Health and Demographics

Developing and Sustaining Integrated Data Systems: The South Carolina Experience

W. David Patterson, Ph.D.
Reforming State Governments Workgroup
Miami, FL
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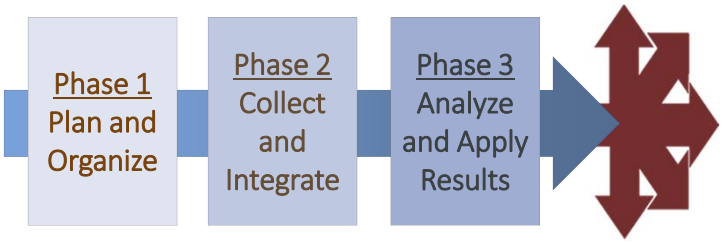
- Introduction

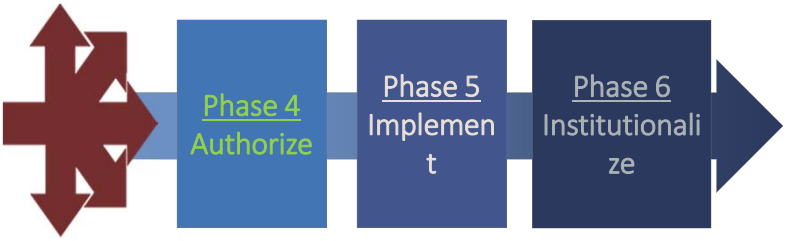
Why an Integrated Data System?

- Most problems faced by our populations actually involve multiple policy domains, while the data necessary to understand those problems are collected in silos that do not interact
- Integrated data systems can "close the loop" between practitioners, applied analysts, and basic researchers
- Integrated data systems can help create and sustain public, private, and not for profit partnerships around issues
- Integrated data systems reduce costs by repurposing existing data, producing "economies of scale"

The "Use Case" Pathway



The IDS Pathway



- **Formative Events and Growth**

Evolution of the Data Warehouse

- Began in the 1970's as a Cooperative Health Statistics Program under the Governor's Office
- Early factors
  - Neutral setting in the Budget and Control Board, Office of Research and Statistics
  - Health Professions and Manpower Data
  - Robert Wood Johnson Foundation
  - Human Services Coordinating Council and hospital billing data
- Organic Growth
  - SC DSS Contract
  - SC DHHS Data Warehouse Contract

Key Principles

- Data is always "owned" by the originating agency. Must have permissions to use and/or link any data – *Fosters collaboration and provides accountability*
- Maintain neutrality and equality of access
- Build a strong internal culture: Integrity and objectivity, privacy protection and data security, technical skill and competence
- Provide value to customers/partners – *Don't compete with existing agency resources, augment them of provide services that aren't available elsewhere*

Key Principles

- Build off of existing systems (legacy systems from state agencies and private sector) – *No need to "rip and replace" existing systems*
- Create a Unique ID (not related to any other number) – *No need to create a single state ID*
- Identifiers are pulled off of the statistical data. Use only the statistical data – *Enhances security and protects privacy*
- Both provider and client addresses can be geo-coded (rich data for geo-spatial analysis) – *Provides maps as well as data*

