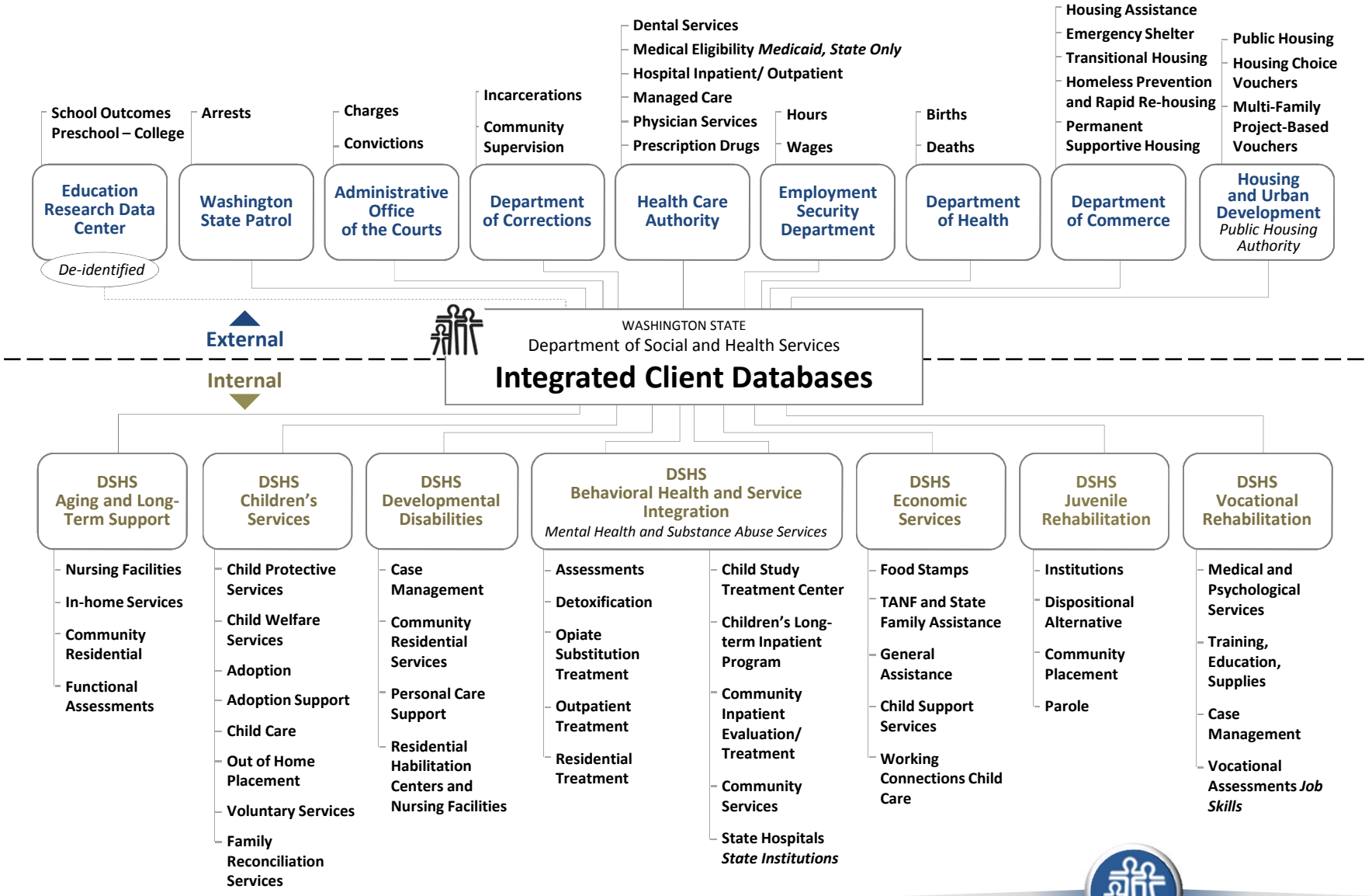
Improving Service Delivery for High Need Medicaid Clients in Washington State Through Data Integration and Predictive Modeling

