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2020

SEPTEMBER 14-17, 2020

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Targeted Advance Care Planning and Multi-Disciplinary Care Using Machine Learning

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Disclosure Information

- Vizient will insert this required Continuing Education information

Learning Objectives

- Describe a machine-learning model to identify patients at risk for mortality
- Explain how the model allows for more efficient use of resources such as in the area of coding and documentation improvement



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The Current Problem

- Advance Care Planning (ACP) is under utilized
- Only ~1/3 of American adults have completed an advance directive
- Current care processes and documentation are inadequate
- Medical complexity is increasing
- Providers are imperfect prognosticators
- Predictive models have now been developed to assist in clinician prognostication of patients and help identify patients that may benefit from advance care planning

What is Advance Care Planning

- Goals of Care are only part of the conversation
 - DNAR does not convey patient’s values/preferences/goals at the end of life
- Definition
 - *“Advance care planning (ACP) is a process that supports adults at any age or stage of health in understanding and sharing their personal values, life goals, and preferences regarding future medical care”*
- Goal
 - *“The goal of ACP is to help ensure that people receive medical care that is consistent with their values, goals, and preferences”*

Benefits of Advance Care Planning

- Support patient self-determination
- Document patient wishes
- Increase family awareness of patient preferences
- Increase patient satisfaction
- Decrease family burden and stress
- Increase likelihood of death at their preferred location
- Increase quality of care at the end of life
- Increase patient comfort and quality of life

Our Solution

- Utilize a validated machine learning model
- Identify high-risk patients to benefit from ACP
- Create a standardized ACP workflow
- Develop a standardized ACP documentation template
- Integrate a multi-disciplinary approach to improve quality of care and outcomes

Project Goals

- Document patient wishes, goals, and care preferences
- Increase family awareness of patient preferences
- Provide the right care at the right time in the right setting
- Increase quality of care at the end of life
- Increase patient comfort and quality of life

Machine Learning Model

- Developed by Duke Institute for Health Innovation
- Predicts risk of current inpatient, 30-day and 6-month mortality
- Based on available information up to the time of admission

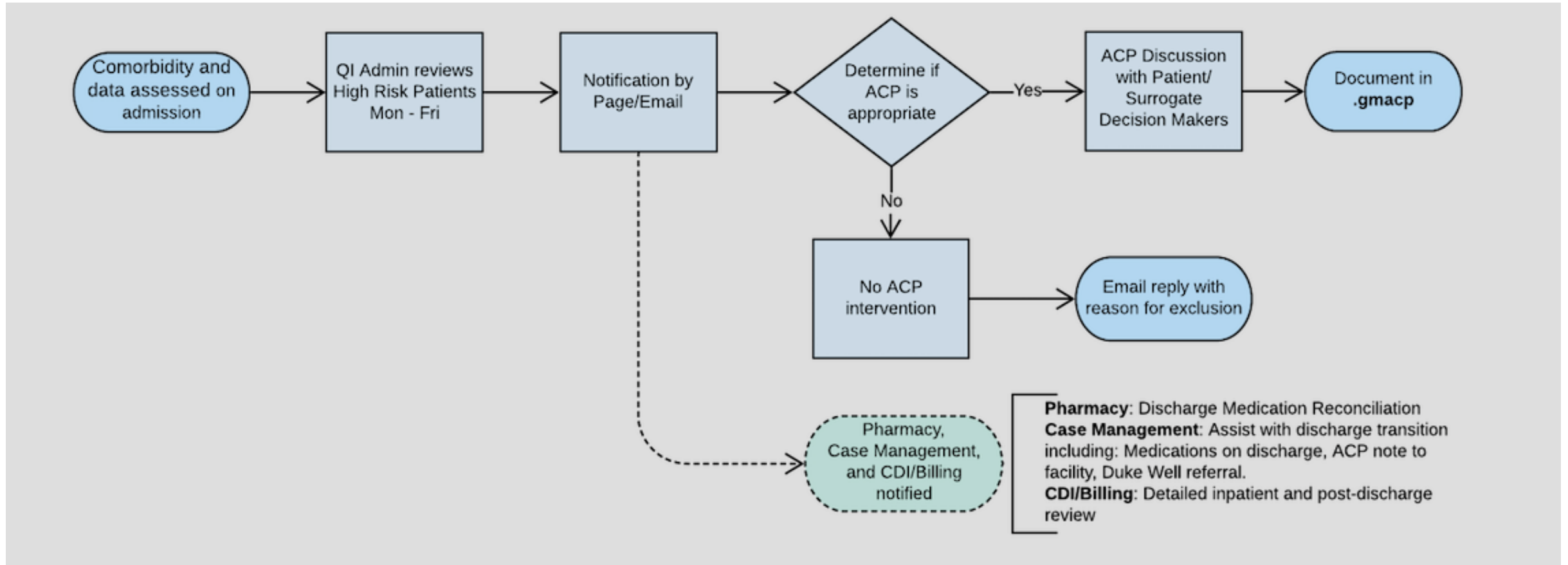
Pre-Encounter Data

- Prior diagnoses
- Prior procedures
- Prior encounter information

Emergency Dept. Data

- Medication administration
- Laboratory data
- Vital signs

Workflow



Multidisciplinary Approach

- Case Management
 - Assist with discharge resources
 - Participate in ACP conversations
 - Forward ACP documentation to discharge facility
- Pharmacy
 - Complete discharge medication reconciliation
- Clinical Documentation Improvement
 - Review documentation to ensure patient's condition and complexity is accurately reflected

