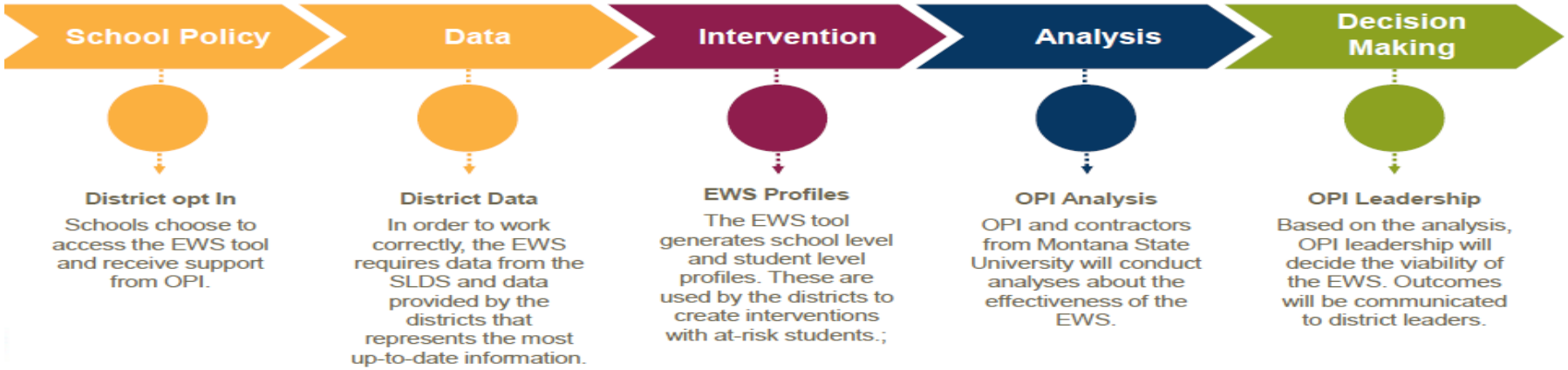

Evaluation of a Predictive Model: Montana Early Warning System for Dropouts

NCER: Using Longitudinal Data to Support State Policymaking Competition

Dr. Robin Clausen, Montana Office of Public Instruction (OPI)

Research Procedures

- **Task 1**: We want to know the propensity of the model to predict graduation. In doing so we will look to six factors involved in the model: Dropout Probability, Grades Risk Factor, Attendance Risk Factor, Previous Dropout Risk Factor, Behavior Risk Factor, and Mobility Risk Factor. We use the staggered rollout of the EWS to estimate the effect of the EWS on student outcomes
- **Task 2**: We investigate the degree of implementation of the model in these schools. Has access to EWS data inspired increases in targeted interventions with identified students or interventions and policy modification at the school-level?
- **Task 3**: We focus on how robust the student outcomes are in these schools and the impact of dropout interventions on graduation and postsecondary enrollment. We look to the same risk factors and gauge the viability of each to predict these two opportunities. Emphasis is placed on trends within subgroups and college enrollment.

RQ 2 Sub Questions

a. What is the Level of Adoption in Participating Schools?
b. What are the Mediating and Moderating factors that Impact Implementation?
c. Does the OPI EWS Work as Intended?
d. What are the Perceptions of the Quality of the EWS?
e. How Does the OPI Data Tie into Evidence Based Interventions?
f. What are the Perceptions of the Success of the Program at the School Level?

EWS Program

Goal 1: Create and maintain a statistical model that accurately predicts the odds of a student dropping out.
Goal 2: Identify at-risk students before they drop out.
Goal 3: Help schools identify factors that are impacting each student's dropout risk to prioritize and target interventions.
Goal 4: Help schools understand dropout risk trends at the school level to make decisions regarding policy and programs that may influence dropout risk.

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EWS Online Tool

School level report - Summarizes data and creates visualizations for school level dropout risk, and specific trends including grades, attendance, behavior, and mobility.

Student summary report - Generates a spreadsheet containing all student data for the school, including risk rankings, percentage risk, change in risk, and odds ratios for specific risk factors.

