

# Building Blocks of Data Analytics

Virginia Department  
of Corrections

**Rick Davis**  
Chief Information Officer



September 30,  
2014

# The Year - 1978



**OBSCIS**

# Modernization of Applications

- Over 20 Legacy systems retired in past 7 years
- 2 mainframes and a host of silos but antiquated systems
- DEC VAX Cluster 28 years old – 5 applications
- Current: Blade, .net, SQL Server, web services, SAN Storage, Server 2012



# Data Warehouse

## Building Blocks

- Built iFACT data warehouse
- Extracted data from source OMS system
- Populator
- SQL Server/OS 2012
- Microstrategy BI Reporting Tool
- Data Governance
- Collibra Meta Data Tool
- Looking at other source systems/Data Marts/Cubes
- 3 team members



# The Key to our Future - Data

## Questions To Ask

- What are we doing right?
- What are we not doing right?
- What can be better?
- Who may re-offend and what can we do to prevent it?

## Evidence Based Organization

- Data driven to determine best programs/education
- Hypothesis – validate with data
- Predictive Analytics/Forecasting
- Trending analysis
- Simulation



# Virginia Longitudinal Data System

*An engine for insight*

**Bethann Canada,  
Director of Educational Information Management  
Virginia Department of Education**



September 30,  
2014



*the VLDS video*

# History

- **DOE: Longitudinal student data since 2005**
- **SCHEV: Longitudinal student data since 1992**
- **What are the characteristics of our high school graduates who go on to college?**
- **What are the wages of grads from different colleges and majors?**
- **Merging data in a warehouse not an option**

# The Federated Model

- Common data are de-identified at the agency and given a merging id
- A “third party” merges the data and strips the original id, applying a new one
- Respects agency autonomy
- Data governance is key

# The Data Providers

- Department of Education
- State Council on Higher Education
- Virginia Employment Commission
- Virginia Community College System
- Department of Social Services (in process)
- Department of Aging and Rehabilitative Services (soon)
- Department of Labor and Industry (soon)

*VLDS is extensible to allow for additional partners to share and merge their data.*

# Insights

- Persistence and college graduation is linked to high school achievement
- CTE completers who earned Advanced Studies diplomas had the highest average wages three-months after graduating with a Bachelor's degree
- We can predict students at risk of not being successful in school

# Use of Analytics at VDSS

## Panel Discussion

**Jeff Price, PhD**  
**Director of Research and Planning**  
**Virginia Department of Social Services**

September 30,  
2014



VIRGINIA DEPARTMENT OF  
SOCIAL SERVICES

# Current Uses of Analytics at VDSS

- **Short-term:**
  - Situational awareness of ongoing operations and system or process changes (working properly?)
  - Staff support - Ad hoc requests for analysis
- **Medium-term:**
  - Analysis to support budgeting and staff planning
  - Program evaluation
- **Long-term:**
  - Research to support policy and program development
  - Long-term planning