David Mancuso, PhD

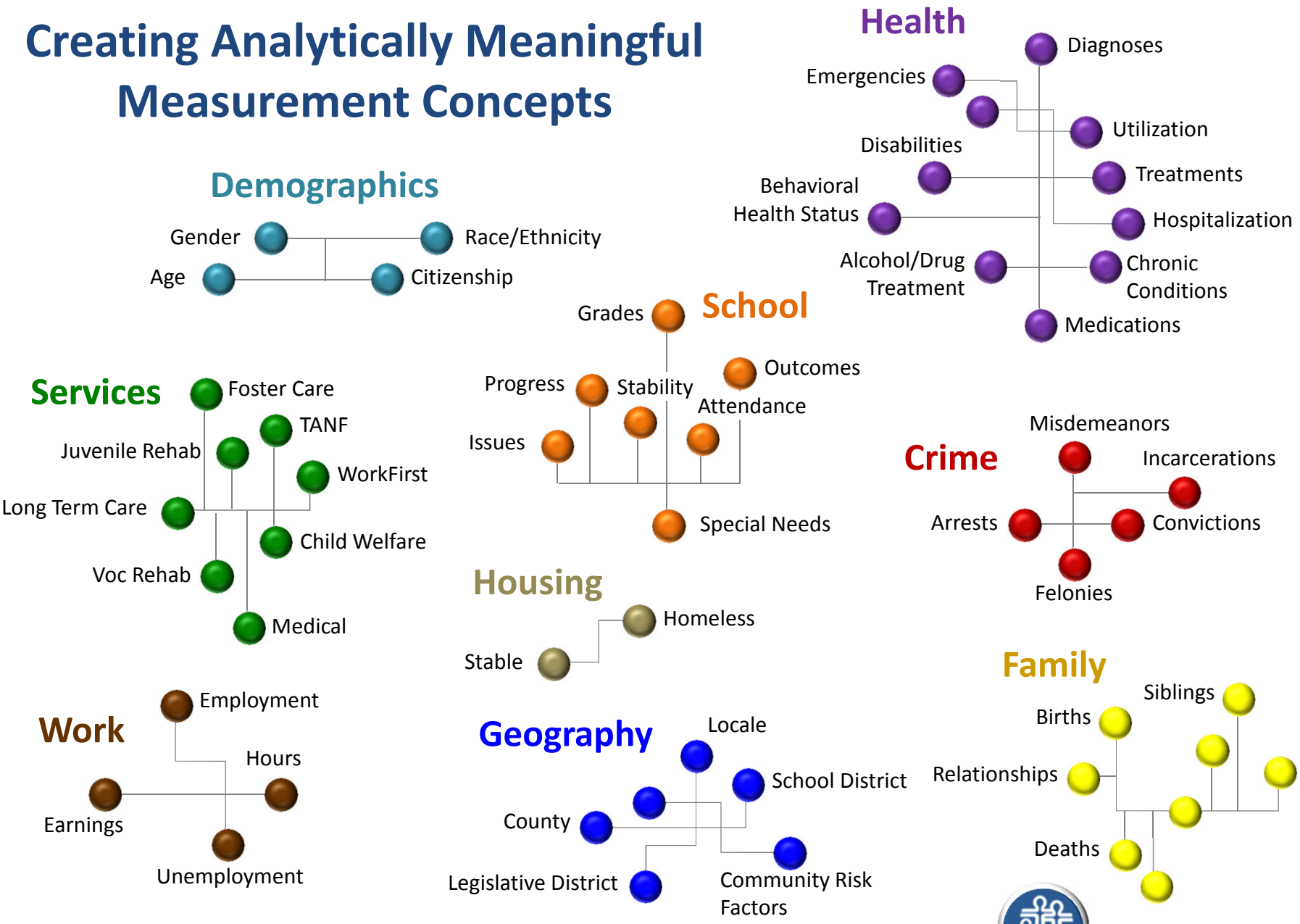
Analytics in the Social and Health Service Environment

- **Program costs are often driven by a small proportion of patients with multiple health conditions,** often exacerbated by mental illness, substance use disorders, cognitive limitations or functional impairments
- **High-cost clients are often served in multiple Medicaid-funded delivery systems** (medical, long-term care, mental health, substance abuse, developmental disabilities)
- **High-cost clients often have significant social support needs** such as the need for housing or employment support, or interventions to reduce the risk of criminal justice involvement
- **Persons dually eligible for Medicare and Medicaid comprise a disproportionate share** of high-risk, high-cost Medicaid beneficiaries
- **Increased emphasis on quality/outcome measurement and performance-based payment structures**
- **States need analytic capability that goes beyond traditional data warehousing and business intelligence applications**