Student detail report - Provides data and visualizations for a single student within that school, including their current dropout risk, change in risk over time, information on missing data, and predominant risk factors where interventions may be warranted.

School Size (Need for Innovation)

	Med-High Adoption	Low Adoption	Non-Adoption
Less than 150 students	22.22%	41.68%	72.83%
151 to 400	41.11%	31.06%	21.00%
401 to 850	26.67%	21.97%	5.83%
Above 850 students	10.00%	5.30%	0.33%

Targeting Resources: Analysis of Cost

- **Primary Efficiency is Early Identification:** One principal commented that costs are minimal per student, but costs would be higher if they didn't have the EWS data or the ability to target resources.
- Costs/Student Goes Down
- Overall Costs Stay the Same as Program Expands
- Savings from the Enhanced Communication Drive Costs Down
- **Administrative Overhead to Collect and Manage Data Goes Down:** Schools report that they must look at over five different data systems to get a view of the same data the EWS provides. One principal remarked how the alternative, do it yourself, is no longer attractive because it takes needed time away from the interventions. So much time is spent during the administrative work. EWS does it for you and the results are more consistent and insightful with a diagnostic tool that is focused, and evidence based. Indeed, educators claim that a EWIS is the bigger, better offer and allows for more opportunities to individualize data based on students' evolving needs.
- Cheaper than Alternative Schooling

Levels of Adoption

High adopters

- Formal and Informal Dissemination
- Well formed Multi-Tiered System of Support team (MTSS)
- Marks of the Development of a Data Culture (Vison, Value, Dissemination)
- Tight Coupling Data to Intervention
- High Degree of Use of the Tool in Progress Monitoring

Medium Adopters

- Little to no Dissemination
- Lack of Formal MTSS Processes
- Follow-up, however, Progress Monitoring is Lacking

Low Adopters

- Have Similar School Context (Institutional, Contextual, and Student Outcome)
- Showed Interest in the Tool

