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Colorado Pragmatic Research in Health Conference

Value, Cost and Sustainability

Poster Symposium B
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Evaluation of the Joint Patient Safety Reporting System for Patient Safety: Pharmacists' Perspectives

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RESEARCH OBJECTIVE:

- The focus of the Department of Veteran Affairs' (VA) Center for Inpatient Medication Safety (CIMS) is to reduce medication errors for hospitalized Veterans.
- For the VA and the Defense Health Agency, the Joint Patient Safety Reporting (JPSR) system standardizes event capture and data management of medical errors and near misses.
- In collaboration with the VA Office of Pharmacy Benefits Management Services (PBM), we are interested in understanding how VA pharmacists use JPSR at their sites to monitor, track and report medication error related adverse events and/or close calls.

PRINCIPAL FINDINGS:

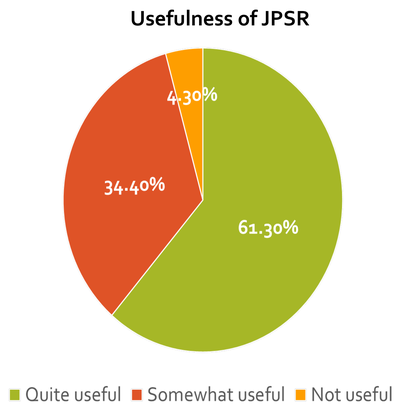
- Majority of the respondents (pharmacists) self-reported their primary role as Pharmacy Manager (49.5%), Patient/Medication Safety Pharmacist (21.6%), Clinical Pharmacy Specialist (8.2%), Chief of Pharmacy (6.2%), Quality Management Pharmacist (3.1%), Staff Pharmacist (2.1%), and Pharmacoeconomist (2.1%). Remaining pharmacists (7.2%) identified themselves singularly (1.0%) in each of the remaining 7 primary roles.
- Almost all the pharmacists (96.0%) reported that they and/or other pharmacist(s) use JPSR to report medication adverse events and/or close calls. The remaining pharmacists did not use (2.0%) and did not know (2.0%) about the use of JPSR.

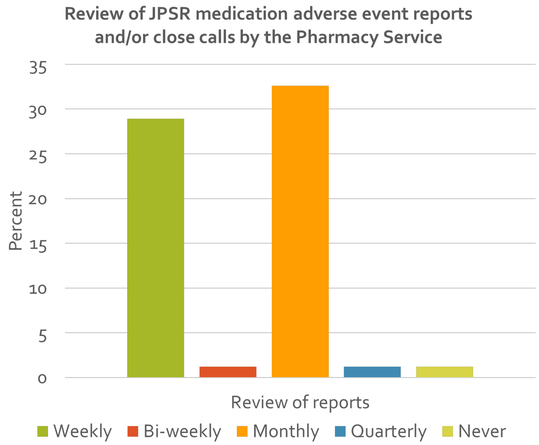
STUDY DESIGN:

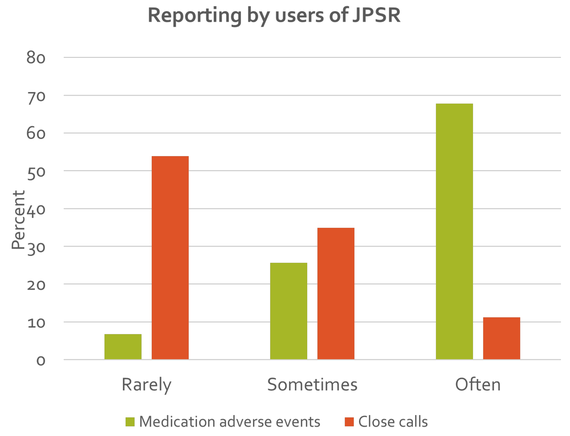
- Pharmacists at all the VA sites..

POPULATION STUDIED:

- In November 2021, jointly CIMS and PBM conducted a web-based survey.
- VISN (Regional) Pharmacy Executives at 18 VISNs were emailed a survey weblink to forward to the Chiefs of Pharmacy at all the sites within their own VISN who, in turn, identified a pharmacist with knowledge of the JPSR system at their site to complete the survey.
- The goal of the survey was to understand how pharmacists perceived the use of JPSR to report medication adverse events and/or close calls.
- Survey response rate was 67.12% (N=98).







CONCLUSIONS: Pharmacists perceive the JPSR system as valuable and useful to report medication error related adverse events and/or close calls to manage medication safety for Veterans.

