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Using Data Analytics to Improve Outcomes: State and Federal Examples

Washington Lean Transformation Conference October 17, 2017 – 12:45 p.m. - Ballroom D

NOW Management System[®]

RESULTS Software Presenters: Scott Harra & Robert Shea

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Data Analytics in Government

- ✓ How the use of data has matured in government
- ✓ Practical uses in managing organizations
- ✓ Moving to a predictive analytics state
- \checkmark How expectations are changing





Evolution of Data in Government

- ✓ Not collected
- ✓ Collected, but not analyzed
- ✓ Fear that "data will be used against us"
- ✓ Used to manage core processes
- Used to identify problems & to take corrective action – continuous improvement
- ✓ Used as a predictive analytical tool







Massingenuity





















Journey to Data Maturity

Fundamentals Map

idations Goals	OREG AL	THOP		OYA prot and reduces youth offen and providi for ref	ent security an	go on t produ crime-frr safety. Engaged d youth and produs	leave OYA to lead crive, ae lives. Engaged compe succ	tent and and tra	- Jes are: Jism lity	PER	OREGON YOUTH AUTHORIT PERFORMANCE MANAGEMENT SYSTE FUNDAMENTALS MA January 1, 201							
			OPERATING	PROCESSES					SUPPO	DRTING PROCESSES								
ORE CESSES	OP 1: Managing youth and staff safety	OP 2: Managing the youth commit- ment process	OP 3: Managing youth intake and assessment	OP 4: Managing youth health care	OP 5: Providing basic youth services	OP 6: Managing youth reformation services	SP 1: Communi- cating with inter- nal and external stakeholders	SP 2: Conduct- ing strategic and operations planning	SP 3: Evaluating and improving performance	SP 4: Managing organizational finances	SP 5: Developing human resources	SP 6: Securing and managing goods, services and facilities	SP 7: Leveraging data, research ai technology					
CESS NERS	PC, CM, GS	PC, CM	PC, CM	MA, EF PC, CM, GS, MCH CM, PC, EF, MCH AS		AS, CM, MCH	JO, PC, CM, GS	JO, PC, CM, GS	GS	GS	GS	GS						
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ESS RES cates s with sures	OP 1.1: Runnengt OP 1.2: Essaper OP 1.3: Youth-on-telf assaults OP 1.4: Youth-on-youth assaults OP 1.5: Seculi behavior allegations OP 1.6: Facility staff safety	OP 2.1: Access to commu- nity services - capacity (OP 2.2: Access to commu- nity services - timeliness OP 2.3: Victims notified of rights OP 2.4: Victims notified prior to panole	OP 3.1: Inlake RNA completion OP 3.2: Case plan nch OP 3.3: Case plan nch OP 3.5: Inlake length-of-stay or 3.5: Inlial psychological evaluations OP 3.5: ATOO assessments	completion extractmentvidia professional profession		SP 1.1: Executive notifica- tions SP 1.2: Executive com- munications SP 1.3: Message spectration SP 1.5: Public regargement SP 1.5: Public regargement SP 1.5: Public regargement group participation	lines l			SP 5.1: Time loss due lo injury SP 5.2: Applicant diversity SP 5.3: Learn training completion completion SP 5.4: Hrining and oversight SP 5.5: Hrining and oversight patients	SP 6.1: Purchasing satisfied on SP 6.2: Context processing - Encliness SP 6.3: Purchase order processing - Emeliness SP 6.4: Physical Jonet work order responsiveness	SP 7.1: Enterprise application uptime SP 7.2: IT constanter SP 7.3: IT constanter SP 7.3: IT project SP 7.4: Idonation sec SP 7.4: Service desk efficiency SP 7.6: Completed JJIS report sport sport uploads						