Timeline

- Initiated pilot on hospitalist only general medicine teams for admissions 11/18/19 to 2/14/20
- Server updates and COVID-19 paused notifications until 3/26/20
- Pilot expanded to general medicine teaching teams on 3/26/20

Non-Teaching Team Results

Admission Dates: 11/18/19 to 2/14/20

Measure	Response
ACP Note Completion Rate	52% (16 of 31 notifications sent)
Code Status Change from Full Code to DNAR	19% (6 of 31 notifications sent)
Average Days between notifications and ACP Note filed	0 to 1 day

Note: During this same time period, 16 cases were identified that would have met criteria for the Teaching Team and none of them had an ACP Note filed or a Code Status change from Full Code to DNAR.

Non-Teaching Team Results

Admission Dates: 3/24/20 to 6/30/20

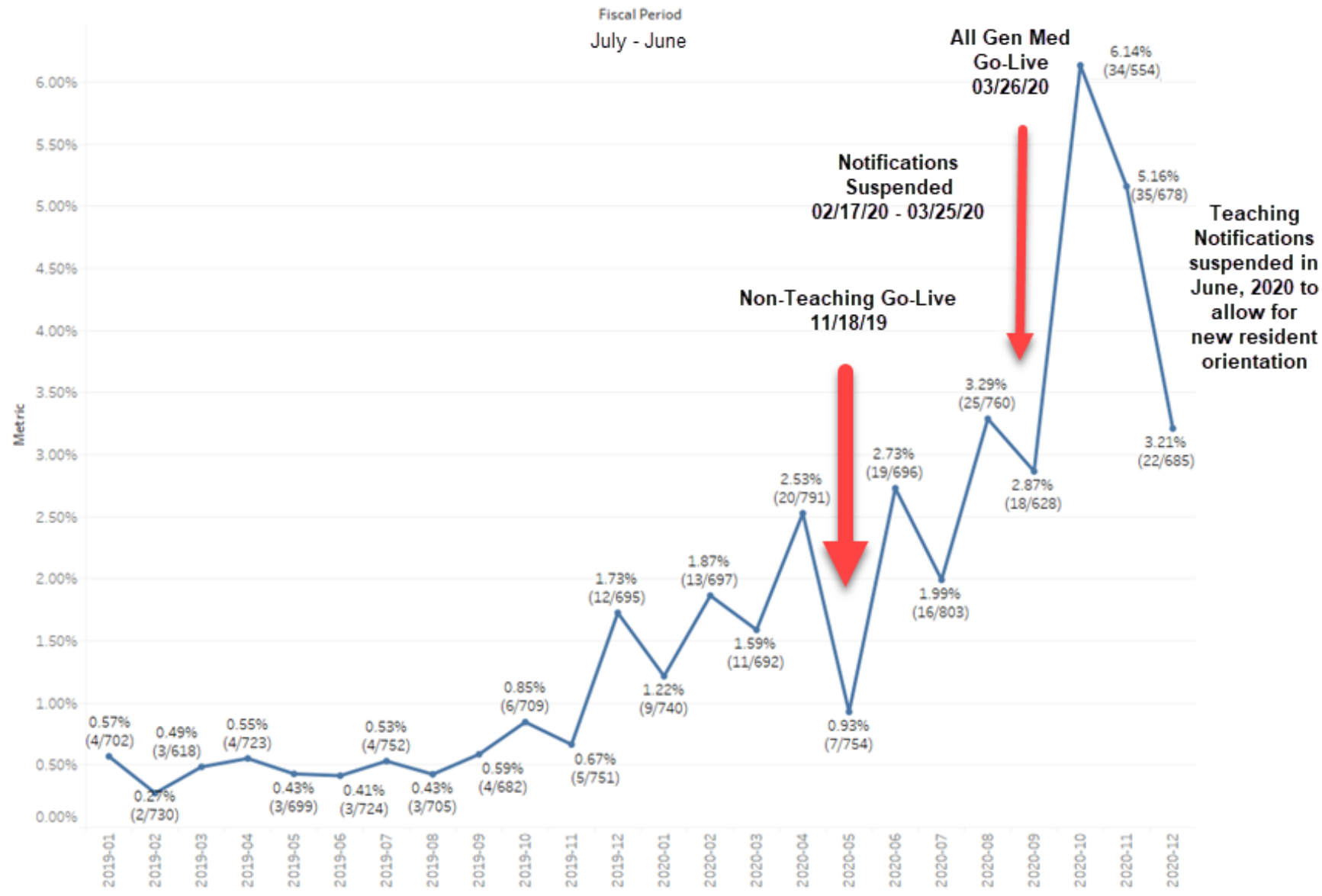
Measure	Response
ACP Note Completion Rate	34% (28 of 82 notifications sent)
Code Status Change from Full Code to DNAR	15% (12 of 82 notifications sent)
Average Days between notifications and ACP Note filed	0 to 1 day

