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The Least Costly IIS-Based Reminder/Recall Approach to Reach Accountable Care Organization Patients

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Disclosures

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Accountable Care Organizations and Vaccine Delivery

- ACOs: groups of providers and facilities that share responsibility in providing medical care to a set of patients
  - More than 600 ACOs in the US
- ACOs are incentivized by payers to:
  - Improve quality and efficiency of care
  - Show value of care delivered
- Vaccines are one of the most valuable health interventions
  - ACOs should prioritize increasing vaccination coverage for their members

Immunization Information Systems (IIS) Based Reminder/Recall

- Reminder/Recall (R/R)
  - Notifies patients of needed vaccines (reminder) or of overdue vaccines (recall) by postcard, phone call, text, etc.
  - Centralized vs. Decentralized approaches
- Immunization information systems can be used to conduct R/R
  - Identify eligible patients
  - Assess vaccination coverage

Types of Reminder/Recall

- Centralized R/R: R/R messages sent by a central entity (e.g. state health department, managed care organization, health system) using centralized patient data from an IIS
- Decentralized R/R: R/R messages sent by individual practices using administrative, electronic medical record, or IIS data to reach out to their own patients

Reminder/Recall Evidence

- Both centralized and decentralized R/R are effective at increasing vaccination coverage
- Lack of application
  - Centralized R/R is relatively new and not widely adopted by central entity
  - Decentralized R/R is conducted by less than 20% of practices
    - Time constraints
    - Financial barriers
    - Lack of technical support

Objective

In order to inform ACOs of the least costly R/R approach, compare the investment needed to deliver centralized and decentralized R/R to an ACO’s child and adolescent population.

Intervention 1: Centralized Reminder/Recall

- Led by state health department
- Sent up to 2 automated phone messages, followed by one postcard
- Each message was six weeks apart
- Patients who became up-to-date between messages did not receive subsequent messages
- Patients could opt out (press 9 during call, toll-free number or email address included in message)

Intervention 2: Decentralized Reminder Recall

- Led by participating practices
- All practices selected mailed postcards as their method of delivery
- Patients who became up-to-date between messages did not receive subsequent messages
- Patients could opt out of subsequent messages
- Practices were compensated $0.80 per message by the ACO

Use of Colorado IIS

- Colorado Immunization Information System (CIIS)
  - Used to identify patients belonging to the ACO that needed a vaccine and to monitor receipt of vaccination
  - Receives patient data through direct entry and through electronic interfaces
  - Includes historical data about immunizations given outside of state if entered by Colorado provider
  - Provider practices can access via a web application

Population

- ACO serving patients in the greater Denver metropolitan area and Northeastern Colorado
  - Children: 19-35 months (February 2015 through August 2015)
  - Adolescent: 11-17.9 years old (July 2015 – July 2016)
- Eligibility Criteria:
  - Children: practices that actively uploaded vaccine administration data to CIIS and had at least 50 children enrolled in the ACO
  - Adolescents: practices that actively uploaded vaccine administration data to CIIS and had at least 50 adolescents enrolled in the ACO
  - Practice clusters created (i.e. practices with multiple sites with geographic proximity) and randomized to centralized versus decentralized R/R

