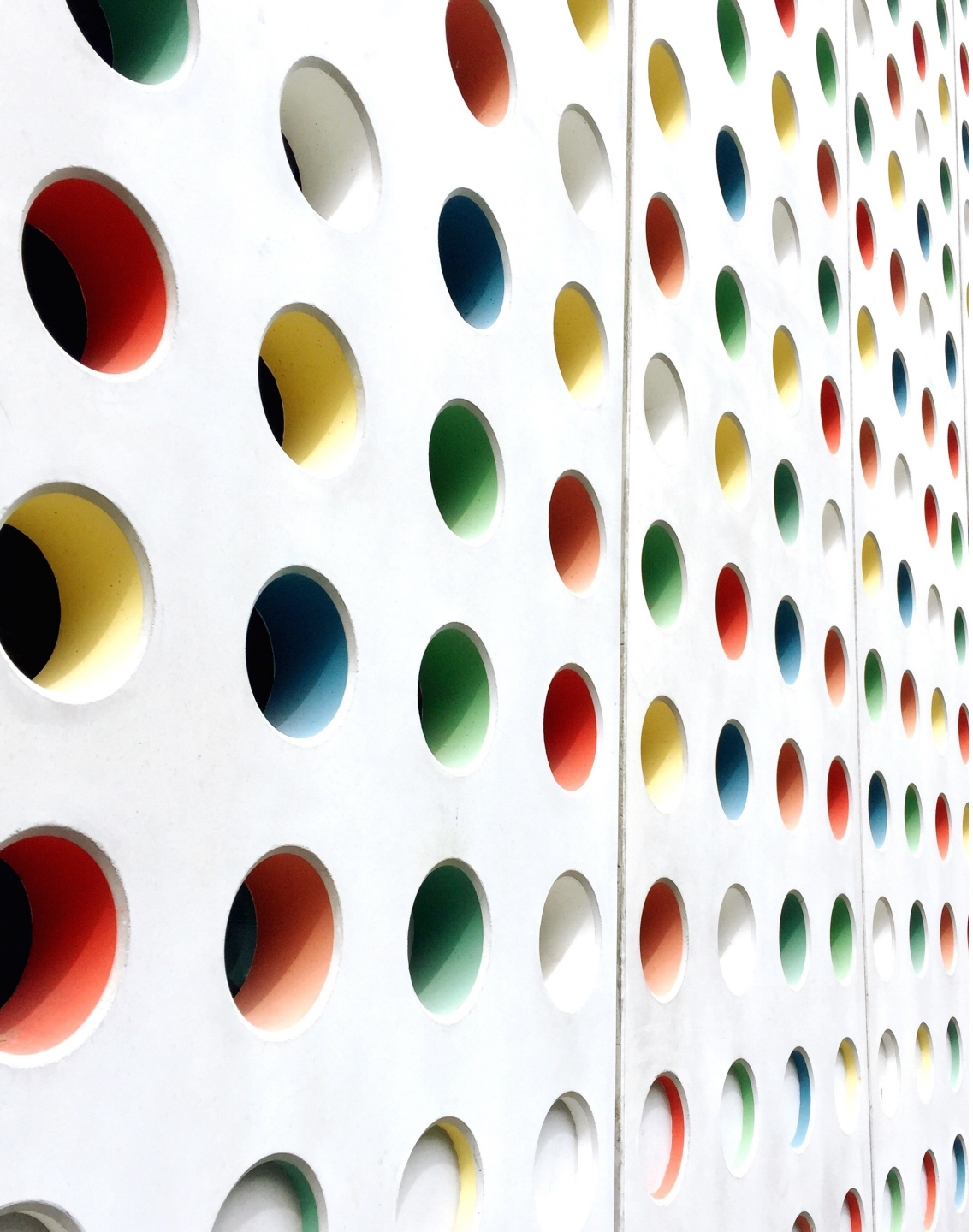

Impact of an automated screening management platform on completion of imaged based screening