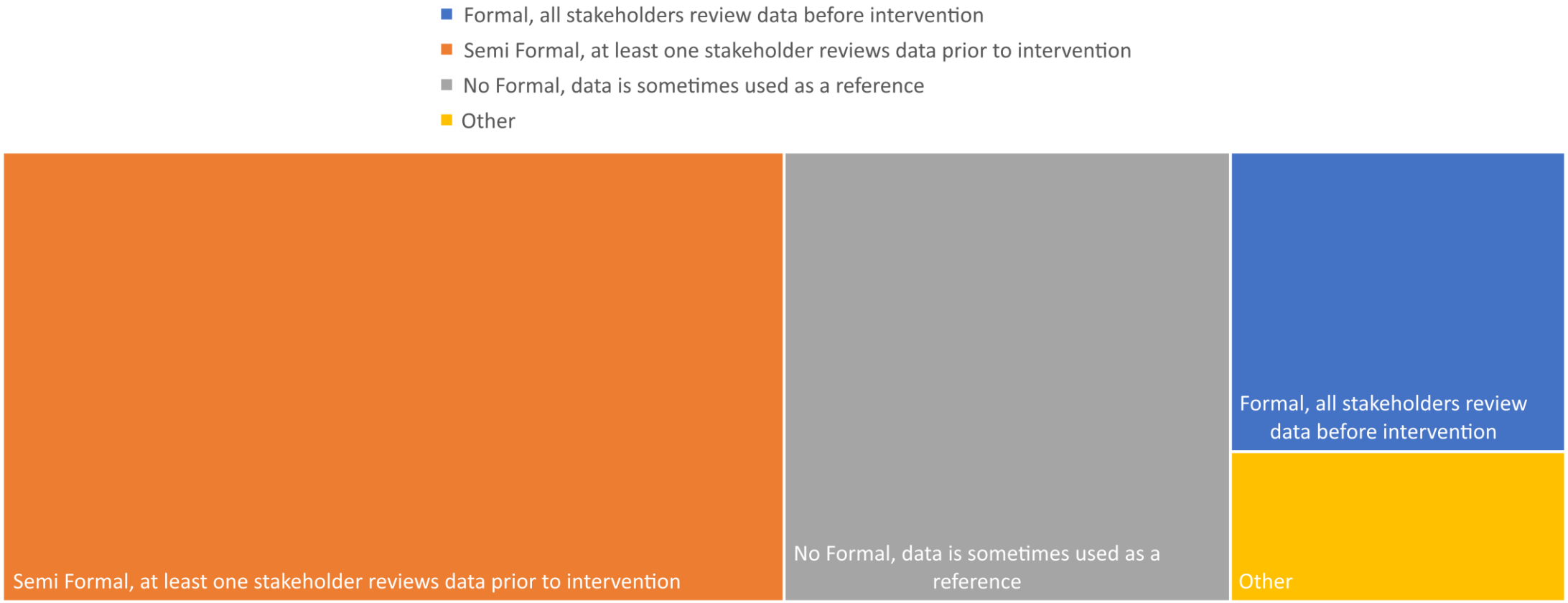
Non -Adopters

- Have Different Contexts (e.g., Locale, Graduation, ACT) showing Little Need for Tool
- Less of an Emphasis placed on Dropout Prevention

Mediating Factors

- Presence of a Team to Support Dropout Prevention (MTSS)
- **Shared Vision/Value of the Tool between Leadership and Staff:** Most often the use of the EWS as a diagnostic tool and integration of the tool in the MTSS framework is led by the principal, although at times assistant principals, school counselors, and department heads reportedly have success leading the intervention process if vision is shared and school outcomes are consistent
- Development of a Data Culture
  - Data is Disseminated Formally and Informally
  - Clear Tie of Data to Intervention
  - Engagement in Follow-up (Progress Monitoring)
- OPI Outreach
- **Focus on Building Relationships**, especially with Tier 3 Interventions: “I feel I know my students better through the EWS.”
- Local Implementation: Scale, Capacity, Priorities