Journey to Data Maturity

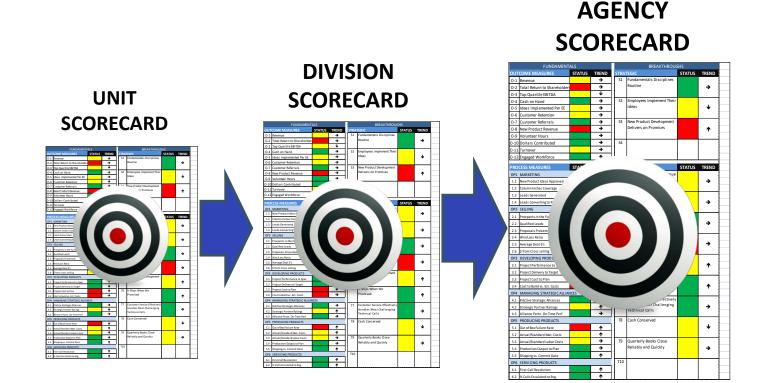
Scorecards

		OYA Agency-Wide	AII	Measu	res: Q	1 2016														
		Data collection	thro	ugh 3/3	31/201	6														
					Data collection period															
D	Measure	Definition	Red	Yellow	Green	Desired Direction	Q 2 2013	Q 3 2013	Q4 2013	Q1 2014	Q2 2014 Q3 2014		01 2015	Q 2 2015		Q4 2015	Q 1 2016	Target Met	Trend	Owne
OP 2.3	Victims notified of rights	Percent of identified victims that receive notice of rights within 30 days of an OYA youth's commitment to a YCF.	< 91	91 to 97	>= 97	^	-	53.	68.	82.	80.	91. 6	4. 8	3. 9	9. 9	95. 95.	97	ı. 🧹	\mathcal{N}	Сах
	Note	- 1	Updated: Q1, Q2, Q3, Q4 Current								nt target	target: 85.								
OP 2.4	Victims notified prior to parole	Percent of OYA youth 5 victims with requested rights that receive notification of parole prior to a dual parole date.	< 91	91 to 97	>= 97	^	-	50.	73.	79.	70.	52. 2	1. 5	7. 8	3. 8	50. 61.	100). 🧹	\sim	- Cox
	Note	Updated: Q1, Q2, Q3, Q4 Current target: 85.																		
OP 3.0	Managing youth intake and ass	essment															-			~ ~
OP 3.1a	Intake RNA completion - facility	Percent of facility youth whose RINA assessments are completed within 30 days of commitment (KPM 6).		85 to 90		1	95.8	100.	100.	95.2	95.9	88. 92	.5 7	8. 85	.7 96	5.4 100.	96.		i W	McClella
	Note	e: 58 of 60 completed on time		Updated	: Q1, Q2	, Q3, Q4										Currer	nt target	t: 95.	N 8	_
OP 3.1b		Percent of probation youth whose RNA assessments are completed within 30 days of commitment (KPM 6).		85 to 90		•	89.9	88.9	82.8	91.7	86.5 7	7.3 85	.7 84	.7 87.	.5 85				VV^	🔨 Cox
Note: 51 of 62 completed on time.				Updated	: Q1, Q2	, Q3, Q4										Currer	nt target	t: 90.		/
OP 3.2a	Case plan relevance to RNA (facilities)	Percent of audited case plans which reflect risk needs assessment.		85 to 90		•	94.7	97.2	97.2	91.3	100. 1	00. 10	0. 9	2. 10	0. 98	5.9 97.6			ΥV	McClella
	Note	e: 31 of 31 were relevant.	· · ·	Updated	: Q1, Q2	, Q3, Q4										Currer	nt target	t: 100.	1 /*	
OP 3.2b		Percent of audited case plans which reflect risk needs assessment.		85 to 98		•	95.4	97.4	98.8	94.1	98.5 9	8.6 97	.6 10	0. 10	0. 10	00. 100.			$\Delta \gamma^{\sim}$	Cax
	Note	e: 62 of 63 were relevant	· · ·	Updated	: Q1, Q2	, Q3, Q4										Currer	nt target	t: 98.	Δ.	_
OP 3.3	Intake length-of-stay	Average LOS during facility intake process.	> 60	60 to 45	<= 45	¥	33.3	33.	30.5	23.6	25.3 2	9.9 47	.1 35.	.8 28	.7 24	1.4 29.4	38.	3	$\sim \land$	McClella
	Note	K		Updated	: Q1, Q2	Q3, Q4										Currer	nt target	t: 35.		
OP 3.4a		Percent of case plan audits due that were completed during the quarter.		85 to 90		•	80.9	75.	81.8	92	81. 5	3.1 5	8. 62	.5 55	.1 63				\sim	A McClella
	Note	e: 31 of 53 were timely		Updated	: Q1, Q2	Q3, Q4							-			Currer	nt target	t: 80.	A 8	N
OP 3.4b	Timely case plan audits - field	Percent of case plan audits due that were completed during the quarter.		85 to 95			95.6	100.	94.4	97.7	93.1 9	7.3 94	.3 10	0. 91.	.7 94	4.4 100.			.₩V	Cox (
	Note	e: 64 of 65 were timely		Updated	: Q1, Q2	Q3, Q4	_									Currer	nt target	t: 95.	*****	
OP 3.5	Initial psychological evaluations	Percent of youth receiving an initial psychological evaluation within 30 days of admission.		85 to 89			-	67.	82.	98.	100.	98. 9	8. 10	0. 9	9. 9	98. 94.	85		1	Fuimaor
	Note	e: 114 of 134 were timely. Performance dip due to staffing level at OCYCF, which has been resolved.		Updated	: Q1, Q2	, Q3, Q4						_	_	_	_	Currer	nt target	t: 95.		
OP 3.6	ATOD assessments	Percent of youth receiving ATOD assessment within 30 days of admission to a certified OYA facility ATOD program.		70 to 80		↑	-	-		-	54. 6	0.5 6	6. 6	8. 75.2	27 71	1.6 77.33	84.	3 🗸	~	Fuimaor
	Note	e: 86 of 102 assessments completing within 30 days.	1	Updated	: Q1, Q2	Q3, Q4										Currer	nt target	t: 80.		