DEBRA WHORMS, MD

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PENN RADIOLOGY

PHILADELPHIA PA

Hepatocellular Carcinoma

Over 4 million Americans at risk

FOURTH leading cause of cancer-related deaths

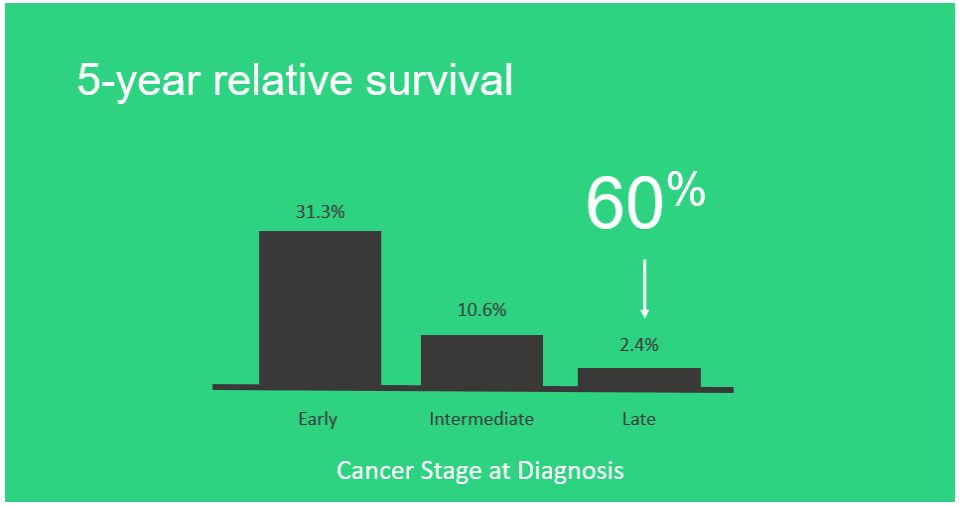
SECOND most lethal cancer: 5 year survival 18%

< 30% receive screening nationally

Wide range of screening compliance:

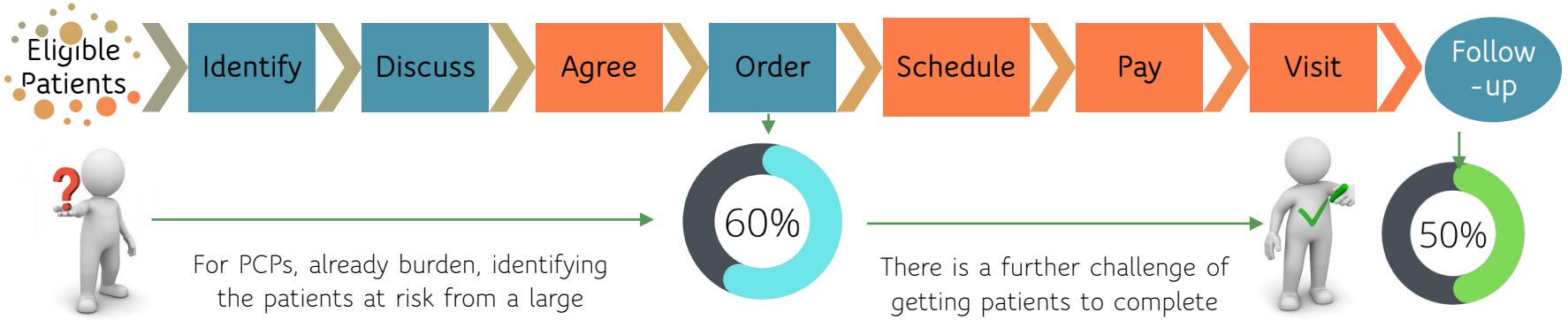
15-20% among PCPs in our practice to 60% among hepatologist

Despite available screening, more than 60% are diagnosed in late-stage disease



1. Singal AG, Yopp A, S Skinner C, Packer M, Lee WM, Tiro JA. Utilization of hepatocellular carcinoma surveillance among American patients: a systematic review. *J Gen Intern Med.* 2012;27(7):861-867. doi:10.1007/s11606-011-1952-x
2. https://www.cdc.gov/nchs/fastats/liver-disease.htm
3. Jemal A, Ward EM, Johnson CJ, et al. Annual Report to the Nation on the Status of Cancer, 1975-2014, Featuring Survival. J Natl Cancer Inst 2017; 109.

