

Impact of Value-Driven Outcomes Projects on Quality Improvement and Cost Reduction: Evidence from a Quasi-Experimental Evaluation

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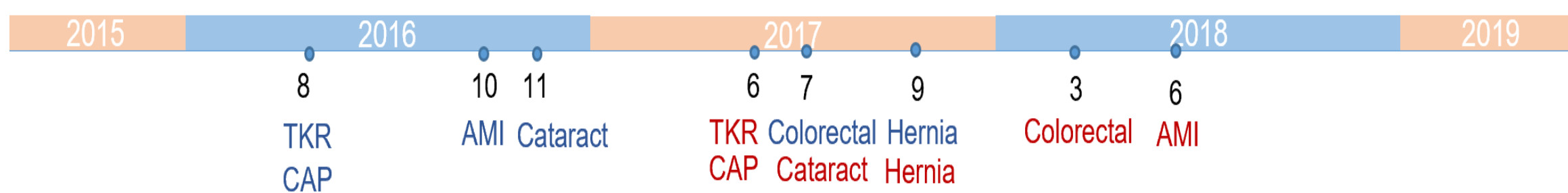
Introduction

- Globally, healthcare institutions are confronted with the challenge of how to improve clinical quality and outcomes for patients in a system with finite resources.
- Partial observability** of quality of care and costs makes it difficult
- Value-driven initiatives** aim to facilitate optimal care at affordable costs
- NUHS Value-Driven Outcomes (VDO) initiative**
 - NUHS implemented the VDO framework in 2016
 - Since inception, over 70 VDO projects have been initiated
 - Information gathered from these projects is shared with clinical team, enabling data-driven changes to care pathways
 - The VDO team provides monthly episode-based dashboard of quality and costs of comparable patient cohorts to clinicians

Hypothesis: Does Value Driven Outcomes (VDO) have significant effect on quality of care and cost?

Method

- NUHS VDO projects were instituted at NUH+ and NTFGH+, by central VDO Office across NUHS cluster at different time points
- This phase-in feature at two different sites creates a quasi-experimental setting to causally identify the impacts of NUHS VDO using Difference-in-Differences models (See Fig 3)
- Total of ~66,000 patient encounters from 2015 to 2019 from the following projects: Total Knee Replacement (TKR), Cataract, Colorectal, Hernia, Acute Myocardial Infarction (AMI), Community-Acquired Pneumonia (CAP)
- Data from 2015 are used as baseline before implementation of VDO.



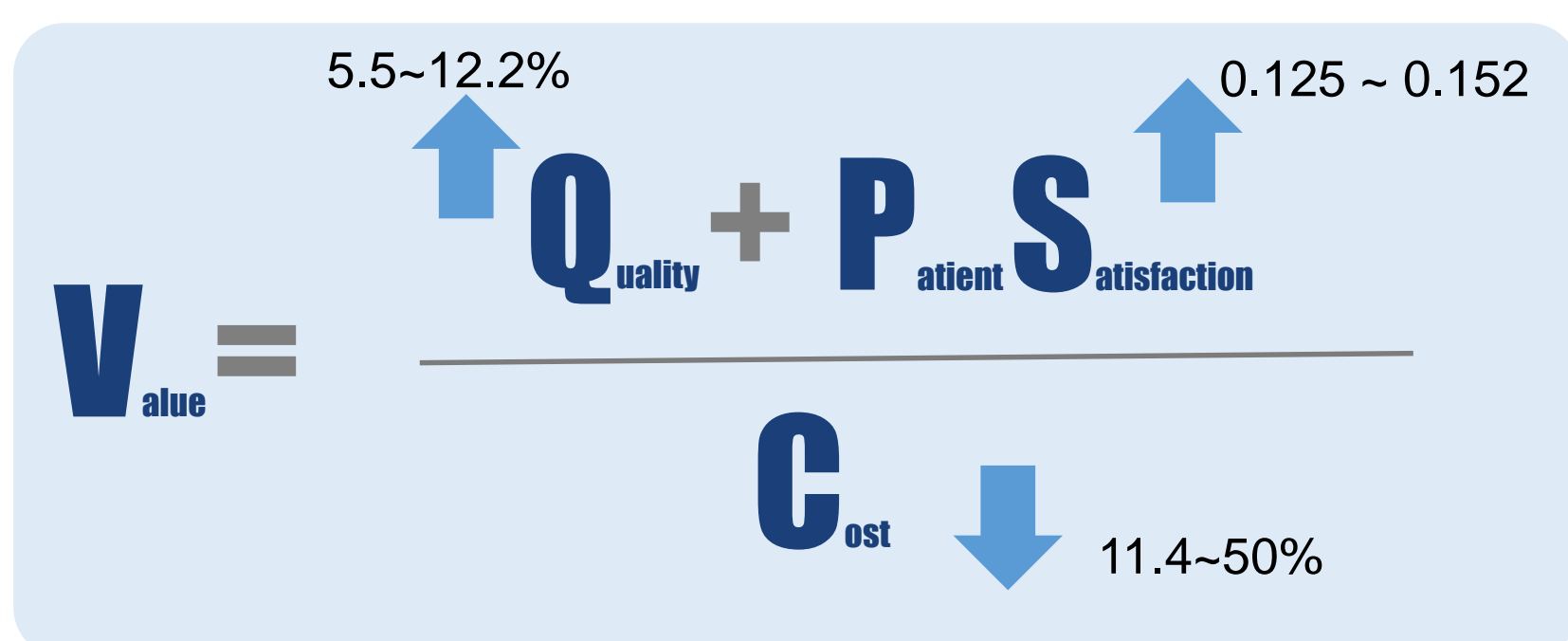
This timeline shows the month of the first VDO report in each hospital. Blue represents the VDO projects in NUH. Red represents the VDO projects in NTFGH.