Washington's RDA Integrated Client Databases



Creating Analytically Meaningful Measurement Concepts



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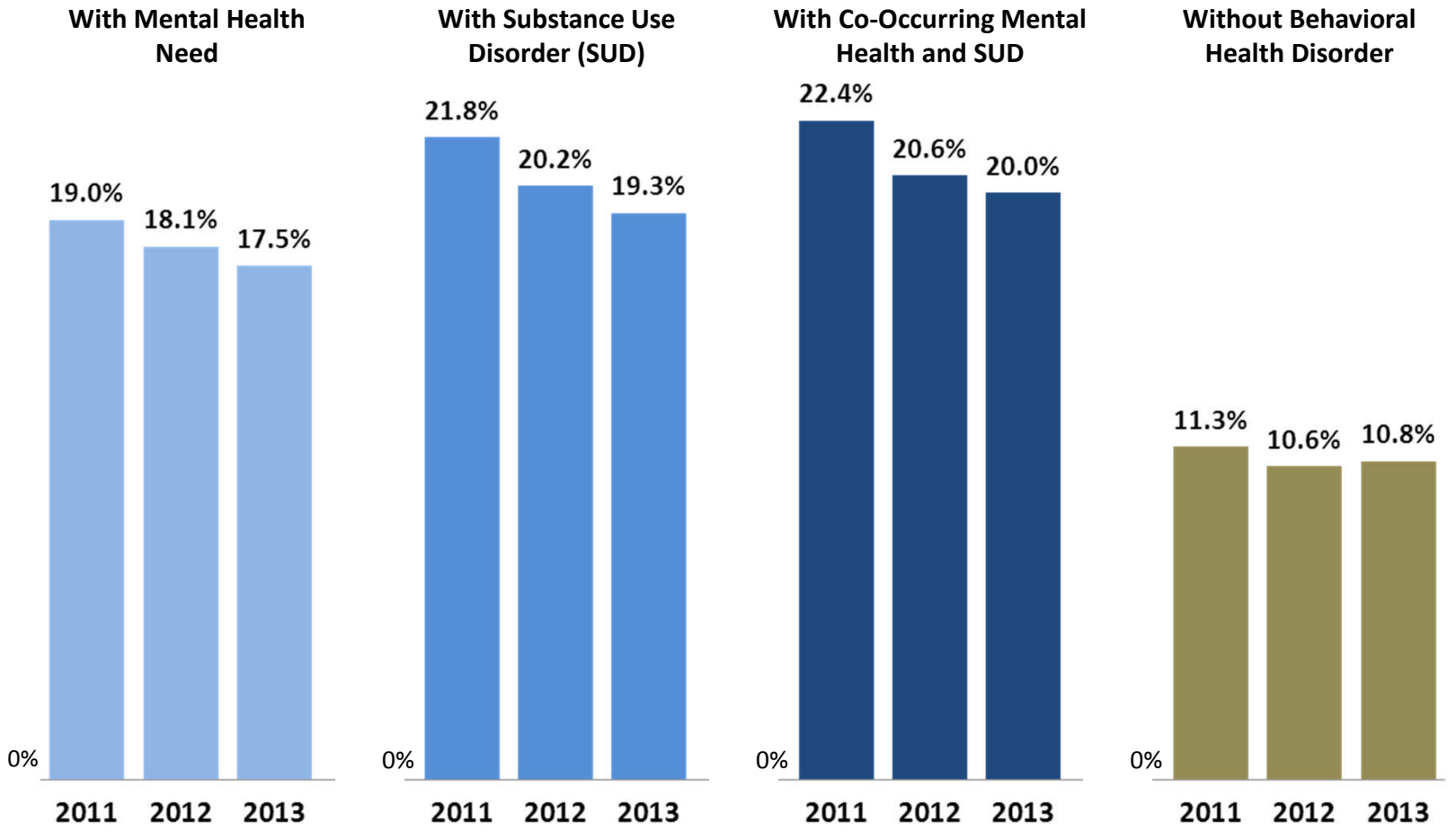
Use of integrated data for performance measurement:

- Health quality and outcome metrics
- Social well-being metrics

All-Cause 30-day Hospital Readmission Rate

DISABLED MEDICAID ADULTS AGES 18 – 64 (EXCLUDES DUALS) • HEDIS-PCR

Individuals with behavioral health conditions have higher rates of readmission

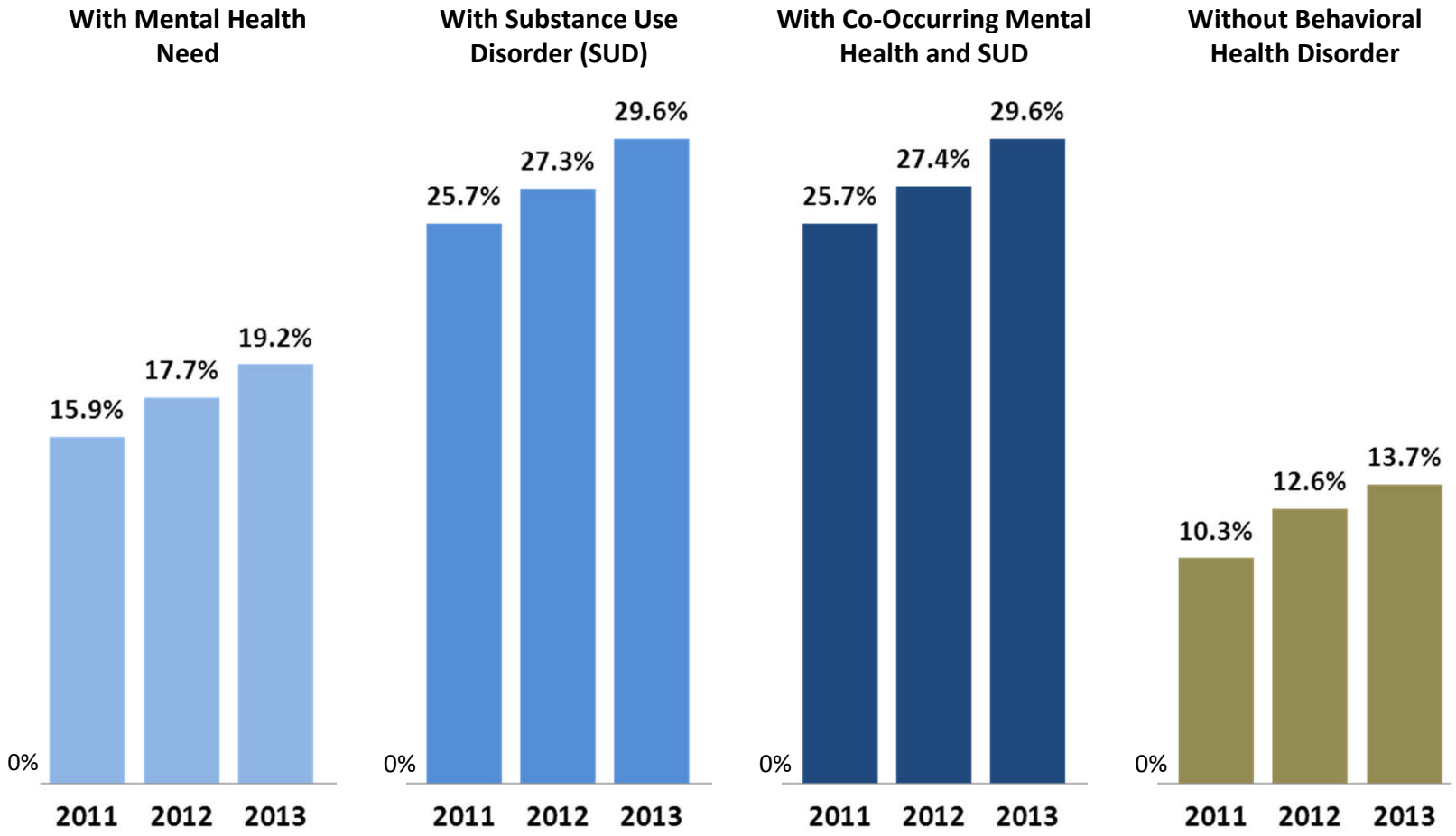


SOURCE: DSHS Research and Data Analysis Division, *Managed Medical Care for persons with Disabilities and Behavioral Health Needs: Preliminary Findings from Washington State,* paper in progress.

Percent Homeless

DISABLED MEDICAID ADULTS AGES 18 – 64 (EXCLUDES DUALS)