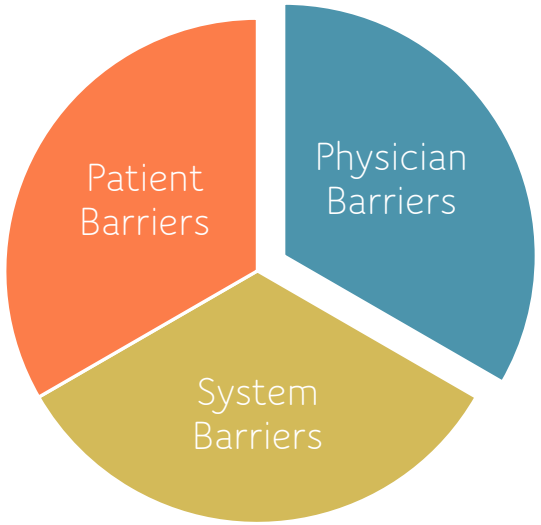
FROM PROBLEM TO SOLUTION



Several successful steps must be taken to get a patient successfully screened and there are several barriers along the way

For PCPs, already burden, identifying the patients at risk from a large cohort and ordering screening is a challenge with only 60% of eligible patients (in our practice) getting appropriate screening order

There is a further challenge of getting patients to complete their screening with only 50% of patients with orders successfully completing screening



Our goal was to design a system to help eliminate the burden of identifying eligible patients, makes it easy to order appropriate screening and easier to follow though

IDENTIFY PRIME ENGAGE

LiveAware

An automated platform to improve imaging-based screening rates and remove the cognitive burden on ordering clinicians

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OUR AIMS:

01

Develop and validate a novel algorithm to automatically identify patients due for imaging-based cancer screening

02

Decrease the cognitive burden on clinicians to order image-based screening

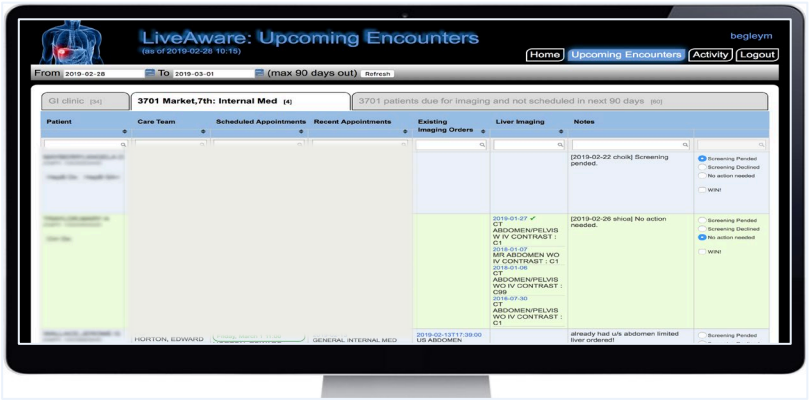
03

Understand and decrease the barriers for patients to complete their screening

LiveAware: HOW IT WORKS

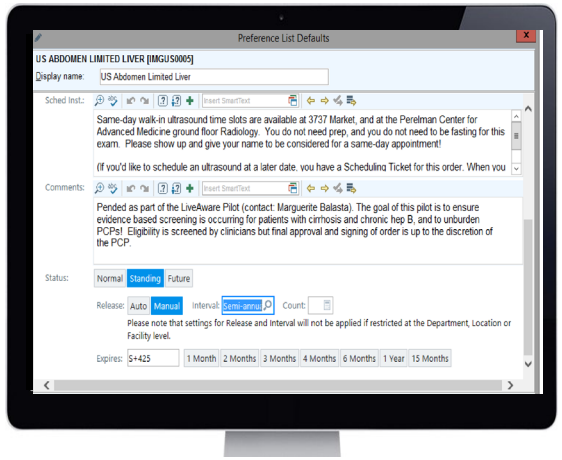
Natural language processing | Patients at Risk | Patients due for screening | Track imaging status | Identify Upcoming PCP Appointment | Create screening order | Engage Patient | Monitor completion