Teaching Team Results

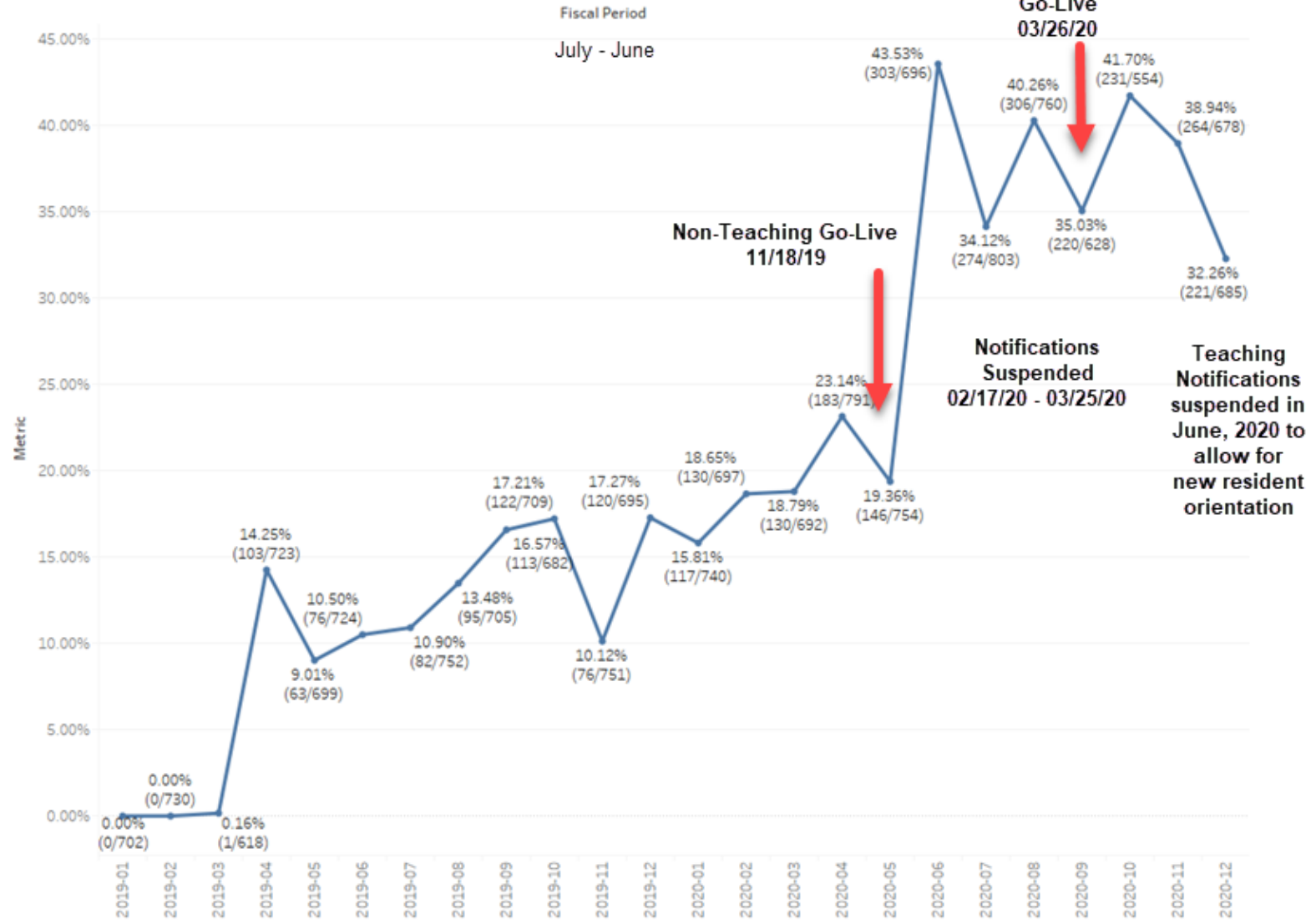
Admission Dates: 3/24/20 to 6/30/20

Measure	Response
ACP Note Completion Rate	22% (20 of 93 notifications sent)
Code Status Change from Full Code to DNAR	13% (12 of 93 notifications sent)
Average Days between notifications and ACP Note filed	0 to 1 day

% ACP Note



% Discharge Med Rec



Lessons Learned

- Provider education and input is vital to any project
- Provider feedback continues to help improve and refine our process
- COVID-19 creates additional barriers and challenges to ACP
- Appropriate documentation allows easy reference and continuation of care conversations across different encounters and different providers
- Advance care planning practice patterns expand beyond our patient notifications

Key Takeaways/To Dos

- Takeaways

- Use of a machine-learning model can aide in directing limited resources to a high-risk patient population
- Use of a notification system and provider education can increase advance care planning utilization

- To Dos

- Create an automated notification process
- Analyze provider interviews to understand current barriers to ACP
- Improve provider education
- Expand project to other service areas

Questions?



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