Individuals with behavioral health conditions are more likely to be homeless

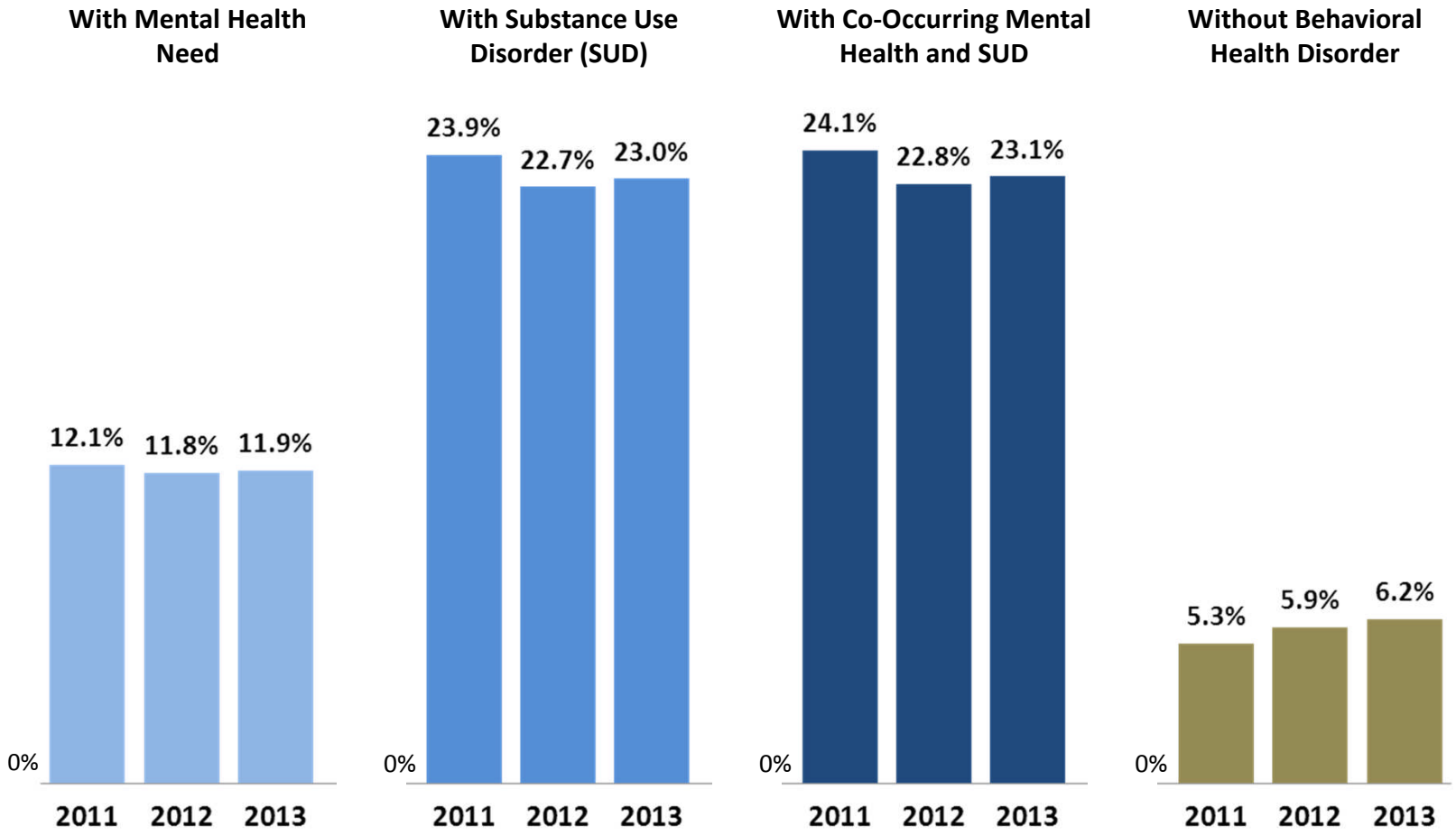


SOURCE: DSHS Research and Data Analysis Division, *Managed Medical Care for persons with Disabilities and Behavioral Health Needs: Preliminary Findings from Washington State,* paper in progress.

Percent with Arrests

DISABLED MEDICAID ADULTS AGES 18 – 64 (EXCLUDES DUALS)

Individuals with substance abuse issues are much more likely to be arrested



SOURCE: DSHS Research and Data Analysis Division, *Managed Medical Care for persons with Disabilities and Behavioral Health Needs: Preliminary Findings from Washington State,* paper in progress.

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Using integrated data in predictive modeling for care management

- PRISM
- TANF PRISM

PRISM Screens

Risk Factors	Key medical and behavioral health risk factors
IP Risk Model	Prospective hospital admission risk model
Adherence	Medication adherence dashboard
Eligibility	Detailed eligibility and demographic data
Claims	All medical claims and encounters
Office	Office visits
Rx	Prescriptions filled
IP	Inpatient admissions
ER	Outpatient emergency room visits
LTC	Long term care services
SNF	Skilled nursing facility services
Lab	Laboratory
Providers	Provider list with links to contact information
SUD	Substance use disorder treatment
MH	Mental health services

Uses of PRISM

- **Triaging high-risk populations** to more efficiently allocate scarce care management resources
- **Intuitive and easily accessible source of patient health and social service data for clinicians and case managers**
- **Informing care planning and care coordination for clinically and socially complex persons**
- **Identification of child health risk indicators for high-risk children** (mental health crisis, substance abuse, ED use, nutrition or feeding problems)
- **Identification of behavioral health needs** (redacting information where required by state or federal law)

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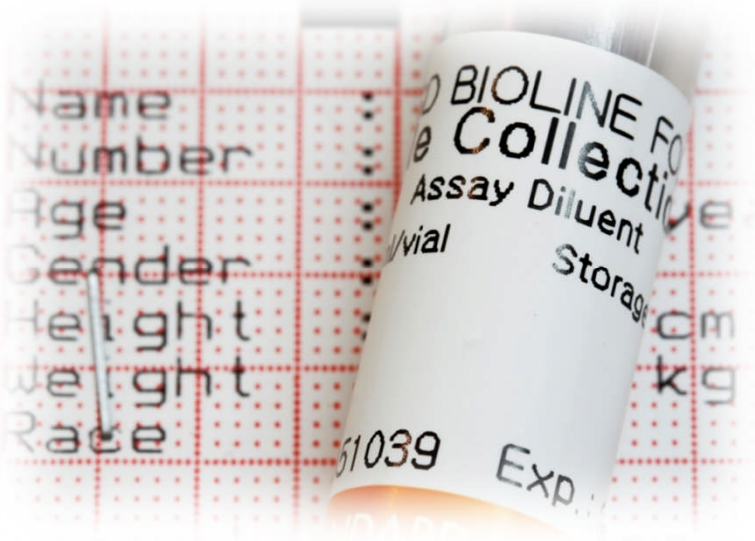
Uses of PRISM *continued*

- **Identification of other potential barriers to care:**
  - Patient's housing status (e.g., whether they are homeless)
  - Hearing impairment
  - Non-English primary language
- **Access to treating and prescribing provider contact information for care coordination**
- **Creation of child health summary reports for foster parents and pediatricians**
- **A source of regularly updated contact information from the medical eligibility determination process** to support patient outreach and engagement efforts

Uses of PRISM *continued*

- Medication adherence monitoring
- Identification of potential narcotic drug-seeking behavior
- Identification of psychotropic medication polypharmacy patterns associated with overdose risk
- Monitoring health plan compliance with contractual requirements
- Plan- and provider-level quality improvement program support
- Service authorization and utilization review
- Medical evidence gathering for determining eligibility for disability programs