A live dashboard to IDENTIFY patients at risk for HCC using natural language processing and complex queries of the EMR, eliminating the burden on clinicians



IDENTIFY

Next, we sought to improve the number of orders placed for screening by identifying upcoming appointments and pending standing screening orders in patient's medical record only for the clinician to sign



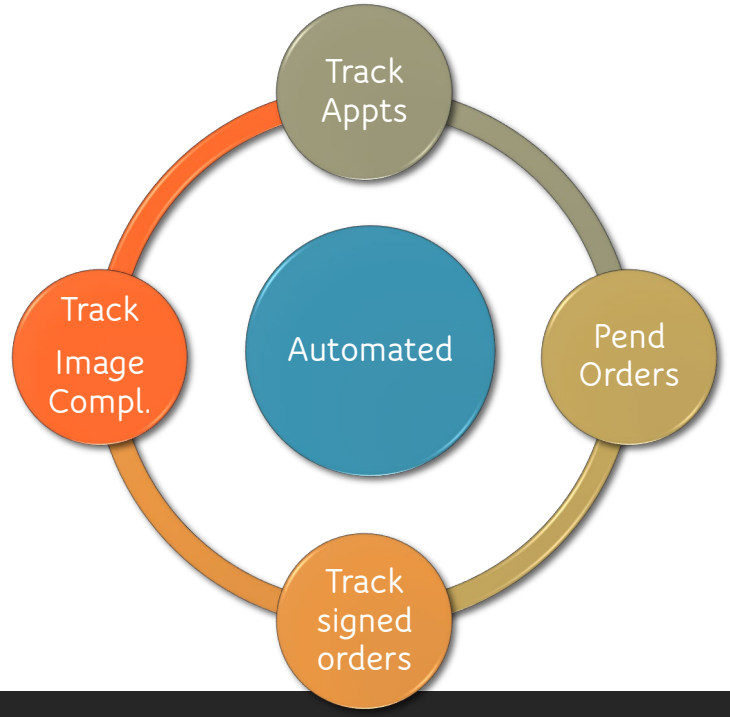
PRIME

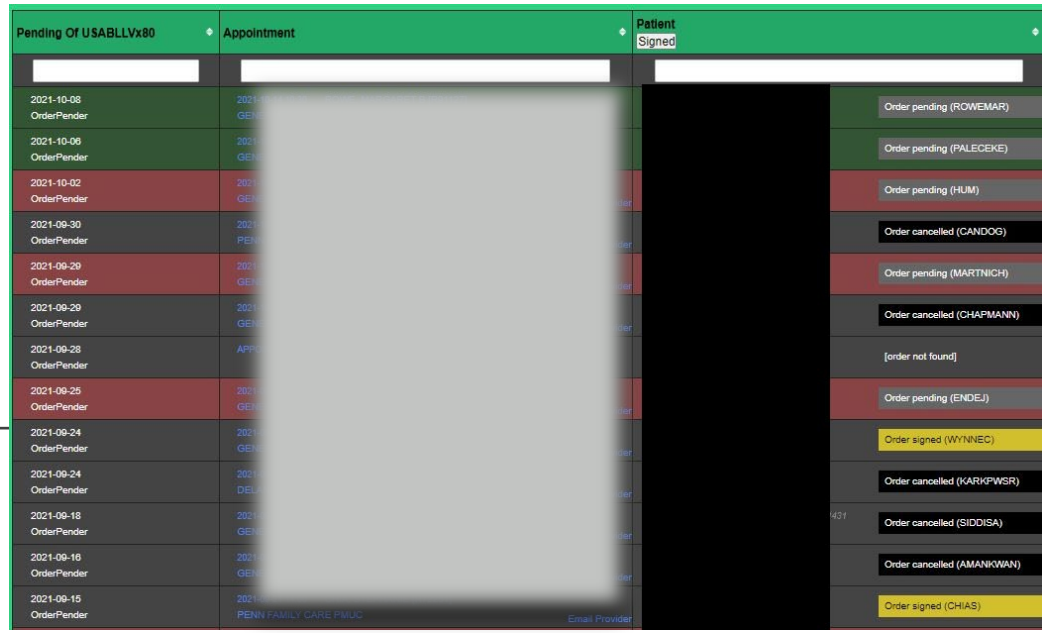
To further increase the chance for screening completion, we communicated with patients to encourage scan completion