Dissemination



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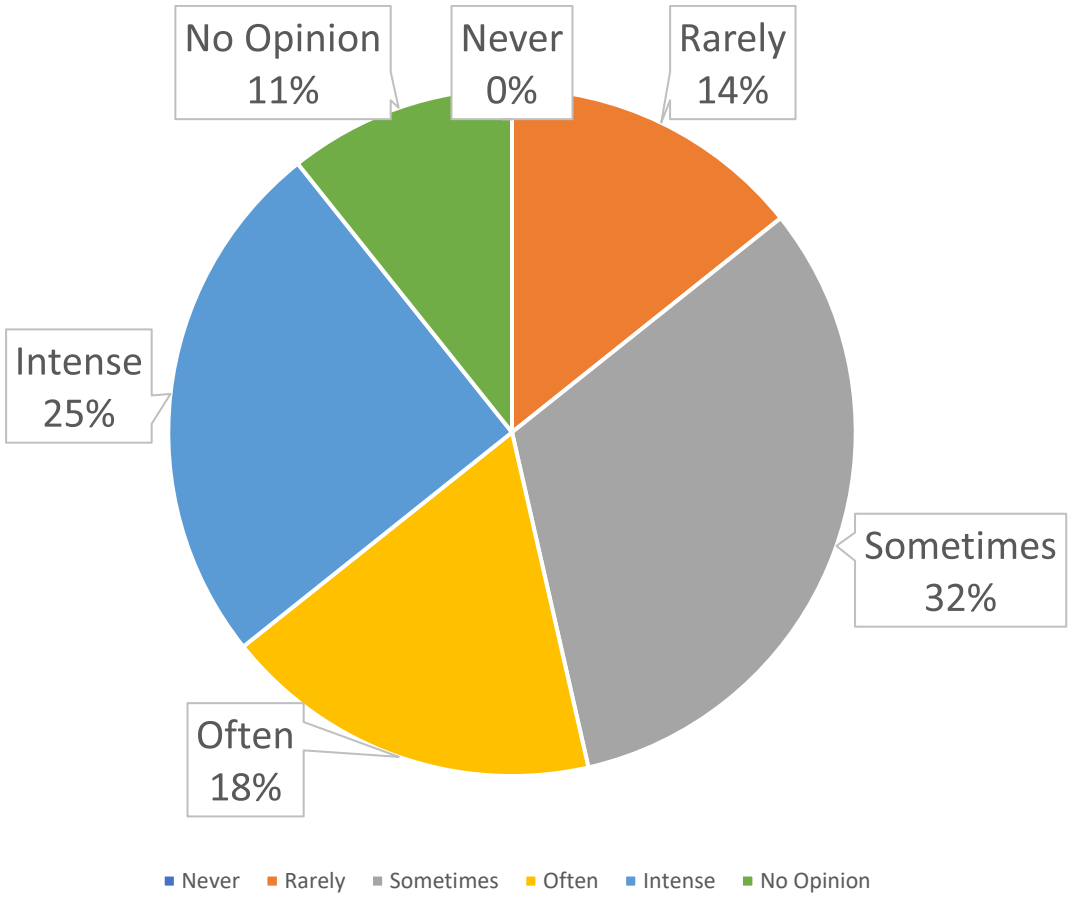
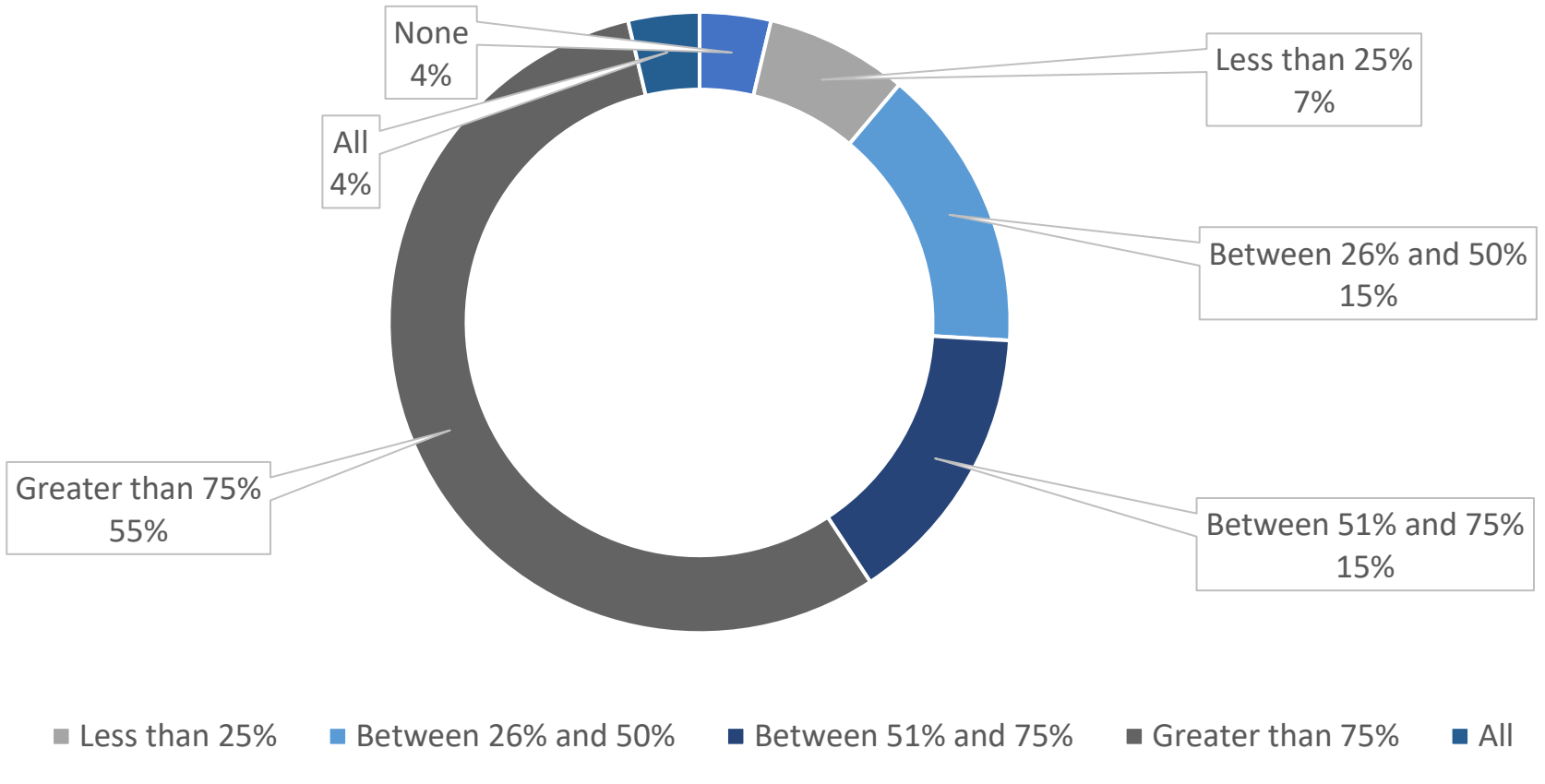
Frequency of Using EWS Data in an Intervention (29 Stakeholders)