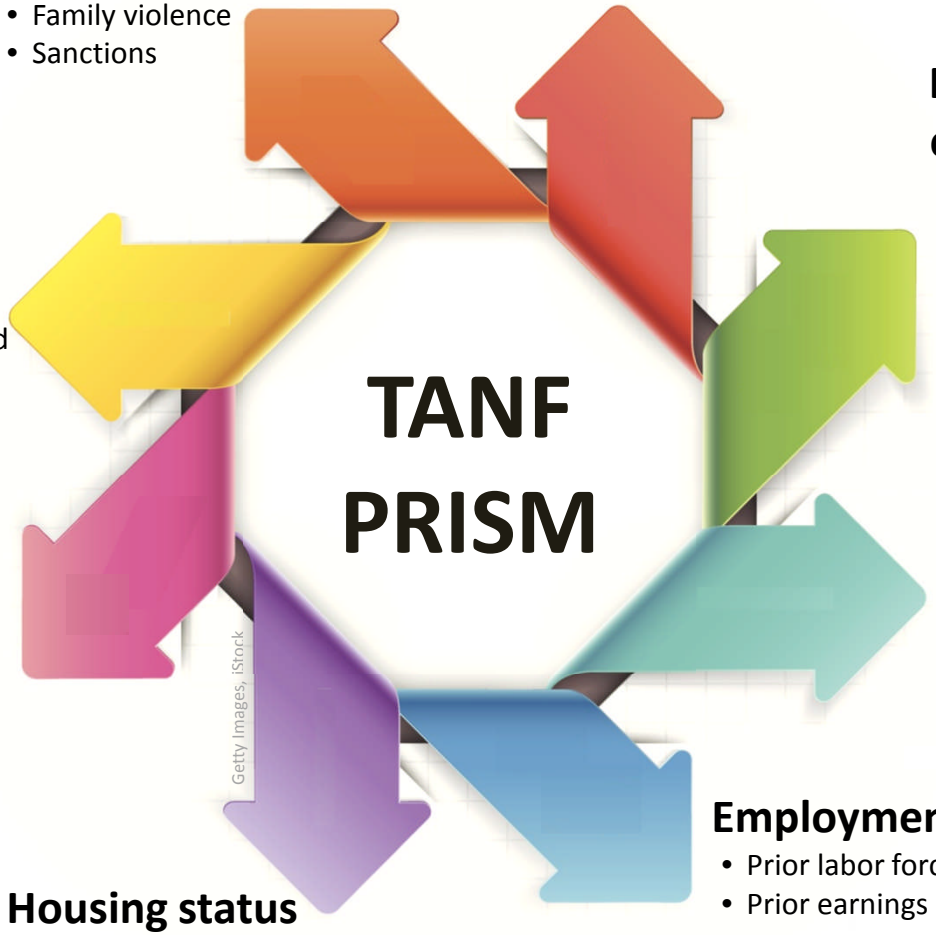
Employability Risk Scoring: Strengths and Challenges

WorkFirst barriers
- Chronic illness
- Caregiving responsibilities
- Family violence
- Sanctions

TANF history
- Months of prior dependence on TANF assistance

Family/child characteristics
- Pregnancy
- Age of children
- Number of children
- Two parent household

Health and behavioral health risk factors
- Alcohol/drug treatment need
- Depression/Anxiety
- Schizophrenia/Bipolar (SMI)
- Chronic illness risk score



Education and English proficiency
- Level of education
- Other credentials
- Limited English proficiency

WorkFirst activities
- Treatment and other barrier removal activities
- Work preparation and education/training activities

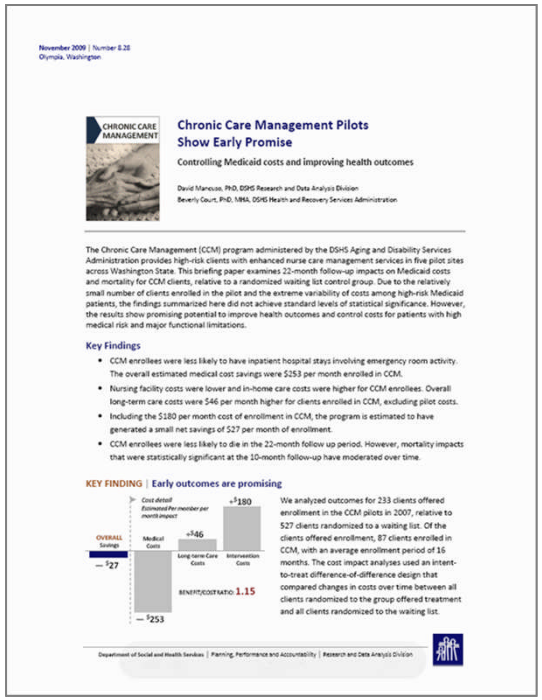
Employment, labor market
- Prior labor force attachment
- Prior earnings levels

Housing status
- Homeless and unsheltered
- Staying temporarily with friends/family

Early returns show promise

Chronic Care Management evaluation

- Modest net savings
- Driven by reduced Hospital IP and SNF costs
- Reduced mortality
- Increased patient satisfaction