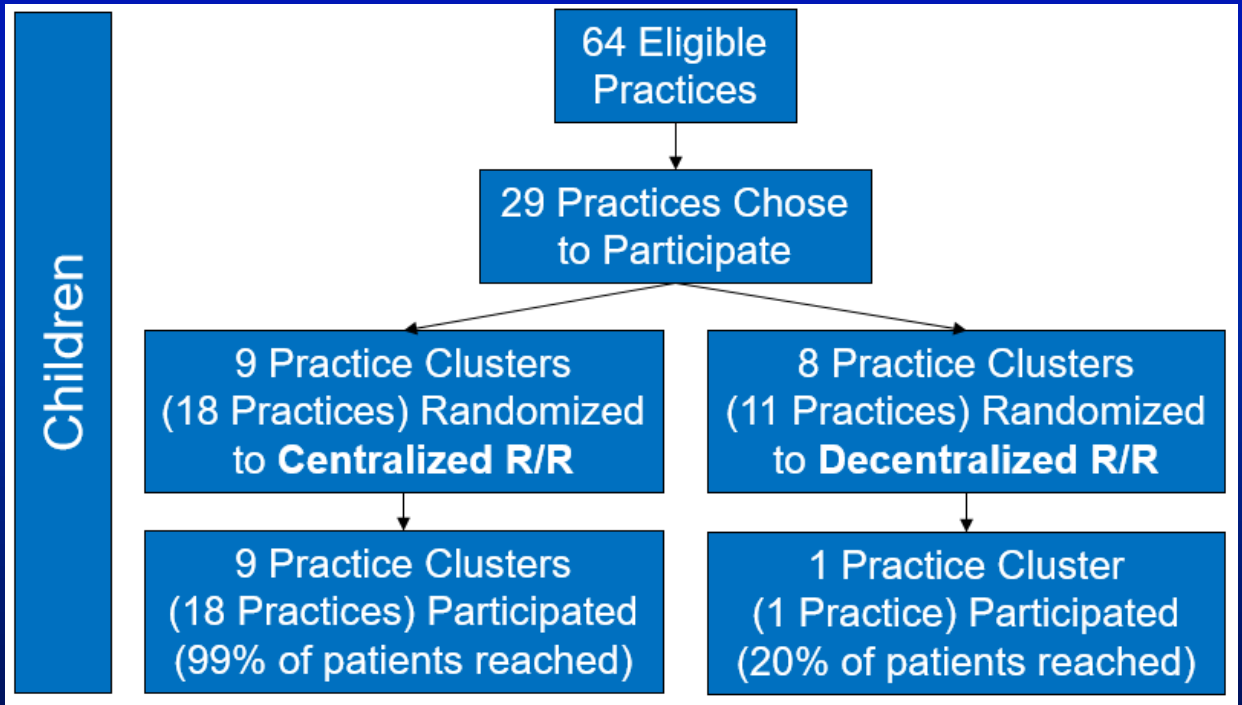
Cost Analysis

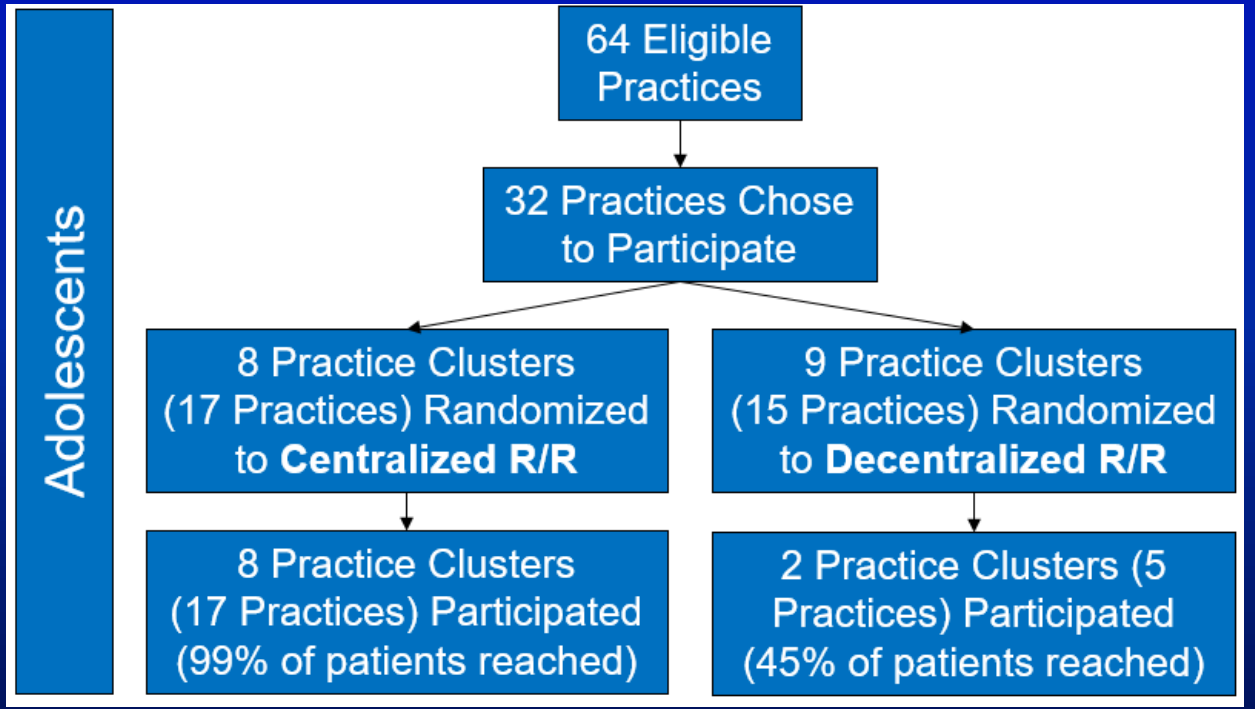
- Quantify and monetize personnel and non-personnel resources to implement intervention
  - Personnel costs estimated through time logs (ACO and state health department) and structured interviews (practice)
  - Non-personnel costs were calculated using invoices paid out
- Costs recorded for start-up and implementation
  - Implementation costs reported per person recalled
- Cost stratified by intervention (centralized, decentralized), population (children, adolescents), and perspective (ACO, health department, practice)

