Irving, S. Rao, E. Kharbanda, J. Han, S. Reynolds, K. Goddard, N. Grisel, W.F. Fadel, M.E. Levy, J. Ferdinands, B. Fireman, J. Arndorfer. N.R. Valvi, E.A. Rowley, P. Patel, O. Zerbo, E.P. Griggs, R.M. Porter, M. Demarco, L. Blanton, A. Steffens, Y. Zhuang, N. Olson, M. Barron, P. Shifflett, S.J. Schrag, J.R. Verani, A. Fry, M. Gaglani, E. Azziz-Baumgartner, and N.P. Klein

Dataling i Danmark







What We Know

Table 1 Overview of country definitions by ICT domain				
Country	Provider-centric electronic record	Patient-centric electronic record	Health information exchange	Tele-health
Australia	No single officially sanctioned definition De facto definition includes any type of electronic record with patient data maintained by a provider	National definition An eHealth record is an electronic record that contains a summary of patient health information	National definition as it relates to the creation of the eHealth recordNational exchange standards are defined to support the eHealth record	National definition Tele-health consultations consist of video consults with specialists, consultant physicians, or consultant psychiatrists
Canada	National definition An EMR is a partial health record under the custodianship of a healthcare provider	No single officially sanctioned definition	National definition HIE is used to create a health record that includes relevant health information about a person over their lifetime (called an EHR) Includes six core functionalities National exchange standards are defined to support EHR creation	National definition Delivery of services by healthcare organizations using ICT solutions when the clinician and patient are not in the same location
Denmark	No single officially sanctioned definition De facto definition focused on a set of functionalities (eg, clinical notes, medication administration)	No single officially sanctioned definition	National definition Known as the 'one-letter solution,' the HIE approach uses a single electronic form for secure messages between physicians and hospitals Separate public health focused HIE network	De facto definition is digitally supported healthcare service over distance
England	National definition A Summary Care Record (SCR) is a health record that includes three types of health information about a person (eg, current medications and allergies) Locally held record systems are a partial health record under the custodianship of a healthcare provider	No single officially sanctioned definition Nationally provided services enable patient booking of appointments and prescription refills	National definition as it relates to the creation of the SCR National exchange standards are defined to support SCR and other transactions (eg, referrals and discharge summaries)	No single officially sanctioned definition
Finland	National definition in progress De facto definition includes any type of	National definition in progress	National definition in progress	No single officially sanctioned definition

Source: Adler-Milstein J, et al. J Am Med Inform Assoc 2014;21:111–116.





Questions for Audience

- How did the MedCom system evolve?
- What are the strengths of MedCom?
- What challenges did Danmark overcome that other nations should address / avoid?
- Did the Danish HIE support COVID-19 response? How?
- Where is the Danish HIE heading for the future?





Questions?

Discussion



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