FUNDING: This quality improvement initiative is supported by the US Department of Veterans Affairs QUERI Program.

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Cost-Effectiveness of In-Person vs. Virtual CM Training Approaches

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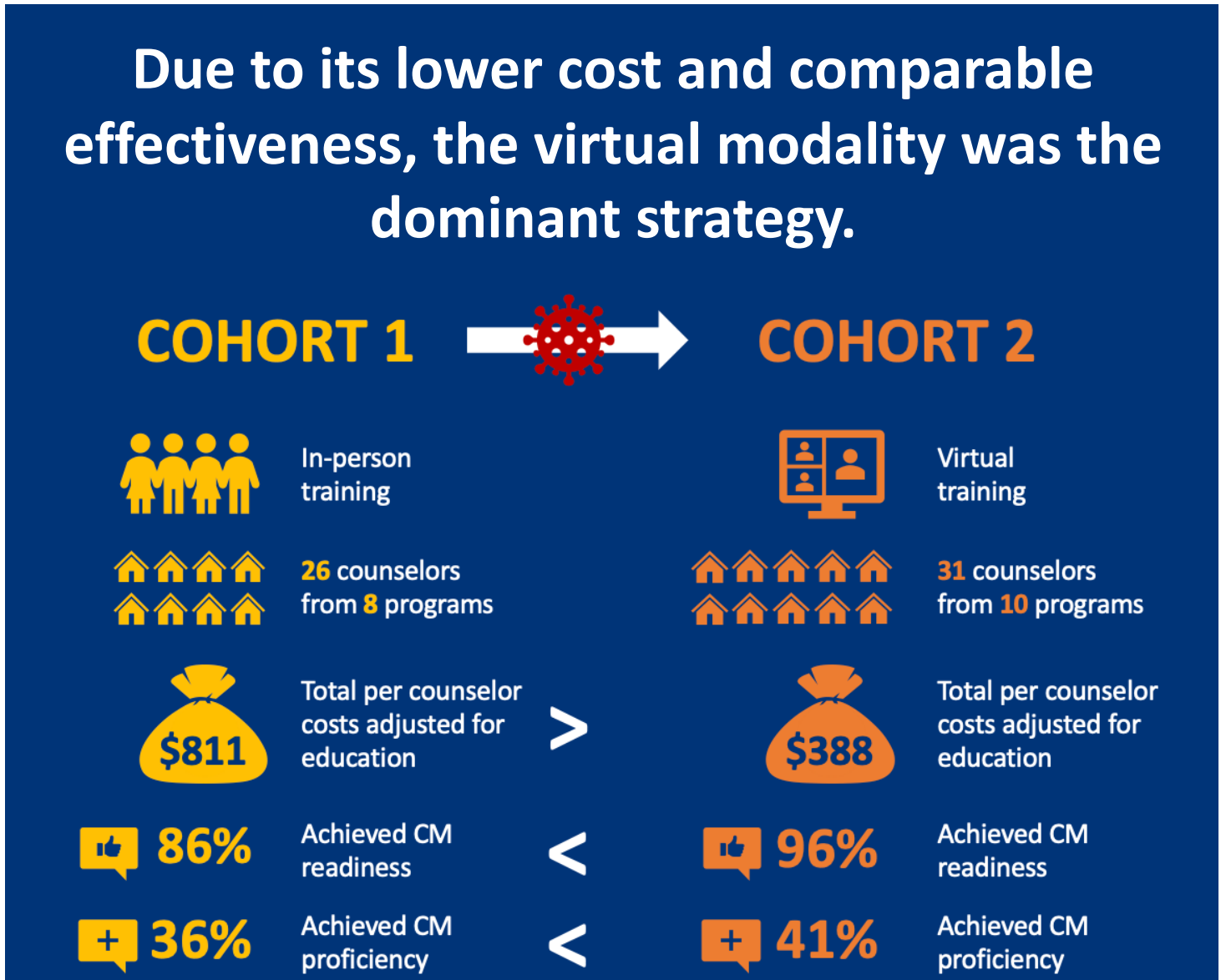
BACKGROUND AND OBJECTIVE:
Promotion of evidence-based practices (EBPs) often hinges upon training workshops designed to help counselors deliver EBPs with fidelity. The COVID-19 pandemic necessitated a rapid shift from in-person to virtual workshop training, yet the relative effectiveness and cost-effectiveness of these modalities is unknown.

