



Massachusetts
Executive Office
of Elder Affairs



Applying Integrated Data Analytics to Improve LTSS: Experience from the Massachusetts LTSS Policy Lab

Massachusetts Executive Office of Elder Affairs
University of Massachusetts Medical School

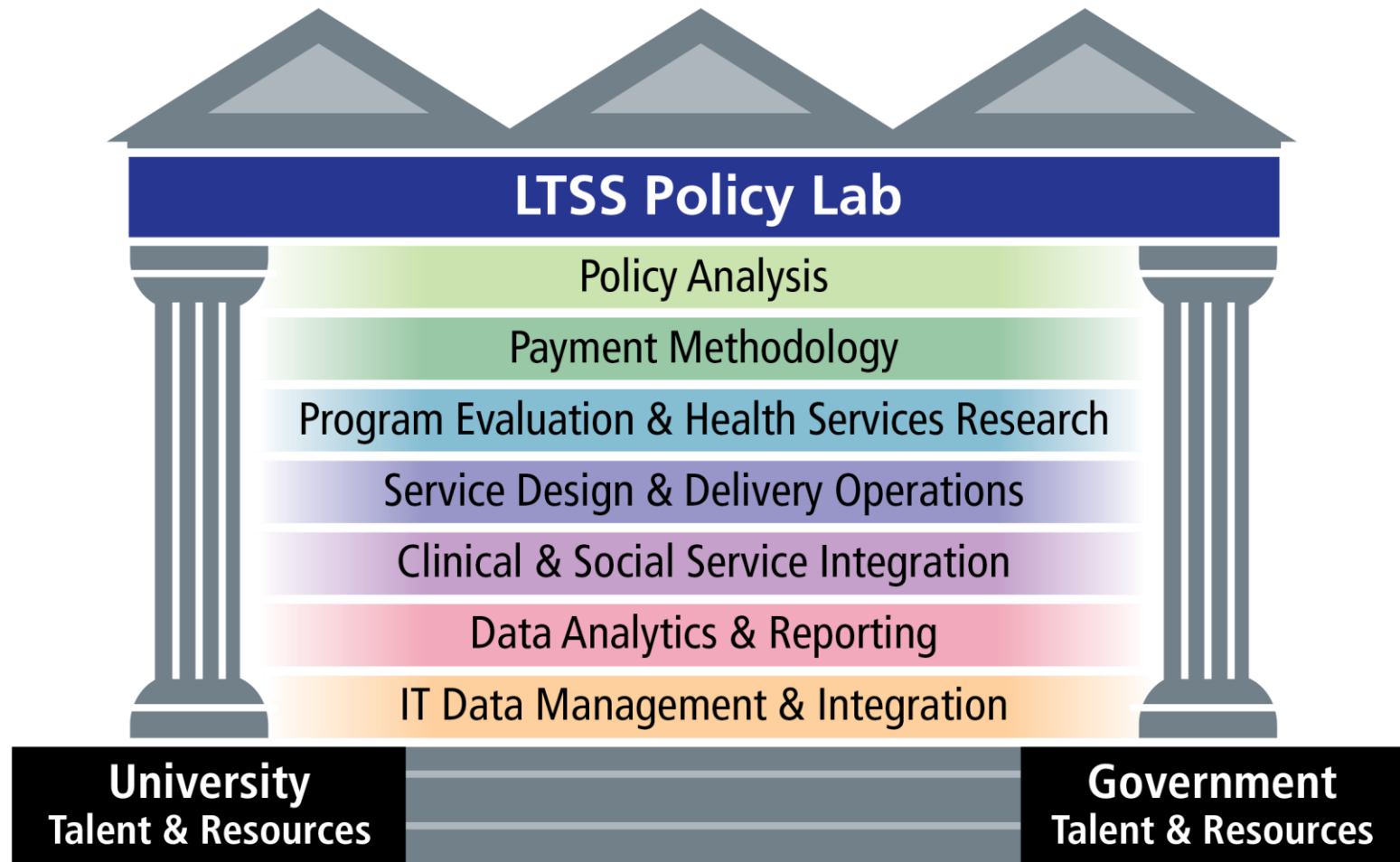
HCBS Conference
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Presentation Overview

- **Introduction**
- **Background:**
 - LTSS Policy Lab
 - Massachusetts Home Care Delivery System
- **New 2016 Reports and Management Tools**
 - Waiver Quality Management
 - Falls Prevention Predictive Analytics
- **Discussion**