Building up the Scorecards Connecting the Organization





Massingenuity[®]

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Grant Thornton

Creating Capacity to Implement Change

If we can reduce the time we need to spend on the ROUTINE work of the business...



...We can spend more time on the work that delivers new value to our customers





Using Data, Research, and Predictive Analytics to Inform Decisions and Improve Outcomes





NOW Management System[®] and RESULTS Software

Credit goes to

- Colette S. Peters former Director of the Oregon Youth Authority and current director of the Oregon Department of Corrections
- Fariborz Pakseresht former Director of the Oregon Youth Authority and current director of the Oregon Department of Human Services
- Paul Bellatty Manager of the Research Unit at Oregon Youth Authority





Driving Questions for the Oregon Youth Authority

- ✓ Are we bringing the right youth into the system and placing them in the right environment?
- ✓ What should the length of stay be in each part of the continuum?
- ✓ What interventions do youth need to maximize their opportunities to be successful?
- ✓ How do we know our investments are effective and achieving desired results?







ORRA

<u>OYA Recidivism Risk Assessment</u>: predicts the likelihood a youth will recidivate with a felony conviction or adjudication within 36 months of commitment to probation or release from OYA close custody.

ORRA-V

<u>OYA Recidivism Risk Assessment - Violent Crime</u>: predicts the likelihood a youth will recidivate with a violent* felony conviction or adjudication within 36 months of commitment to probation or release from OYA close custody.

*Violent felonies include, but are not limited to assault, murder, rape, and robbery.

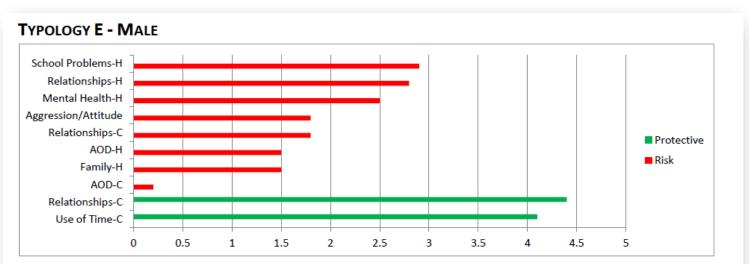




Typologies: Groups of youth based on need and protective factors to inform assessment considerations, case planning, and treatment considerations.