Project MIMIC (Maximizing Implementation of Motivational Incentives in Clinics) is an ongoing cluster-randomized hybrid type 3 trial examining strategies to implement contingency management (CM), a behavioral EBP, across opioid treatment programs (OTPs). Counselors from the first cohort received in-person workshop training, whereas counselors from the second cohort received virtual workshop training. The shift to virtual training as a response to federal guidelines of social distancing presented a rare opportunity to compare the effectiveness and cost-effectiveness across modalities.

SETTING:
All OTPs were located throughout the New England area, and the Project MIMIC research study was based at the Brown University School of Public Health in Rhode Island.

Due to its lower cost and comparable effectiveness, the virtual modality was the dominant strategy.



METHOD:
Counselors submitted post-training role-plays that were rated by independent coders for both readiness and proficiency to deliver CM.

Per-counselor costs were estimated for the two modalities. Adjusted differences between cohorts were estimated using ordinary least squares.

RESULTS:
Attainment rates of the readiness and proficiency benchmarks were higher in the virtual than in-person condition, though these differences were not statistically significant. Aggregated adjusted costs showed a $423 difference in per-counselor cost favoring virtual workshop training.

CONCLUSION:
Our findings support the utility and effectiveness of virtual workshop training and may inform the delivery of workshop training for other EBPs post-pandemic.

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Costs Associated with Implementation of Two Models of Diabetes Shared Medical Appointments

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RESEARCH OBJECTIVE

- Shared medical appointments (SMAs) for patients with diabetes are an evidence-based and potentially efficient approach to provide self-management education and support in a group setting.
- The Invested in Diabetes study tests two approaches to implementing SMAs (standardized vs. patient-driven).[1]

- **Objective:** For sustainability planning, we evaluated personnel time and cost, and other costs for starting and delivering diabetes SMAs in primary care.

POPULATION STUDIED

Population and Study:

- 21 of 24 primary care practices in Colorado and Kansas City randomized to one of two models for implementing diabetes SMAs. 3 practices stopped participation prior to data collection.
- Both models included six two-hour sessions using the Targeted Training in Illness Management curriculum for groups of approximately 5-15 patients with diabetes.
- Standardized approach is delivered by a health educator with accompanying provider visits.
- Patient-driven approach further incorporates behavioral health providers, peer mentors (volunteer position), and patient-led topic prioritization, in response to prior feedback from patient stakeholders.

SMA IMPLEMENTATION

Description of Cohorts and Roles:

- Initial cohorts at each practice took between 2 and 12 months to plan (6.25 month average)
- Cohorts reported were weekly (6 weeks), bi-weekly (3 months), and monthly (6 months)
- Roles required to deliver SMAs were filled by various staff (see Table 1), and include paid and volunteer positions.
- All practices attended an onboarding training. Patient-driven practices also had a peer mentor training.

STUDY DESIGN

Cost data collection and evaluation:

- Practices were surveyed around cost using Time-Driven Activity Based Costing[2] methodology at two time points to collect costs for the initial start-up period (prior to first cohort), and the SMA implementation for the first completed cohort (after the last SMA for cohort).
- Surveys asked staff hours devoted to activity groups during the two periods for each team member involved.
- Surveys asked for other costs associated with SMAs at each time, including staff training, non-recurrent start-up expenses, materials, and overhead.
- Staff hours are converted to costs using US Bureau of Labor Statistics mean salaries for each staff position/role. Salaries for volunteer roles were not calculated, but time is reported.
- To account for trainer time for trainings conducted by study staff, 5 hours of staff time was added to all practices for staff training. 5 additional hours were added to patient-driven practices for peer mentor trainings. This did not vary by how many staff or peer mentors were trained.
- Costs are broken down by start-up and implementation costs, and reported by SMA implementation model (standardized vs. patient-driven).