Perceptions of Success: Students Graduating or Advanced to Next Grade



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Successes of the Program

- Democratizes Access to a EWIS Independent of Vendor Models
- Evidence – Based Tool that Assesses Risk Independent of Economic Disadvantage, Demographics, or Student Status
- OPI Support
- Decline of Supports Needed Per Student (Lower Cost/Student)
- Primary Recommendations are Procedural
  - Increase Access to Longitudinal Data
  - Expand Opportunities for Professional Development

How did the EWS account for graduation?

Graduates were more likely to have been in the EWS system

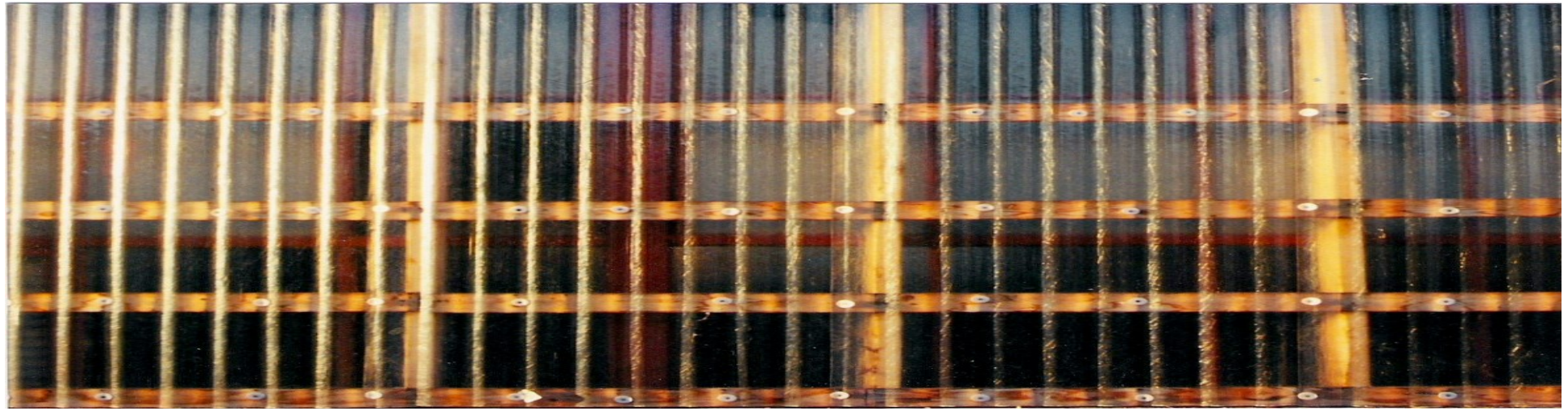
Among students who could have graduated based on cohort	
Of those who eventually dropped out	Of those who eventually graduated
28.7% had been scored at some point	34.3% had been scored at some point

How did dropout rates compare for students in EWS adopting and non-adopting schools ?