- For males, there are 6 typologies that inform the treatment decisions made by the staff at the Oregon Youth Authority
- For females, there are 4 typologies

Typologies



ASSESSMENT CONSIDERATIONS: Many of these youth struggle academically for various reasons, which indicates the need for further assessment to determine sources of academic struggles. Such assessment may include behavioral functioning, cognitive functioning, potential learning disabilities, visual and/or hearing deficits, ability to focus, language barriers, etc. Educational assessment should be coordinated with clinical assessments focusing on behavioral or physical health to ensure a holistic perspective on the youth's needs.

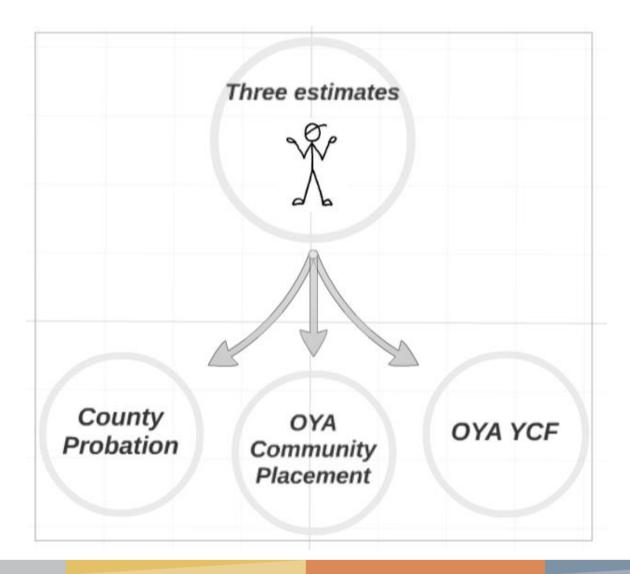
CASE PLAN ESSENTIALS: Case planning should focus on use of the youth's strengths, including positive relationships and engagement in prosocial activities, to assist the youth in developing and generalizing his skills in areas of need. Especially for youth in this typology, ensuring appropriate services are provided is independent of location or type of placement. When considering placement options, priority should be given to placing the youth where he will be able to receive appropriate services while maintaining a high level of continuity with existing support systems and prosocial activities. Failure to meet identified expectations (including case plans, treatment plans, and probation/parole agreements) should be understood by the youth's team as an indication that current services are not adequately addressing the treatment need and should not be automatically viewed as noncompliance or deliberate on the part of the youth. Any such failure to meet identified expectations should to reestablish positive behavioral change.

TREATMENT APPROACH: Given these youth's protective factors, it is especially important to take steps to preserve positive, ongoing relationships and supports as they will assist in the successful implementation of treatment interventions. Regardless of living environment, maintaining supportive contact with these individuals, and continued participation in the youth's current interests and activities, is critical to their ability to progress and succeed in treatment.





Predicted Success Rates: The likelihood that a youth will be successful in each of three environments.



Interpreting Scores

Each youth will receive three scores between 0-100 (one for each environment)

Closer the score is to 100 the more "successful" they are likely to be in that environment

- **Defining "success":** NOT recidivating with a felony conviction or adjudication within 36 months of commitment to probation or release from OYA close custody.
- Success does not mean engagement in treatment and/or school, working, good behavior, etc.