LTSS Policy Lab: Structure and Expertise



Transforming Data into Actionable Information

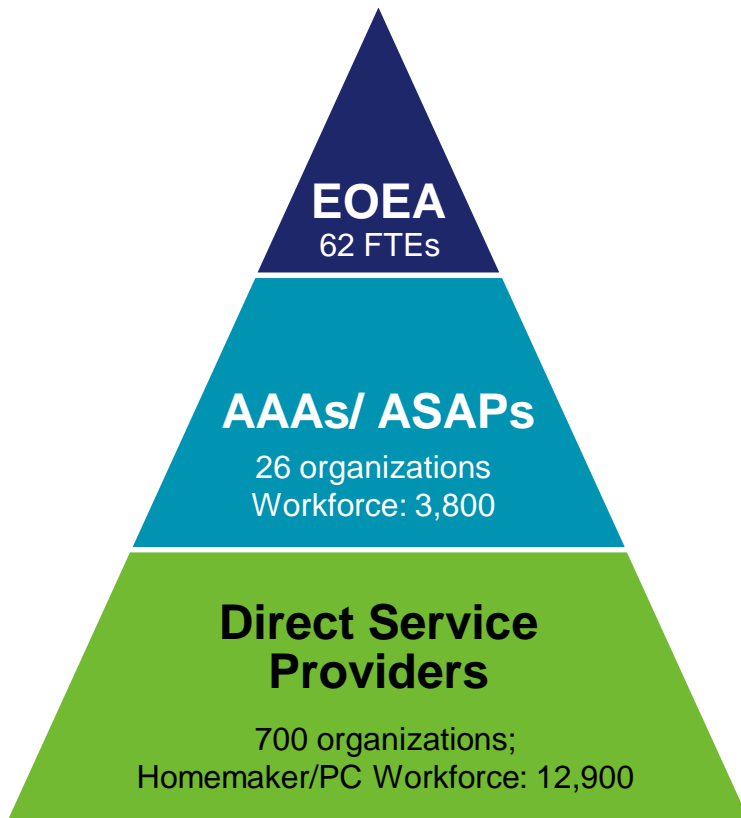


Overview of EOEA Home Care System

HCBS Programs	FY2016 Expenditures	Consumers
<p>Elder Nutrition Program Provides nutritionally balanced meals to seniors either at congregate meal sites or through home-delivered meals.</p>	<p>\$17.5 M</p>	<p>74,000</p>
<p>Home Care Basic / Respite Program Provides supportive services for elders with moderate needs who do not require nursing facility level of care.</p>	<p>\$96.5 M</p>	<p>44,736</p>
<p>Enhanced Community Options Program (ECOP) Serves elders who are clinically eligible for nursing facility care and require more services than available in the Basic Program.</p>	<p>\$55.5 M</p>	<p>11,244</p>
<p>Community Choices Provides intensive services to elders who are enrolled in the Waiver program and who are clinically eligible and at imminent risk of nursing facility placement.</p>	<p>\$161.4 M</p>	<p>8,941</p>



EOEA: Home Care Service Delivery System



EOEA: State Unit on Aging

The Executive Office of Elder Affairs is responsible for management and oversight of approximately \$400 M in state and federal funding for programs that provide HCBS and supports to elders and younger disabled individuals throughout the Commonwealth.



Agencies on Aging (AAA)/ Aging Service Access Points (ASAP)

A network of 26 non-profit agencies with delegated authority from EOEA with distinct geographic jurisdiction. These agencies are responsible for regional planning, Information & Referral, Screening and Assessment, Service Plan Development, Case Management, and Provider Oversight.