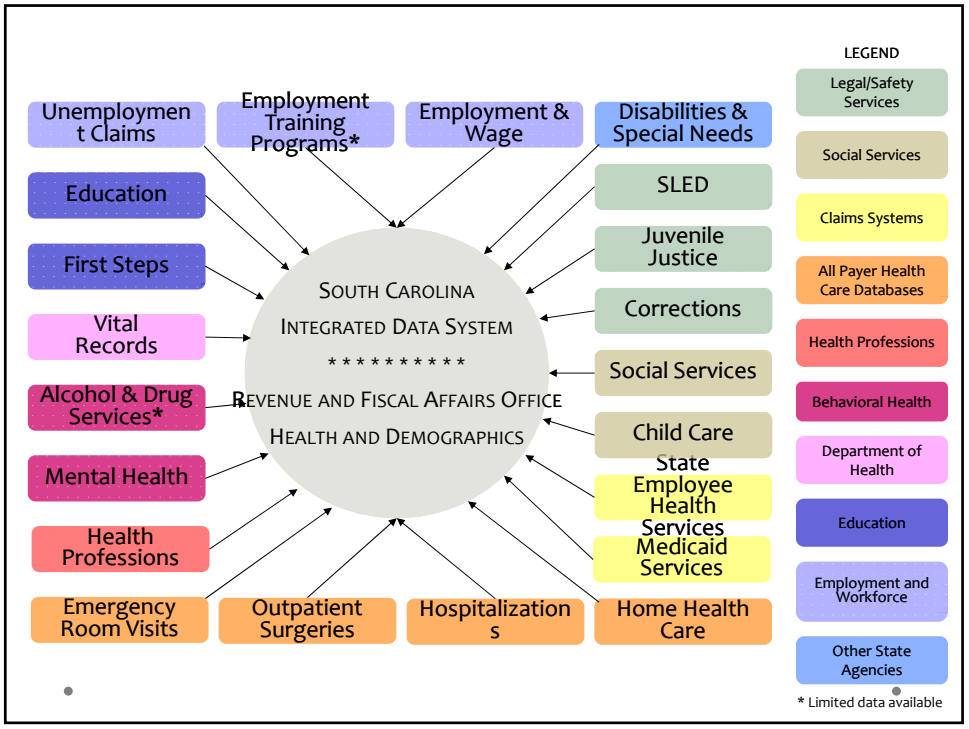
- **Maturity and Institutionalization**

Proviso

117.13. (GP: SC Health & Human Services Data Warehouse) "There is hereby established within the Office of Research and Statistics, South Carolina Budget and Control Board, the South Carolina Health and Human Services Data Warehouse. The purpose of the Warehouse is to ensure that the operation of health and human services agencies may be enhanced by coordination and integration of client information. To integrate client information, client data from health and human services state agencies will be linked to improve client outcome measures, enabling state agencies to analyze coordination and continuity of care issues. The addition of these data will enhance existing agency systems by providing client data from other state agency programs to assist in the provision of client services. Certain client information shall be delivered to the Office of Research and Statistics in order to assist in the development and maintenance of this Warehouse…"

Who are we?

- **Mission:** ***"To provide independent research, analysis, and resources to the executive and legislative branches of state government, local government officials, and the private sector to facilitate informed policy decisions and administration of services."***
- **Staff: 33 employees, 2/3 statisticians trained in either theoretical statistics or their substantive disciplines. The remaining staff are focused on supporting information/knowledge deployment skills such as software development and data base administration, or business operations.**
- **Budget: Roughly $6m annually, with less than 15% through general appropriations or assigned fees.**



Information Products

Analytic Products

- Agency Collaboration
- Researcher Collaboration
  - Data linkage
  - De-identified datasets
  - GIS support
  - Analytic support
- Public Website
  - Descriptive statistics
  - Ability to query data sources and generate ad-hoc reports

Application Partners

- ABC Tablet Application
- Community Long Term Care Application
- Ages and Stages Questionnaire
- Dept. of Education Data Warehouse
- Purpose Built Screening and Referral Systems
- South Carolina Health Information Exchange

Example(s): Telepsychiatric Consultation and Evaluation with Propensity Matched Controls

Roles of the Data Warehouse in the SC Telepsychiatry Initiative

Program Operation

- Provision of Medicaid Data
- Provision of DMH data into SC Health Information Exchange (SCHIEx)
- Integration of DMH Electronic Medical Record system with SCHIEx