Table 1: SMA Roles within Practices

SMA Role	Who fills the role
Health Educator	- Certified Diabetes Educator, Registered Dietician - Program manager or coordinator (including DSME coordinator) - Lifestyle coach, health coach, other community health worker - Registered Nurse, nurse practitioner, licensed practical nurse - Case manager
SMA Coordinator	- Medical assistant, licensed practical nurse, registered nurse - Certified diabetes educator - Program coordinator
Prescribing Provider	- Physician (MD, DO) - Other provider (NP, PA) - Pharmacist
Behavioral Health Provider	- Health psychologist (PhD) - Social worker (LCSW, LSW) - Other BHP
Roles associated with indirect support	- Data analyst, IT professional, biostatistician - Office/clinic/practice manager - Administrative support staff, receptionist - Outreach coordinator, site coordinator, recruiter - Medical assistant, medical interpreter, patient navigator - Pharmacist - Registered dietician, certified diabetes educator - Chief medical officer, executive director

Table 2: Cost

	Start-up			Implementation		
	Personnel Time, hours Avg (Min, Max)	Personnel Cost, $ Avg (Min, Max)	Other Cost, $ Avg (Min, Max)	Personnel Time, hours Avg (Min, Max)	Personnel Cost, $ Avg (Min, Max)	Other Cost, $ Avg (Min, Max)
Standardized SMAs	79.6 (21, 162)	$3,420 ($848, $8,700)	$957 ($0, $6,736)	53.4 (34.5, 100.5)	$1,948 ($1,085, $3,397)	$137 ($0, $615)
Patient-driven SMAs	131.1 (58, 213.9)	$4,660 ($1,229, $9,877)	$1,717 ($0, $7,629)	83.4 (49, 132)	$2,430 ($699, $5,015)	$177 ($0, $802)
All practices	102.5 (16, 140)	$3,971 ($848, $9,877)	$1,295 ($0, $7,629)	67.7 (34.5, 132)	$2,177 ($699, $5,015)	$156 ($0, $802)

Cost Results:

- Reported costs of delivering diabetes SMAs varied considerably among practices, both in personnel time and other expenditures. Some practices did not report any additional expenditures for the SMAs, while others reported material costs, travel, portions of facility cost etc.
- As expected, delivering a model with a larger team involved more hours during planning and implementation than an approach with fewer personnel, plus modest increases in other costs.
- Differences in roles involved changed cost per practice, and could affect reimbursement. Roles selected were due to a combination of staff availability and interest in SMAs, as well as scheduling decisions made at each practice.

IMPLICATIONS FOR POLICY AND PRACTICE

- Practices seeking to implement diabetes SMAs should consider:
  - Diabetes SMAs may take considerable hours to set up and implement. Roles to involve may vary based on who is available at the practice, and desired reimbursement.
  - What elements of SMAs are most important to the care of their patients, as well as providers and other stakeholders.
  - The patient-driven approach studied resulted in costs that were close to double that of the standardized approach, and require practices to have integrated behavioral health.
  - The staffing resources required relative to available funding and/or potential reimbursement for each model.
  - Average per patient costs may be lowered if practices are able to deliver diabetes SMAs to relatively larger groups.
- Reimbursement options likely vary by factors such as setting, payer mix, and credentials of personnel involved in SMA delivery. While physician visit reimbursement is more lucrative, some sites chose to utilize other provider types or not have as many prescribing provider visits due to scheduling or not wanting patients to have to pay co-pays, resulting in lower reimbursement.
- Utilizing volunteers for the peer mentor role and not considering some costs (i.e., facility cost) to be attributable to SMAs may have reduced reported costs.

CONCLUSION

- The patient driven SMAs are more expensive and resource intensive to deliver than the standardized SMAs. That said, practices seeking to implement diabetes SMAs should consider what elements of SMAs are most important to their patients and the resources required relative to reimbursement for each model.
- Time-Driven Activity Based Costing (TDABC) is an important methodology for determining implementation cost and capacity utilization of resources at the practice level for pragmatic trials.
- Future analyses will examine whether patient-driven SMAs lead to better clinical and patient reported outcomes relative to standardized SMAs.

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1. Kwan BM et al. 2020 in *Trials*

2. Kaplan RS, Porter ME. 2011 in *Harvard Business Review*

ACKNOWLEDGEMENTS

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Pragmatic trialists need to plan for adequate effort and resources to train personnel in delivery of interventions at intervention sites, and incorporate approaches to reduce cost and effort for the study team

Resource requirements for training existing practice staff to deliver diabetes interventions in a pragmatic hybrid implementation-effectiveness trial

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Context

- Pragmatic trials examine effectiveness of health interventions in real-world settings, often using existing healthcare personnel to deliver interventions
- Invested in Diabetes[1] tested 2 approaches to shared medical appointments (SMAs) in primary care settings, as delivered by personnel including health educators, behavioral health specialists, peer mentors, and providers with prescribing privileges.