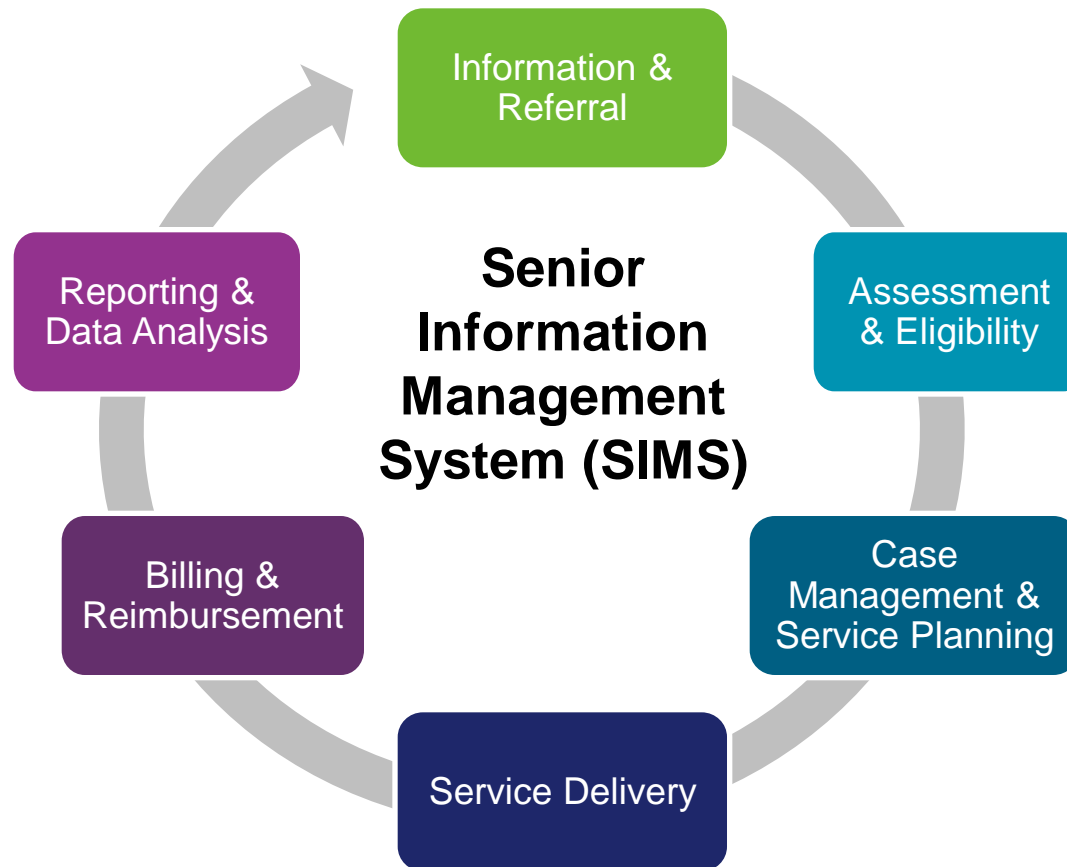


Direct Service Providers

A diverse array of organizations providing social services and community supports to consumers. All providers are contracted with the ASAP/AAA network.



Home Care Business Process



Sizing the Massachusetts Dataset

(2008-present)

Number of Consumers	990,680
Number of I&R Calls	1,269,068
Number of Care Enrollments	1,870,848
Number of MDS Assessments	1,886,002
Hours of Homemaker Services	50,673,150
Number of Home Delivered Meals	76,725,222



Waiver Quality Measures

Elder Affairs operates a 1915(c) Frail Elder waiver serving approximately 10,000 individuals

- **Challenge:** Reporting on waiver quality measures
- **Solution:** Utilize report and analytic capabilities of LTSS Policy Lab to enhance oversight and transparency



Example: Health and Welfare Quality Reporting

Health and Welfare:

The State demonstrates it has designed and implemented an effective system for assuring waiver participant health and welfare.

- **Performance Measure:**

Waiver participants were assessed for fall risk/frequency.



Falls Quality Measures

- Reports on 100% of the waiver population
- Comparisons across providers
- Providers can see how they compare to the state

Home Care quality measure	State	Agency 1	Agency 2
% of consumers assessed every six months to identify their fall risk/frequency	95.2%	97.0%	78.2%
Numerator: # of consumers assessed within the last six months to identify their fall risk/frequency	44,679	1,168	1,039
Denominator: # of consumers in the reporting period	46,910	1,204	1,329



Falls Quality Measures

Health and Welfare 4—Falls: Consumer List

Health and Welfare 4: Home Care consumers were assessed every six months to identify their fall risk/frequency.