ENGAGE

LiveAware

LiveAware, after several iterations, was developed to allow an essentially fully-automated process to identify and track patients





METHODS: THE PILOT

INTERVENTION GROUP

- Phase 1: August 2019: 1 office, 11 physicians
- Phase 2: November 2019: 7 primary care offices
- 1084 At-Risk Patients

CONTROL GROUP

- January 2019-Current: 1 PCP office
- 35 at-risk patients

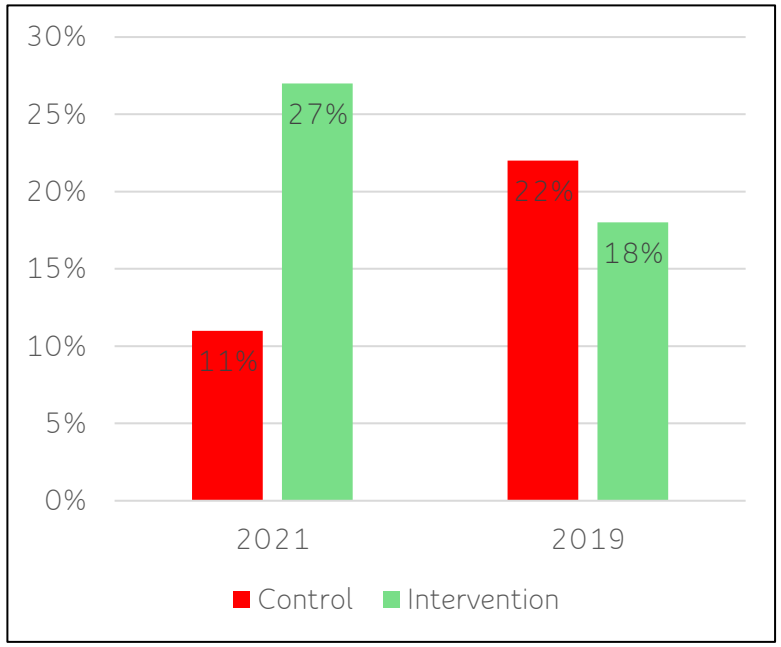
OUTCOMES

- Signed orders in control verses intervention group
- Completed orders in the control verses intervention group

- At Risk Patients:
  - *Patients with cirrhosis, chronic Hepatitis B or Hep C*
- Compliance:
  - *Any liver imaging)Abdominal US, MRI, liver CT) within 7 months (recommended interval + 1 month)*
- *Baseline:*
  - *January 2019*