Cost Domains of Intervention

	Start-Up Costs	Implementation Costs
Centralized R/R		
Collaboration	The time and resources to obtain the permissions and support for the interventions.	The time and resources to identify patients belonging to the accountable care organization.
Training	The time and resources to complete training on the system that generated the automated phone messages.	None
Recall	The time and resources to create mailed phone scripts and mailed postcard templates.	The time and resources to pull IIS reports and send automated phone messages and postcards.
Decentralized R/R		
Collaboration	Same as Centralized	Same as Centralized
Training	The time and resources to conduct and attend a webinar explaining how to use the IIS for R/R.	Same as Centralized
Recall	The time and resources to create postcard templates.	The time and resources to pull IIS reports and send reminder/recall postcards.

Results: Sample





Results: Start-Up Costs for Children and Adolescents

	Accountable Care Organization	State Health Department	Practice	Total*
Centralized R/R				
Collaboration	$51	$787	$0/per practice	$838
Training	$0	$51	$0/per practice	$51
Recall	$0	$477	$0/per practice	$477
Total	**$51**	**$1,315**	**$0/per practice**	**$1,366**
Decentralized R/R				
Collaboration	$51	$787	$0/per practice	$838
Training	$204	$89	$16/per practice	$309
Recall	$0	$0.00	$153/per practice	$153
Total	**$255**	**$876**	**$169/per practice**	**$1,300**

*Total cost assumes only one practice is involved, which is unlikely in an ACO population. If x practices were involved in the decentralized reminder/recall approach, practice costs would need to be multiplied by x.

Results: Implementation Costs

	Accountable Care Organization	State Health Department	Practice	Total
Children				
Centralized R/R (n=631 patients, 18 practices)	$0.31	$1.47	$0.00	**$1.78**
Decentralized R/R (n=192 patients, 1 practice)	$1.02	$0.41	$2.49	**$3.92**
Adolescents				
Centralized R/R (n=7,240 patients, 17 practices)	$0.03	$0.75	$0.00	**$0.78**
Decentralized R/R (n=5,472 patients, 5 practices)	$0.04	$0.01	$1.32	**$1.37**

Summary

- When patients from more than one practice are involved, centralized R/R has fewer start-up costs
- Implementation costs are nearly twice as much in decentralized R/R
- The state health department bore 83-96% of the implementation costs in centralized R/R
- The practice bore 64-96% of the implementation costs in decentralized R/R
- Significant challenges to get practices to participate in decentralized R/R, even when an incentive was provided

Limitations

- Without including health outcomes, unable to assess if the investment was a good use of resources
- Unable to examine potential economies of scale due to the small number of practices that conducted decentralized R/R
- Different program decisions could produce different cost estimates

Conclusions

- To increase vaccination coverage, and thus improve patient health outcomes and reduce unnecessary costs, ACOs should conduct R/R using immunization information systems.
- Centralized R/R is less costly than decentralized R/R for both children and adolescents, and resulted in more patients being reached.

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Questions?

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