Program(s): All

Period: June 2016

Assessment Status: Missing/question not answered & Outside of time frame

Fall Count: All

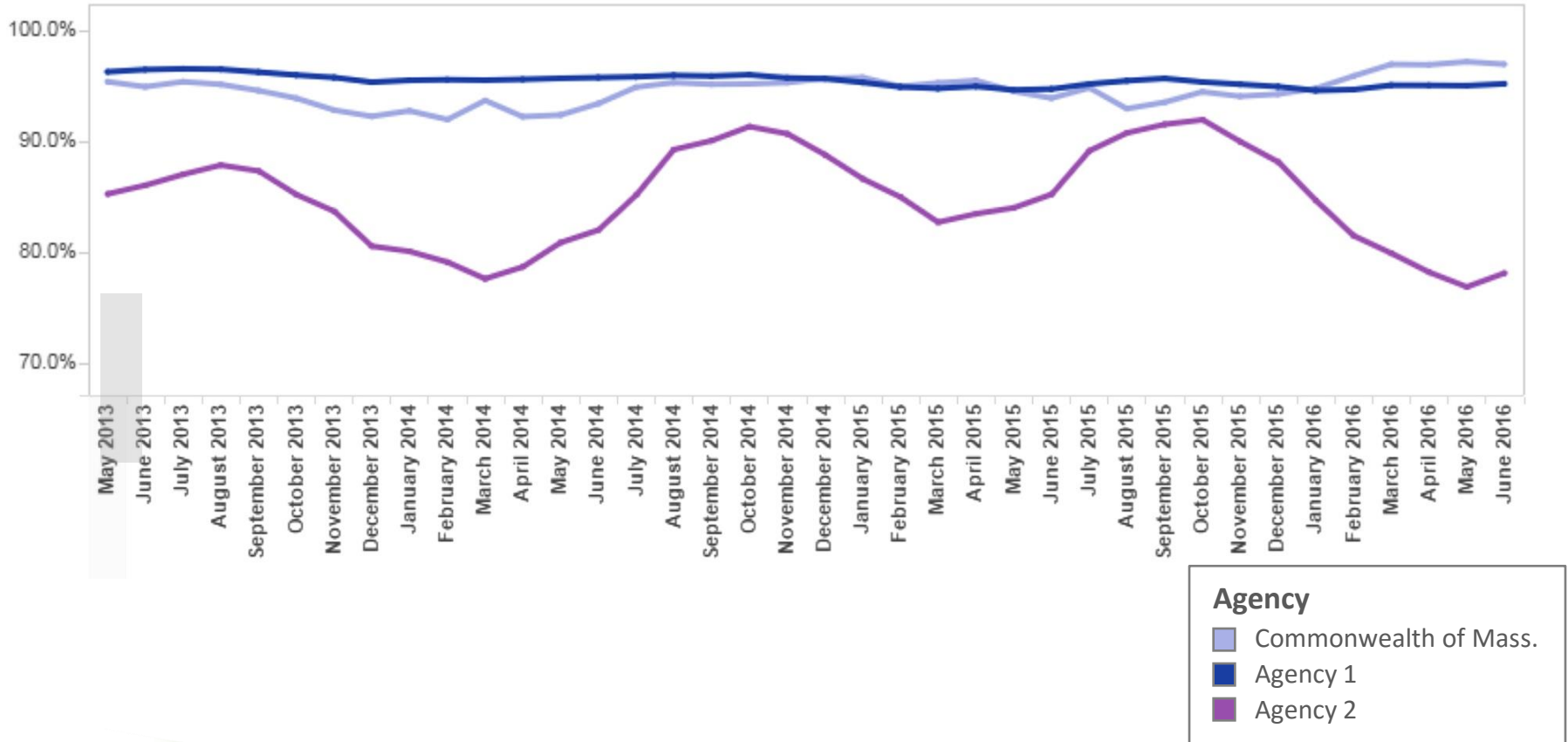
Agency:

Agency	Care Programs	Consumer ID	Assessment Date	# of Falls	Assessment Status	Enrollment Status	Enrollment Start Date	Enrollment End Date	Enrollment Termination Date	Primary Care Manager
		Consumer 1			Missing/question not answered	Active	02/29/2016			
		Consumer 2	10/15/2015	0	Outside of time frame	Active	10/16/2015			
		Consumer 3	09/15/2015	0	Outside of time frame	Active	09/12/2014			
		Consumer 4	05/14/2015	0	Outside of time frame	Active	05/16/2013			
		Consumer 5	06/23/2015	0	Outside of time frame	Active	07/29/2015			
		Consumer 6	08/07/2015	0	Outside of time frame	Active	07/29/2015			
		Consumer 7	07/30/2015	0	Outside of time frame	Active	07/11/2012			
		Consumer 8	09/30/2015	0	Outside of time frame	Terminated	09/16/2015	06/30/2016	06/30/2016	
		Consumer 9	04/17/2015	0	Outside of time frame	Active	05/02/2008			
		Consumer 10	07/24/2015	3	Outside of time frame	Active	07/27/2015			
		Consumer 11	06/26/2015	0	Outside of time frame	Active	01/27/2012			



Observe Trends Overtime

% of Consumers Assessed for Falls Risk in last 6 months



Falls Prevention through Identification of Elders at High Risk

Background:

- One out of three older adults falls each year
- Falls are serious and costly
 - Reduce the ability of living independently
 - Fear of falling, broken bones, or injuries
 - Result in emergency department visits, hospitalizations, nursing facility admissions, or death
 - Annual direct medical costs for fall injuries: **\$34 billion**
- A substantial proportion of falls can be prevented



First Step for Effective Falls Prevention

Identify people at increased risk for falls

- **Challenge:** Screening for falls and conducting multifactorial assessments are time intensive
- **Solution:** Utilize routinely collected Home Care assessment data to provide timely risk identification