Scenario: Matt

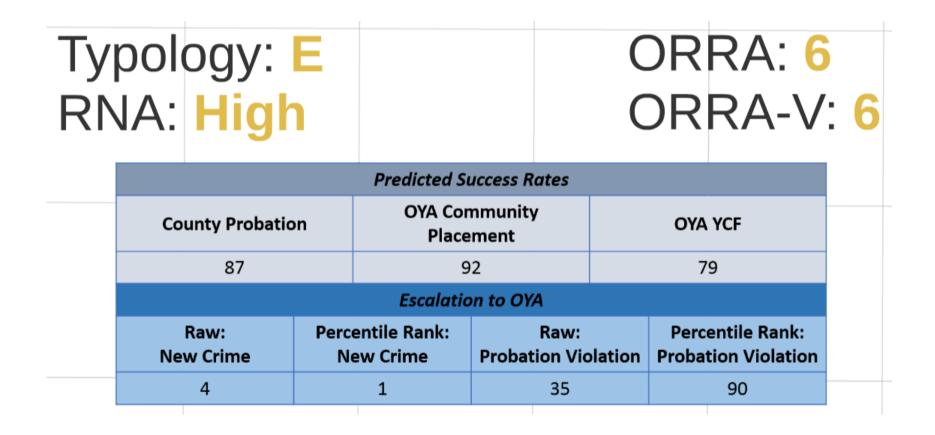
Matt is a 13 year old who received his first referral for Sex Abuse 1.

- His victim was his younger cousin who does not live in the same household as him.
- He is living with his paternal aunt and uncle who adopted him at the age of 3.
- His biological parents have severe drug dependencies and Matt tested positive for drugs at birth.
- Matt is very attached to his aunt and uncle who are very supportive of his treatment process.
- Matt is engaged at school and attends school on a regular basis.





Scenario: Matt







Next on the Horizon Early Warning System

- Grant Thornton and Mass Ingenuity are working together using predictive analytics to develop an Early Warning System for state agencies
- Pilot case study is Arizona Department of Corrections
- How to predict prison disturbances before they happen





Early Warning System

- ✓ Talking to subject matter experts, we have learned there are indicators we can use to predict a disturbance before it occurs
 - Contraband volume
 - Inmate work/program involvement
 - Detention bed utilization
 - Higher than average meal attendance
 - Increased commissary purchases





Early Warning System

- Predictive analytics will allow state agencies to head off problems before they occur
- ✓ Saving human and financial costs





The Nurse-Family Partnership

The Nurse-Family Partnership program provides nurse home visits to pregnant women with no previous live births, most of whom are:

- i. low-income
- ii. unmarried, and
- iii. teenagers.

The nurses visit the women approximately once per month during their pregnancy and the first two years of their children's lives.





Nurse-Family Partnership

Three randomized controlled trials – each carried out in a different population and setting – found the program to produce sizable, sustained effects on important mother and child outcomes.

The specific types of effects differed across the three trials, possibly due to differences in the populations treated. Effects found in two or more trials include:

- i. reductions in child abuse/neglect and injuries (20-50%)
- ii. reduction in mothers' subsequent births (10-20%) during their late teens and early twenties;
- iii. improvement in cognitive/educational outcomes for children of mothers with low mental health/confidence/intelligence (e.g., 6 percentile point increase in grade 1-6 reading/math achievement).





The importance of rigorous evidence

Evaluations show social programs produce modest or no impacts on the problems they were meant to address.

But too few are evaluated.





Commission on Evidence-based Policymaking

The result of discussions on **opportunities for better using evidence** to inform decision-making

Created by legislation **co-sponsored by Speaker Paul Ryan and Senator Patty Murray**, enacted March 30, 2016 (P.L. 114-140)

Members appointed by President, Speaker of the House, House Minority Leader, and Senate Majority and Minority Leaders (1/3 on privacy; 2/3 experts on program administration, data, or research)

Report submitted on September 7, 2017





Commission on Evidence-based Policymaking

Major Themes:

- ✓ Improved Access to Data
- ✓ Stronger Privacy Protections
- ✓ Greater Capacity





Commission on Evidence-based Policymaking

Improved Access to Data -

Establish National Secure Data Service

Address inconsistencies and barriers in law for better use of existing data

Streamline process by which researchers access data

Stronger Privacy Protections –

Conduct and disclose comprehensive risk assessments

Improve protections with better technology and greater coordination

Strengthen OMB's existing guidance on maintaining public trust by codifying SPD1

Greater Capacity –

Align capacity for statistics, evaluation, and policy research within and across departments

Better coordinate these efforts and consider strategies to prioritize evidence building within OMB





Contact Information



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