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CHRONIC CARE MANAGEMENT

Chronic Care Management Pilots Show Early Promise

Controlling Medicaid costs and improving health outcomes

David Mancuso, PhD, DSHS Research and Data Analysis Division
Beverly Court, PhD, MHA, DSHS Health and Recovery Services Administration

The Chronic Care Management (CCM) program administered by the DSHS Aging and Disability Services Administration provides high-risk clients with enhanced nurse care management services in five pilot sites across Washington State. This briefing paper examines 22-month follow-up impacts on Medicaid costs and mortality for CCM clients, relative to a randomized waiting list control group. Due to the relatively small number of clients enrolled in the pilot and the extreme variability of costs among high-risk Medicaid patients, the findings summarized here did not achieve standard levels of statistical significance. However, the results show promising potential to improve health outcomes and control costs for patients with high medical risk and major functional limitations.

Key Findings

- CCM enrollees were less likely to have inpatient hospital stays involving emergency room activity. The overall estimated medical cost savings were $253 per month enrolled in CCM.
- Nursing facility costs were lower and in-home care costs were higher for CCM enrollees. Overall long-term care costs were $46 per month higher for clients enrolled in CCM, excluding pilot costs.
- Including the $180 per month cost of enrollment in CCM, the program is estimated to have generated a small net savings of $27 per month of enrollment.
- CCM enrollees were less likely to die in the 22-month follow up period. However, mortality impacts that were statistically significant at the 10-month follow-up have moderated over time.

KEY FINDING | Early outcomes are promising

Cost detail
Estimated Per member per month impact

OVERALL Savings — $27
Medical Costs — $253
Long-term Care Costs +$46
Intervention Costs +$180

BENEFIT/COST RATIO 1.15

We analyzed outcomes for 233 clients offered enrollment in the CCM pilots in 2007, relative to 527 clients randomized to a waiting list. Of the clients offered enrollment, 87 clients enrolled in CCM, with an average enrollment period of 16 months. The cost impact analyses used an intent-to-treat difference-of-difference design that compared changes in costs over time between all clients randomized to the group offered treatment and all clients randomized to the waiting list.

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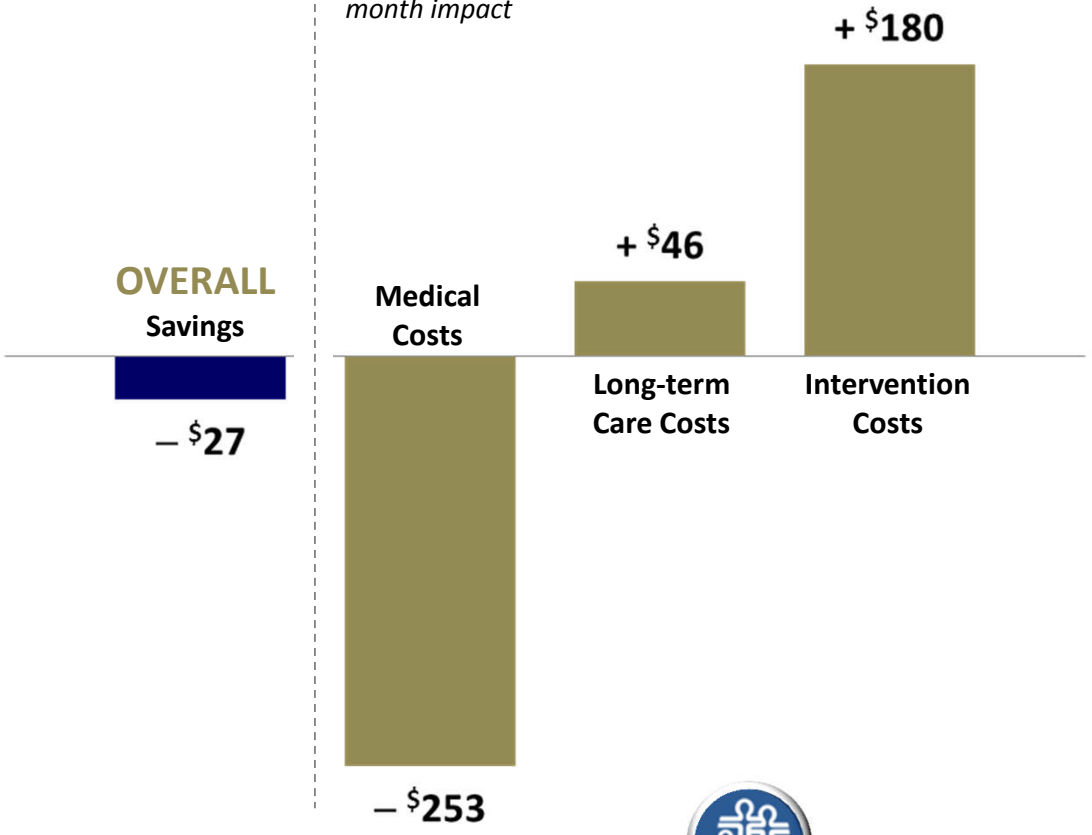
http://publications.rda.dshs.wa.gov/1396/