Objective

- We describe training content, resources, adaptations, and evaluations for practice staff to deliver diabetes SMAs as part of a pragmatic trial.

Methods

Trainings:

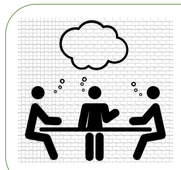
- Health educators and behavioral health specialists attended 6-hour SMA facilitator trainings to learn project protocols, group facilitation skills, and their assigned SMA curriculum.
- Peer mentors attended 4-hour trainings as adapted from materials from Peers for Progress; some participated in the general SMA facilitator training.
- Providers participated in 1-hour "lunch & learns."

Data collection:

- Training events were summarized via agendas and notes.
- Adaptations, including number of trainings, content, and style, were documented.
- Satisfaction surveys were collected after trainings.

Training type	Total Trainings	Research Staff Hours	Practices Represented	Individuals Trained
Facilitator	26	330	50	118
Peer Mentor	9	66	18	26
Prescribing Provider	13	16	14	22

Virtual and hybrid trainings reduced resources needed for travel and staff time, and became essential during COVID-19



Based on feedback from practice staff and peer mentors, trainings increased skills in facilitation and role play exercises, while providing instruction on the protocol and curriculum

As trainings evolved, fewer research staff were needed for trainings, and the main trainer role was expanded from investigators to research assistants

Training satisfaction scores were high, regardless of training modality or staff involved

Discussion

Plan sufficient effort:

- Pragmatic trialists should anticipate a high level of resources (especially research staff time) to adequately train practice personnel to deliver interventions.
- In addition to initial trainings, plan for booster trainings and training new hires.

Be adaptable:

- Allow modifications to training protocols, including adaptations to decrease cost.
- Solicit feedback from trainees after the training and during implementation to help identify additional training needs.

- **Increase efficiency without sacrificing value:** Approaches that save time and effort for research staff should be explored, which may include hosting virtual trainings (if travel is would otherwise be needed), training multiple sites at once, utilizing all research staff (i.e., train-the-trainer approaches), or pre-recording content for asynchronous delivery as able.
- Check-in with trainees to ensure value is retained in lower-cost training models.

References

1. Kwan, B.M., Dickinson, L.M., Glasgow, R.E. et al. The Invested in Diabetes Study Protocol: a cluster randomized pragmatic trial comparing standardized and patient-driven diabetes shared medical appointments. *Trials* **21**, 65 (2020). https://doi.org/10.1186/s13063-019-3938-7

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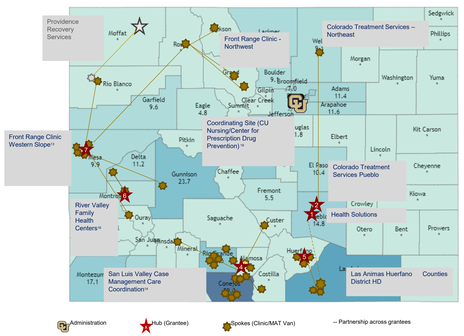
Invested in Diabetes

Colorado Medication for Opioid Use Disorder Program Implementation Outcomes

MOUD Program expansion to 21 rural counties during the COVID-19 pandemic

Reaching a high need population in a geographically diverse area



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- Colorado Health Institute (2018). "Death by Drugs: Colorado Reaches a Record High for Overdose Fatalitiities

This study was funded by Colorado Senate Bill 19-001 with infrastructure support from the Colorado Clinical and Translational Science Institute, NIH/NCRR grant #UL1 RR025780.

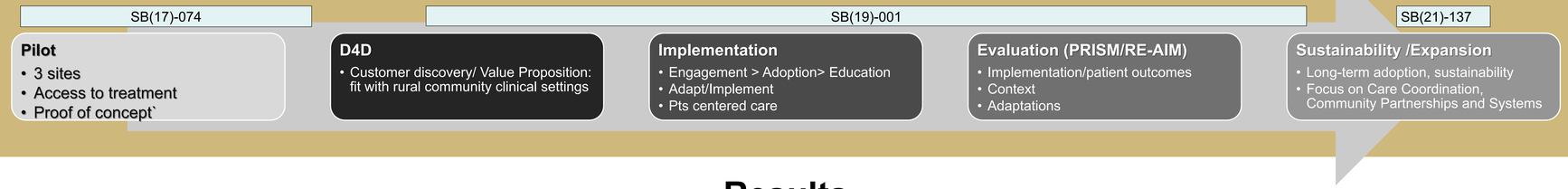
Purpose

To evaluate the impact of the Medication for Opioid Use Disorder (MOUD) Program in rural Colorado and plans for expansion and sustainability