Fig 3. Timeline of VDO Projects

Results

	TKR	CAP	AMI	CAT
Log(Quality)	0.122***	0.055***	0.075*	0.110***
Log(Cost)	-0.299***	-0.114^	-0.338*	-0.500***

*** p<0.001, ** p<0.01, * p<0.05, ^ p<0.1



Conclusions

- VDO projects improve quality of care without compromising cost or patient satisfaction
- Empowering clinicians by involving them in throughout the VDO projects and sharing relevant and accurate data to stakeholders in a timely manner are two key success factors of VDO projects.

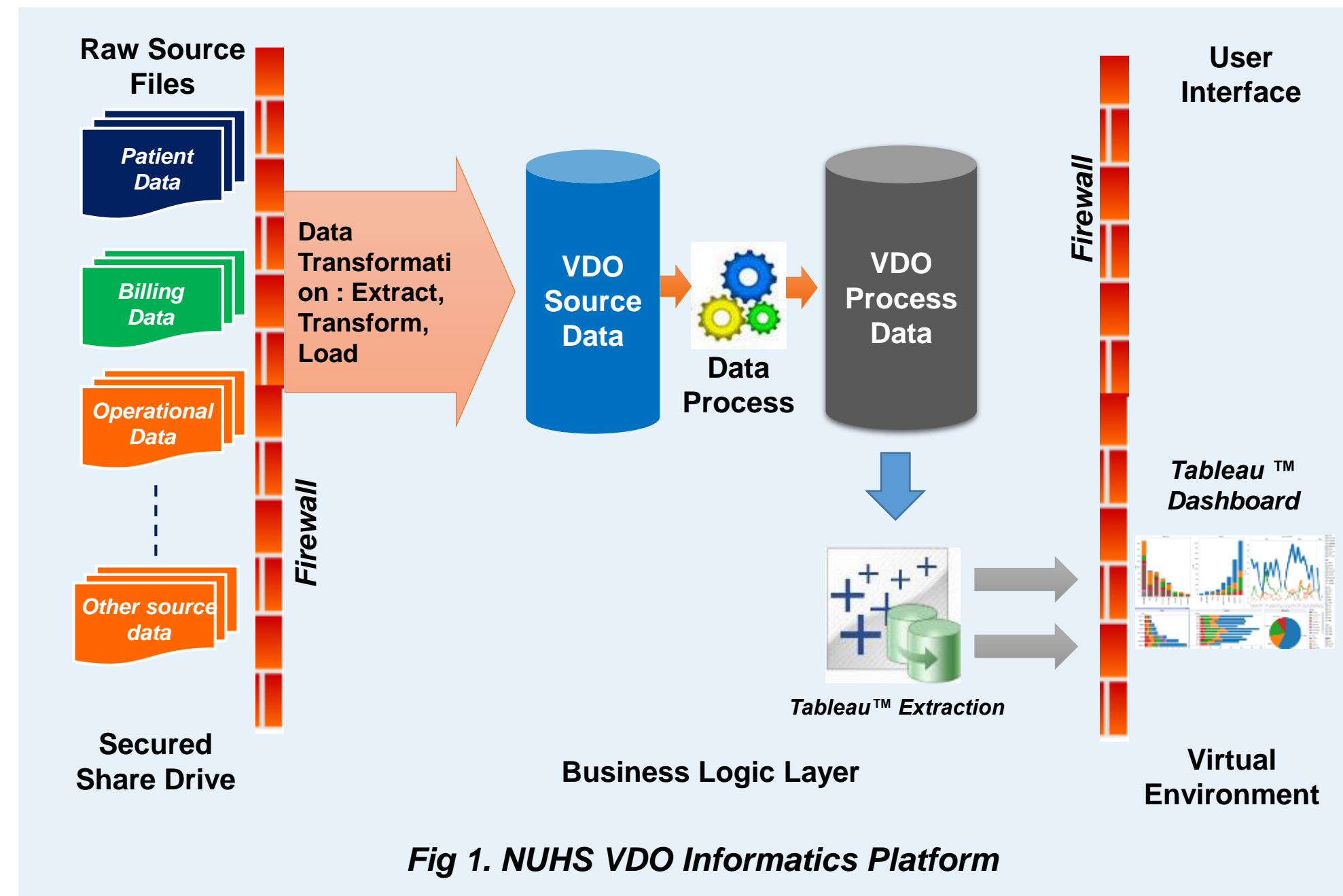


Fig 1. NUHS VDO Informatics Platform

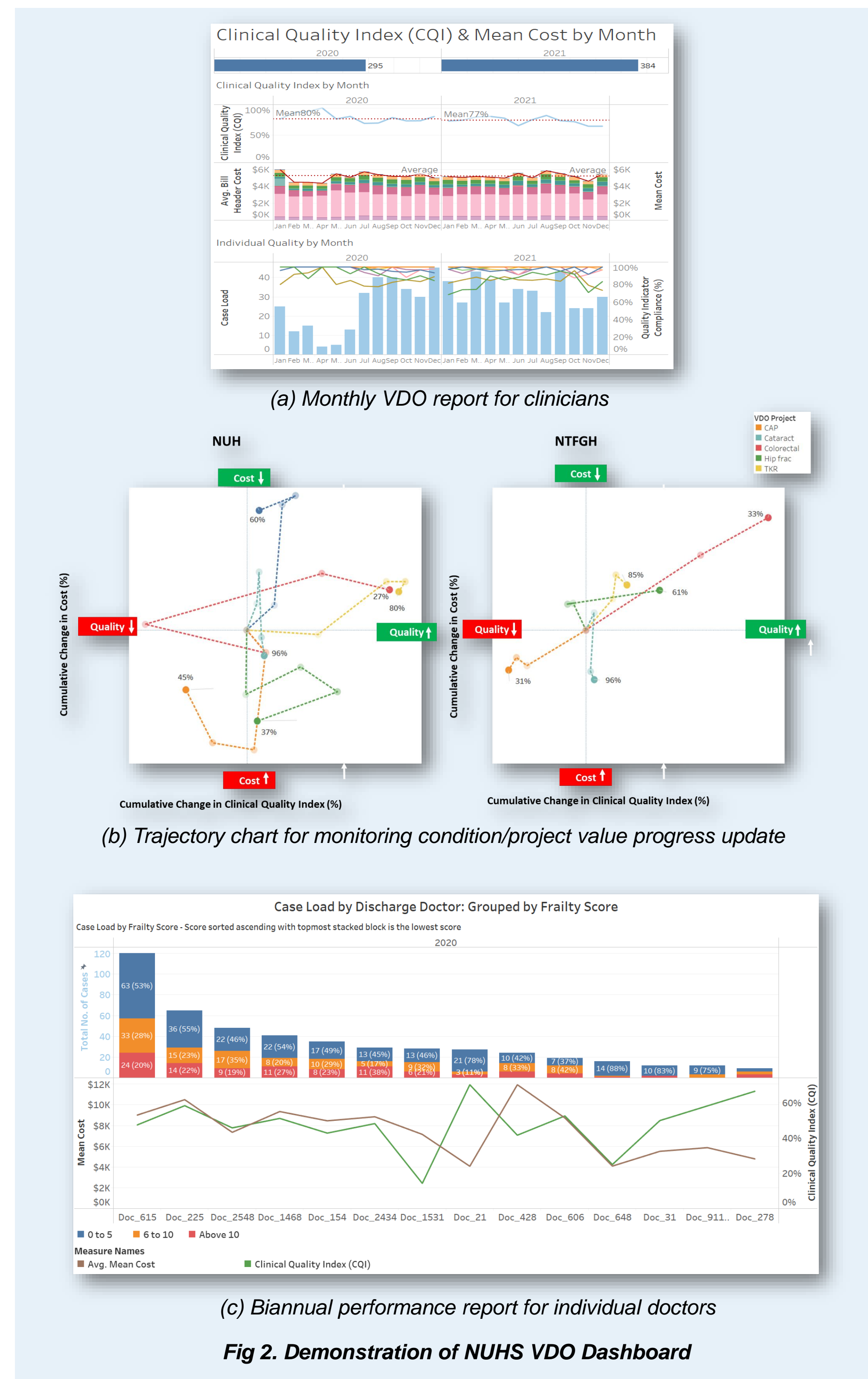


Fig 2. Demonstration of NUHS VDO Dashboard