Cost Detail

Estimated per member per month impact

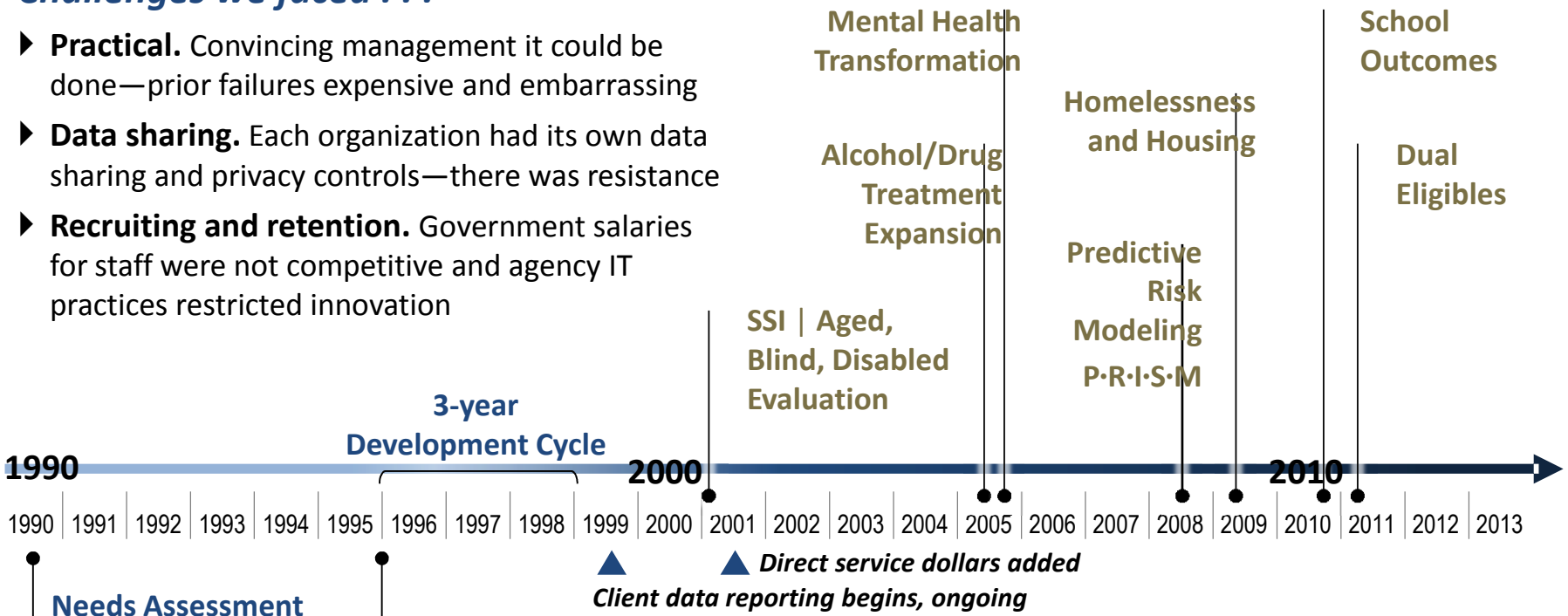


How did we get here?

— Leveraging investments over time —

Challenges we faced . . .

- **Practical.** Convincing management it could be done—prior failures expensive and embarrassing
- **Data sharing.** Each organization had its own data sharing and privacy controls—there was resistance
- **Recruiting and retention.** Government salaries for staff were not competitive and agency IT practices restricted innovation



Needs Assessment Database

- Prototype built as proof-of-concept
- Logic developed to define services and match clients across multiple systems
- 600 SAS processes

Client Services Database

- Development of a production system was funded
- Process logic from Needs Assessment prototype refined
- 5,000 services grouped into 80 standard report groups
- Data from 20 payment and case management systems
- Test-driven development dynamic and data exploration ongoing

Sustainability

— Lessons learned from our 20+ year experience—

Sustaining this capacity will always be a challenge

- **Analytical capability informed by close proximity to policy and program**
  - — Many vendors can organize data into databases with Business Intelligence tools that push the hard analytical work back on the end user
  - — Our survival advantage is that we have the analytical capability and subject matter expertise to extract meaning from complex social and health service data
  - — With recent budget shortfalls, we've become more entrepreneurial in developing internal funding while also developing more federal grant and private foundation funding

Health and social service programs and technologies are always evolving

- **We need to be continuously learning**
  - — Maintaining an understanding of changing programs and source IT systems is the main threat to sustainability
  - — Need to stay on top of technologies to manage and analyze complex, longitudinal data

Attracting and retaining talented staff is critical

- **Our key investment is in our staff**
  - — Where we are sometimes unable to offer competitive salaries, we can offer flexibility and the opportunity to make a real difference in peoples' lives
  - — We translate data into practical products that directly inform policy making or service delivery

Questions?

http://www.dshs.wa.gov/rda/