# Weekly MA Status Report

## VDSS Weekly Medical Assistance (MA) Status Report - Week ending 9/26/2014

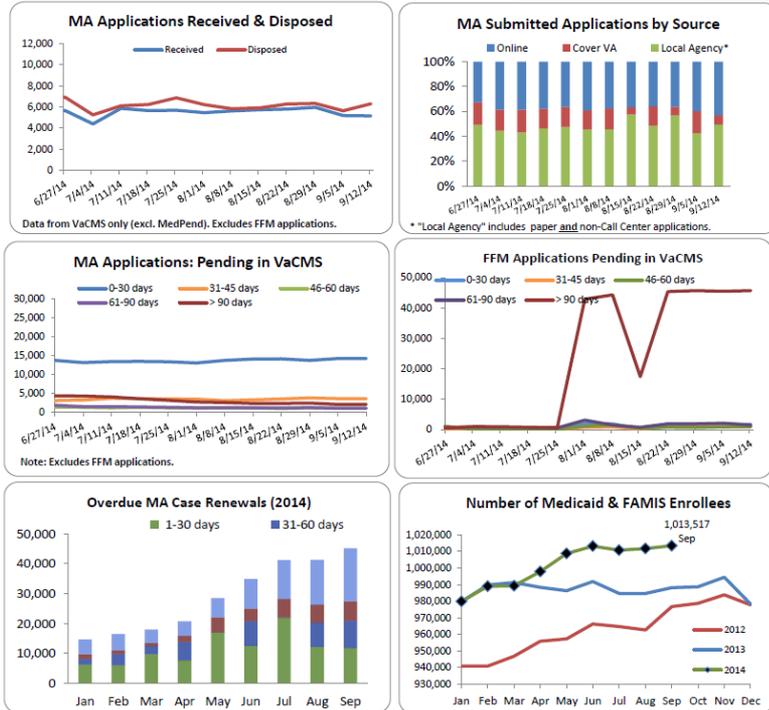


Table 1: Apps Received/Disposed; App Source; FFM	Result	Period	Table 2: Apps Pending; Overdue Cases; MMIS Pass Rate; Pregnancy	Result	Period
MA Applications - Received	5,152	9/12/2014	Applications Pending - 46-60 days	1,173	9/12/2014
MA Applications - Disposed	6,310	9/12/2014	Applications Pending - % 46-60 days	5%	9/12/2014
MA Applications - % Online	41%	9/12/2014	Applications Pending - 61-90 days	1,111	9/12/2014
MA Applications - % Cover VA	7%	9/12/2014	Applications Pending - % 61-90 days	5%	9/12/2014
MA Applications - % Local Agency	47%	9/12/2014	Applications Pending - > 90 days	2,173	9/12/2014
Apps Transferred From FFM to VaCMS	60,103	9/22/2014	Applications Pending - % > 90 days	10%	9/12/2014
FFM Apps Approved	3,250	9/22/2014	Overdue MA Case Renewals	45,219	9/1/2014
FFM Apps Denied	8,033	9/22/2014			
Weekly Outbound Transfers to FFM	4,081	9/19/2014	MMIS % Pass Current Week	89.3%	9/12/2014
Cover VA Pending FFM	46,613	9/12/2014	Pregnancy: FFM Apps Pending > 10 Days	2,087	9/12/2014
DSS Pending FFM	4,093	9/12/2014	Pregnancy: Apps Pending > 10 Days	1,055	9/12/2014

Data Sources: VA EDSPO Data Extract used for all analyses except: FFM transfers, approved/denied and MMIS Medicaid & FAMIS enrollment and overdue case renewals. FFM transfers and approved/denied counts provided by Deloitte weekly e-mail summary. FFM Pregnancy apps pending reported separately in Table 1, other pregnancy apps Table 2. Pregnancy data excludes paper apps. **Date are as of COB Aug 28 for the week ending 8/29/14.**

Provides current status and trends for:

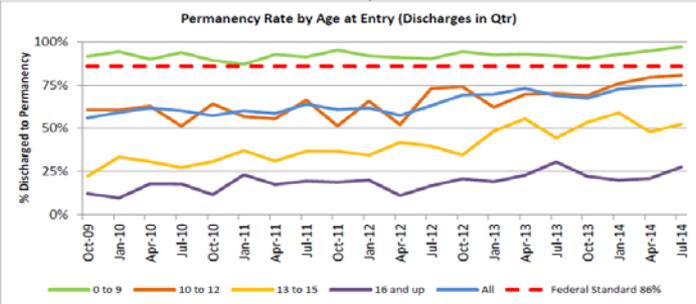
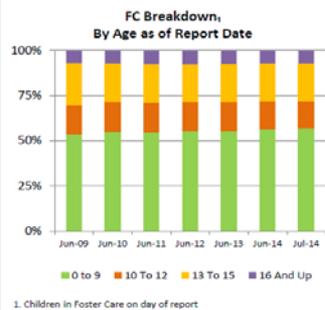
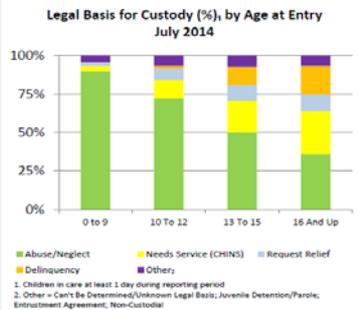
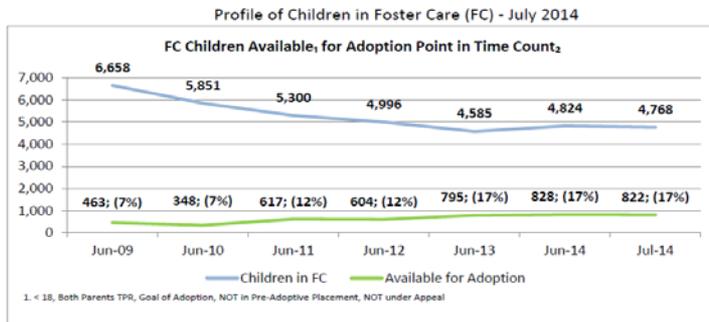
- Medicaid applications received and disposed by channel
- Pending applications by age, pregnancy indicator
- Medicaid-FAMIS enrollees
- FFM applications
- Status of Case Renewals

Audience includes:

- HHR Secretariat, VDSS, LDSS, DMAS, DMV, VITA

# Monthly Foster Care and Adoption Progress Report

- Provides status and trends in Foster Care
- Breakdown of Foster Care population by demographics, reasons for entry, discharges, and time to permanency
- Also tracks cohorts



# Challenges

- Providing analysts with tools, training, and access to data
- Developing and maintaining a culture of good data quality and data governance
- Simplifying the data and reporting infrastructure
- Changing roles for developing and publishing reports