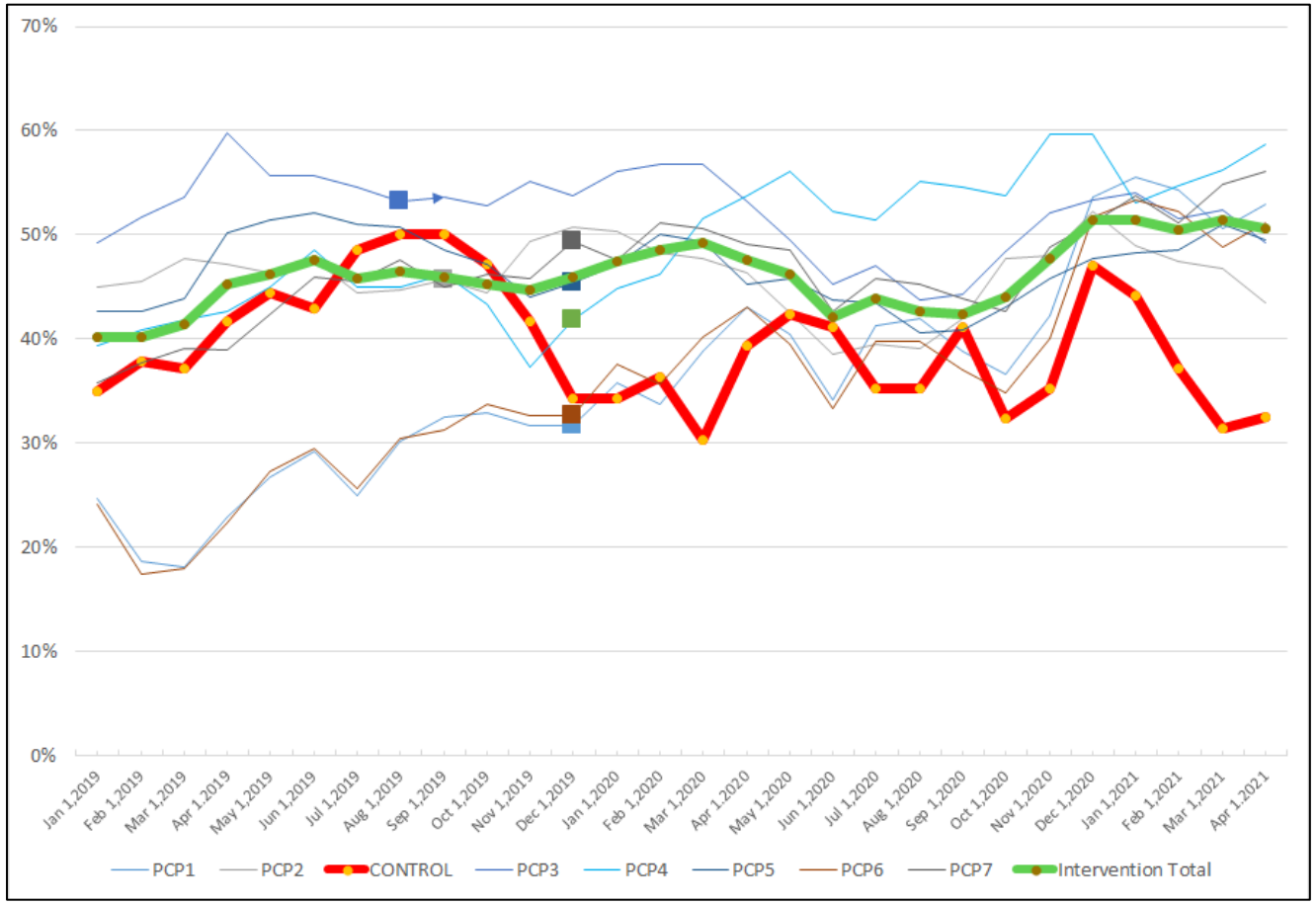
Preliminary Results

Percent Completed Orders



While we see improvements in screening orders placed, the number of completed orders continue to fluctuate.

Percent Signed Orders



** The COVID Pandemic may have impacted the trends, especially between April and June 2020, when many elective imaging appointments and PCP visits were canceled or rescheduled.

DISCUSSION

CONCLUSIONS

An automated screening dashboard is viable

May be impactful in screening and follow-up management

May help to off cognitive burden on primary care providers

LIMITATIONS

- Signed order does not translate to completed screening
- Small size of control practice
- Covid Pandemic

FUTURE DIRECTIONS

- Identify physician barriers to signing orders
- Identify and address patient barriers between order and screening completion
- Explore other ways to utilize follow-up platform
- Identify and expand into clinics that might benefit.

THANK YOU

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