Background

The opioid crisis continues disproportionally affecting rural areas
The Colorado Legislature funded the implementation of a Medication for opioid use disorder (MOUD) program to lower disparities and expand the nurse-led workforce to treat OUD in identified rural counties with high overdose rates and low access SB01: Colorado MOUD Expansion)
A Hub and Spoke system (network of clinics) of training and expertise has proven effectiveness to access in other rural states

Methods



Results

Colorado Treatment Services (CTS)[3]
Pilot grantee in heavily populated county with outpatient Methadone clinic expanding showly to Buprenorphine and Suboxone.
Focused on increasing collaboration and patient retention of a hard to reach mobile population during the pandemic

Health Solutions (HS)[4]
Pilot grantee offering MOUD (buprenorphine) in clinical and behavioral health services in heavily populated county with high overdose rates.
Developed additional outpatient substance use services and remote presence in neighboring counties to improve access and create treatment awareness

Front Range Clinics NW (FRCNW)[5]
Pain clinic during pilot phase increased referrals with partners and started two satellite clinics in neighboring counties with no services to increase access to treatment in touristic area with high substance use need and high clinic and population turnover
Moved under FRC (MAT experienced services)

Front Range Clinics Western Slope[5]
New grantee with MOUD expertise established one main clinic and three pop-up clinics
Used care coordination through peer support specialist to enhance connection to services. Used mobile units and telehealth to reach neighbor counties with no services

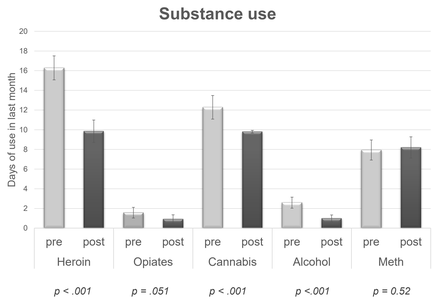
San Luis Valley MAT[6]
FQHC system partnered across 5 health care organizations for case management & care coordination model
Vast geographical underserved area
Developed partnerships with law enforcement, public health and community agencies
Marketing campaign

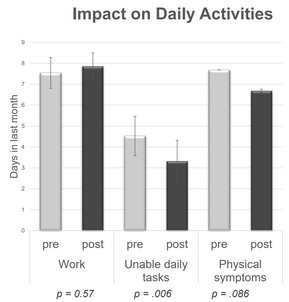
Las Animas Huerfano Health Department[7]
Health Department established partnerships with regional health systems to provide treatment for patients with OUD in two counties with very poor health outcomes and healthcare shortage

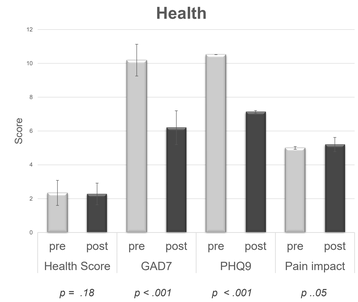
River Valley Family Health Centers[8]
FQHC with three clinics for integrated physical, behavioral health care coordination; launched MAT program, increasing collaboration of care with jail, hospital ER, and local pharmacy
Transitioned quickly to a telemedicine platform to continue services during the COVID-19 pandemic

	period	CTS*	HS*	FRC-NE*	FR-West	SLV-CMCC	LAH	River Valley	Prov.	TOTAL
counties		2	1	3	4	7	2	2	2	**23**
Patients	*Bridge (pilot)*	209	105	21						
	Jan'20-Feb'21	378	259	67	137	251	77	85	23	**1613**
Providers	**Baseline**	2	6	3	1	6	8	4	1	**28**
	June '21	3.5	6	3	3	28	15	9	0	**57**

Demographics: % Male, 71.8% White, avg age 35.1y.o., 48.1% Hispanic/Latinx, unstable employment & housing, OUD/polysubstance problem







Conclusion

✓MOUD Program Expansion reached a high need population in a geographically diverse area during the COVID-19 pandemic
  ✓Capacity building and leveraging partnerships meant valuable lessons learned despite the COVID-19
  ✓Ongoing advocacy to overcome payor and technology barriers, continue solidifying partnership and care coordination
✓Systematically assess/address needs and public health impact
✓Further MAT expansion in Colorado> SB21-137

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