# Montana's Early Warning System for Dropouts

# Research Procedures

- **Task 1**: We know the ability of the model to predict dropout. Hence, we investigate the propensity of the model to predict graduation to gauge the efficiency of the model. We look to six factors present in the model: dropout probability, grades, attendance, previous dropout risk factor, behavior, and mobility.

- **Task 2**: We investigate the degree of implementation of the model (school level). Has access to EWS data inspired policy modifications and increases in student supports?

- **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.

# Montana 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 that opt-in to the program to 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.

# Montana 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.

# Mediating Factors

- Local Implementation defined by **Scale, Capacity, Priorities**

- **Shared vision/value of the program:** Most often led by the principal/superintendent. Others reportedly have success leading the intervention process if vision is shared and school outcomes are consistent

- Formal structures involving **MTSS processes**

- **Clear tie of data to intervention**

- Engagement in follow-up (**Progress Monitoring**)

- **OPI outreach** was responsive and changed to meet users needs.

    "I feel that I've always been heard."

- **Focus on building relationships in** Tier 3 interventions:

    - "I feel I know my students better through the EWS."

# Model focuses on universal screenings

| Graduates were more likely to have been in the EWS system | |
|---|---|
| Of those who eventually dropped out | Of those who eventually eventually graduated |
| 28.7% had been scored at some point | 34.3% had been scored at some point |

| 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% |

There is a strong inverse relationship between student's EWS scores and eventual on time graduation. Among students flagged at extreme risk of dropping out, only 63 percent graduate on time, while 97 percent of students never predicted to dropout graduate within 4 years of their 9th grade entry. The EWS scores are strongly associated with eventual dropout. EWS scores indicate a higher probability of dropout than happens each year for a student, implying that schools that use the system will be alerted in advance of `student dropout.

# 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% |

# 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.

- Intervention cost less when students are identified early

- Costs/student goes down. Overall costs stay the same as more students receive supports or more intense supports

**Administrative Overhead to Collect and Manage Data Goes Down:**

- Savings from the enhanced communication among staff drive costs down

"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."

# Conclusions

- The program is free for schools of all sizes to use. Costs involving staff time are minimal and early identification curtails more expensive prevention strategies

- Evidence – based tool that assesses risk independent of economic disadvantage, demographics, or student status (i.e., English Learner or Disability)

- Development of the model is determined by level of adoption more directly than frequency of data sharing to the OPI (upload)

- Relationship building, longitudinal analysis, the development of a data culture, and the importance of progress monitoring inform responses to all sub questions to Task 2.

# Thank you for your interest!

**Please address questions/comments to:**

Dr. Robin Clausen

Montana Office of Public Instruction

robin.clausen@mt.gov

406-444-3793

https://gems.opi.mt.gov