4-year graduation rate based on 9th grade cohorts from 2008 to 2018	
	Graduated on time
All students (N=116,053)	87.2%
Students with any EWS score (N=22,245)	89.9%
Students never with an EWS Score (N=93,808)	86.6%

How did dropout rates compare for students in EWS adopting and non-adopting schools ?

Year-on-year (end status) dropout rates; 9th grade and higher; 2007 to 2019	
	Year-on-year dropout rate
All student-years (N=619,536)	3.6%
Student-years with any EWS score (N=63,610)	2.5%
Student-years without any EWS Score (N=555,926)	3.7%



Differentiating Rural Variation: Poverty Measures and Student Outcomes

Dr. Robin Clausen

Montana Office of Public Instruction

Process

- Economic Disadvantage has many Measures, one of which is the Spatially Interpolated Demographic Estimate. SIDE is proposed to compliment FRPL by providing richer data in different geographic contexts.
- The study looks to five different areas on four levels.
  - The study looks across areas (City, Town, Rural) and explores the effect of Rurality (communities more/less than 25 miles from an urban center).
  - We compare SIDE measures for students within five miles from a school, students at a distance, a measure for all students in the school, and the FRPL measure for comparison.
- The point is to gauge variation in communities, especially Rural communities. Indicators in Rural communities are relatively homogenous (race/ethnicity). Often, people in rural communities speak of differences based on 'town' and countryside. This analysis explores this variation.

Differences: Student Body (More/Less than 3 Miles from a School)

We compared Far Versus near Students by Locale and Rurality

- Statewide students at a distance have higher mean IPR values (292.96) than students close to school (275.62) (p=.000).
- The pattern is consistent when looking at the mean difference in cities between far and near populations (34.10) (p=.002).
- Town populations also exhibit the same variation with higher income to poverty ratios among far populations in comparison to near populations (+22.6) (p=.000).
- This trend reverses in rural areas in which students near to school have higher mean incomes than students at a distance.
- This is seen also in Rural Remote areas in which students who live far from school (250.80) having significantly lower IPRs than students who live near to school (262.50).
- Students that live in Rural Fringe and Rural Distant communities also exhibit a significant mean difference in the same direction (+13.07).

Bivariate Correlations Comparing NSLP Eligibility to SIDE Estimates

	Whole School SIDE	Students at a Distance	Students Near School
All School	-.722**	-.584**	-.724**
City	-.793**	-.324*	-.769**
Town	-.673**	-.609**	-.731**
Rural	-.753**	-.692**	-.743**
Rural Fringe/Distant	-.763**	-.682**	-.750**
Rural Remote	-.751**	-.707**	-.734**

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Proportion of Variance Explained by Poverty Measure and Student Outcome

		Eligibility	Whole School SIDE	Student Far	Student Near
City	HS Graduation Rate	0.219	0.394	0.703	0.234
	Post-Secondary Enrollment	0.161	0.363	0.152	0.452
	Satisfactory Attendance Rate	0.011	0.047	0.023	0.029
	Suspension/ Expulsion Rate	0.07	0.101	0.074	0.138
	ELEM SBAC ELA Proficiency	0.332	0.158	0.06	0.195
	ELEM SBAC Math Proficiency	0.396	0.277	0.114	0.265
	HS ACT Composite	0.614	0.229	0.057	0.181
Rural	HS Graduation Rate	0.272	0.078	0.111	0.19
	Post-Secondary Enrollment	0.189	0.05	0.11	0.189
	Satisfactory Attendance Rate	0.098	0.055	0.142	0.144
	Suspension/ Expulsion Rate	0.158	0.059	0.141	0.209
	ELEM SBAC ELA Proficiency	0.322	0.056	0.126	0.146
	ELEM SBAC Math Proficiency	0.303	0.061	0.092	0.091
	HS ACT Composite	0.313	0.255	0.218	0.318

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