Analytical Approach

- Use FY 2013 assessment data (baseline characteristics) to predict falls in FY 2014 (outcome) as the base model
- Focus on members of the Frail Elder Waiver program
- Baseline characteristics included in the model:
 - History of falls
 - Fear of falls
 - Mobility
 - Demographic characteristics
 - Disease profiles/disease burden
 - Medication use
 - Physical function
 - Cognitive function
 - Informal caregiver availability



Identifying People at High Risk for Falls

Selected Characteristics ¹	Mr. Miller	Ms. Smith
Fall in previous year	Yes	No
ADL dependence	Extensive assistance	Supervision
Unsteady gait	Yes	No
Alzheimer disease	Yes	No
Antidepressant	Yes	No
Advanced directive	No	No
Estimated probability	0.65	0.15
Risk for falls²	High	Low

- Members at one point in time
- Provide a list of people at high risk for falls

¹ Only selected characteristics were shown for illustration purpose

² High risk of fall if estimated probability > 0.3



Changes in the Risk for Falls Over Time

Selected Characteristics ¹	Ms. Smith 1/1/2015
Fall in previous year	No
ADL dependence	Supervision
Unsteady gait	No
Alzheimer disease	No
Antidepressant	No
Advanced directive	No
Estimated probability	0.15
Risk for falls²	Low

- Follow an individual over time

¹ Only selected characteristics were shown for illustration purpose

² High risk of fall if estimated probability > 0.3



Changes in the Risk for Falls Over Time

Selected Characteristics ¹	Ms. Smith 1/1/2015	Ms. Smith 7/30/2015
Fall in previous year	No	No
ADL dependence	Supervision	Limited assistance
Unsteady gait	No	Yes
Alzheimer disease	No	No
Antidepressant	No	Yes
Advanced directive	No	No
Estimated probability	0.15	0.27
Risk for falls²	Low	Moderate

- Changes in some risk factors observed
- Elevated risk based on subsequent assessment (7/30/2015)
 - When is the right time to intervene and with which strategies?

¹ Only selected characteristics were shown for illustration purpose

² High risk of fall if estimated probability > 0.3



Changes in the Risk for Falls Over Time

Selected Characteristics ¹	Ms. Smith 1/1/2015	Ms. Smith 7/30/2015	Ms. Smith 2/29/2016
Fall in previous year	No	No	No
ADL dependence	Supervision	Limited assistance	Extensive assistance
Unsteady gait	No	Yes	Yes
Alzheimer disease	No	No	No
Antidepressant	No	Yes	Yes
Advanced directive	No	No	No
Estimated probability	0.15	0.27	0.42
Risk for falls²	Low	Moderate	High

- Increased dependence in ADL
- High risk for falls based on the most recent assessment (2/29/2016)

¹ Only selected characteristics were shown for illustration purpose

² High risk of fall if estimated probability > 0.3



Falls Analysis - Predictive to Prescriptive

- Identify individuals with the highest likelihood of falling
- Understand specific factors that contribute to this risk so appropriate interventions can be initiated
- Flag individuals whose risk may be steadily increasing over time in order to intervene before an adverse event

Consumer ID	Fall in last year	Unsteady gait	ADRD	Risk Level
1719597964	No	Yes	No	Lower Risk
1721288087	Yes	Yes	No	High Risk
1721678169	No	Yes	Yes	High Risk
1721768864	Yes	Yes	No	High Risk
1721975754	Yes	Yes	No	High Risk
1722093870	No	Yes	No	Lower Risk



EOEA Falls Identification and Management Protocol

- **Goal:** Identify and mitigate preventable fall-related injuries
- **Actions:** Case managers and nurses identify consumers at risk of falling through the screening and assessment process and suggest potential interventions such as:
 - Notifying consumer's physician about fall risks identified
 - Referring consumer for consultation such as OT, PT, pharmacist
 - Referring to evidence-based classes such as Tai Chi, Matter of Balance, falls talk
 - Recommending actions for home modification (such as removing trip hazards)



Policy Lab Applications

- **Predict adverse events** (e.g. falls, hospital readmissions, nursing facility admissions)
- **Conduct ongoing program monitoring** for program management, program integrity and quality improvement
- **Spot trends, test hypotheses and evaluate programs** for policy decision-making and fiscal planning



Policy Lab Research Agenda

1. Evidence-based Programming (Program Evaluation)
2. Quality Outcomes
3. Successful Care Transitions
4. Payment Reform
5. Workforce Preparedness
6. Program Integrity



Questions?

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Discussion



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