Program Evaluation

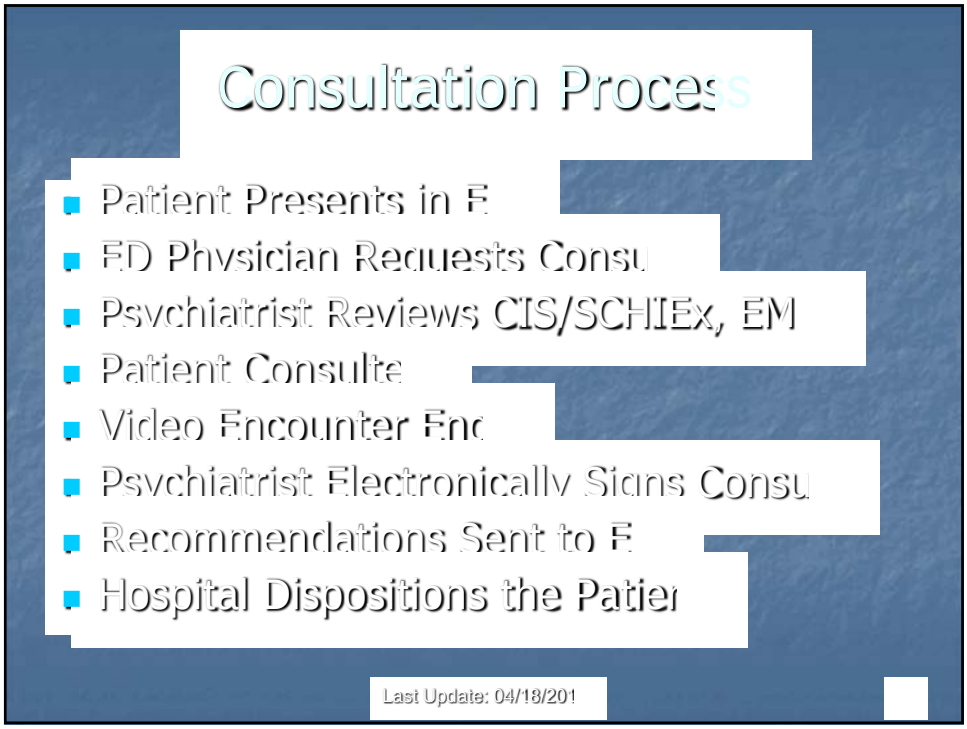
- Linkage of program specific data into Integrated System
- Provision of additional linked elements from the data warehouse, most notably UB 92/04
- Statistical and analytic support

Program support: an example

Primary Goals

- Timely Psychiatric Assessment and Rapid Initiation of Treatmer
- Increased Quality of Car
- Reduced Lengths of Stay (LOS
- Comprehensive Discharge Plannir
- Savings to the Hospital and Communi

Last Update: 12/07/201



Evaluation support: a related example

Strategy

- Propensity scoring with optimal matching used to match patients treated at intervention EDs to those treated at non-intervention EDs in South Carolina
- Compared two groups on utilization and cost outcomes using standard econometric techniques

Narasimhan, Druss et al NIMH and NIH R01

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Utilization Measures

-Differences in odds of admission from ED

-Differences in follow up at 30 and 90 days.

Narasimhan, Druss et al NIMH and NIH R01

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Service Use

	Telepsychiatry	Control	P
	N=7,261	N=7,261	
Admission	22%	11%	<0.001
LOS at index visit (in days)	0.43	1.35	<0.001
30 day OP f/u	46%	16%	<0.001
90 day OP f/u	54%	20%	<0.001
Index 30 day IP cost	$8,290	$11,224	
Index 30 day hospital cost (IP+ED)*	$12,634	$14,052	0.002

Narasimhan, Druss et al NIMH and NIH R01

Limitations

- Unmeasured patient-level differences –patients in telepsychiatry program could be sicker or more complex at baseline than controls
- Unmeasured hospital-level differences – telepsychiatry hospitals are less likely to have psychiatry expertise or inpatient services

Next Steps: Quality, Economic Outcomes and Sustainability of Telepsychiatry R01MH100002

- Create a synthetic control group of hospitals from surrounding states and examine outcomes for patients treated there relative to SC hospitals before and after telepsychiatry (diff in diff/triple difference).
- Examine effects on disease specific quality measures (depression, bipolar d/o, schizophrenia)
- Budget impact analysis: costs from the managerial insurance, and societal perspectives

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- Looking Forward

Examples of Current Major Initiatives

- Revenue and Fiscal Affairs
  - Strategic Plan Committed to Data Integration and Use
  - Codification of the IDS-Warehouse Proviso
  - Website Resign
  - Internal Projects – Boundary Redefinition, Legislative Budget System, Agency Wide Data Inventory
- Major Agency Initiatives
  - Health Care Transparency (SC DHHS, SCHA, PEBA, USC)
  - State Department of Education Data Warehouse
  - SC DHHS (Phoenix Project, Nurse Family Partnership/Pay for Success, Prime-Dual Medicare/Medicaid Eligible)
- Coordinating Council for Workforce Development (Act 252) – (Commerce, Dept. of Employment and Workforce, State Dept. of Education, Technical College System, Commission on Higher Education)

For Further Information

- W. David Patterson, Ph. D.
  David.Patterson@rfa.sc.gov
  803-898-9954