

Non Invasive Imaging Quality Metrics

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Imaging Quality Metrics

- Standardize practice, identify gaps
- Learning environment – continued improvement image acquisition and reporting
- Process evaluation
- Evaluation of appropriate use of modality
- Evaluation of outcomes – critical reporting



Noninvasive QM Members

- **Terri Tacy (Stanford)**
- Sowmya Balasubramanian (Michigan)
- Seda Tierney (Stanford)
- Katie Jo Stauffer (Stanford)
- Sarina Behera (Stanford)
- Ann Kavanaugh-McHugh (Vanderbilt)
- Daniel Saurers (Vanderbilt)
- **David Parra (Vanderbilt)**
- **Ritu Sachdeva (Emory)**
- Eric Ferguson (Emory)
- Joe Kreeger (Emory)
- **Rick Michelfelder (Emory)**
- Lowell Frank (DC)
- Lisa Hom (DC)
- Angira Patel (Chicago)
- **Luciana Young (Seattle)**
- Joe Camarda (Chicago)
- Mike Puchalski (Salt Lake)
- Puneet Bhatla (NYU)
- Beth Printz (San Diego)
- Divya Suthar (Atlanta)
- Anita Moon Grady
- Mary Donofrio
- **Craig Fleishman (Orlando)**
- Nao Sasaki (Miami)
- Leo Lopez (Miami)
- **Kenan Stern (Mount Sinai)**
- Mark Fogel (CHOP)
- Shobha Natarajan (CHOP)
- Vivek Allada (Pittsburgh)
- **Oscar Benavidez (MGH)**
- Cathy Webb (Michigan)
- Phil Spevak (Johns Hopkins)
- Sarah Chambers (Mednax)
- John Kovalchin (Columbus)
- **Anitha Parthiban (Kansas City)**
- **Pei-Ni Jone (Denver)**
- Alicia Chaves (Maryland)
- Puja Banka (Boston)
- Michael Pettersen (Mednax)
- Matt Park (Mednax)
- Mike Brook (UCSF)
- Sujhata Buddhe (Seattle)
- **Nadine Choueiter (Montefiore)**
- **Shubhika Srivastava (Mount Sinai)**



Overview of Imaging QMs

- Developed by over 50 members – QM-development working group with ACPC
- Metrics approved and endorsed by ASE, SOPE, FHS



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Imaging QM

- #025 Echocardiography Diagnostic Accuracy
- 03.11.2018
- #026 Initial Transthoracic Echocardiogram Image Quality
- 03.11.2018
- #027 Comprehensive Echocardiographic Examination
- 03.11.2018
- #028 Application of the Pediatric Appropriate Use Criteria (AUC) To Initial Outpatient Echocardiogram Orders
- 01.01.2021
- #029 Quality Metric TEE 1: Accuracy of Pediatric Pre-Cardiac Surgery Transesophageal Echocardiogram (3 Sites)
- 01.01.2021
- #030 Quality Metric TEE 2: Transesophageal Echocardiogram Adverse Events
- 01.01.2021 (2 Sites)
- #031 Diagnostic Accuracy of Fetal Echocardiography
- 04.01.2021
- #032 Prenatal Detection of Severe Structural Congenital Heart Defects
- 04.01.2021
- #033 Comprehensive Fetal Echocardiographic Examination
- 04.01.2021



Non Invasive Imaging Quality Metrics

Approved and posted 2016

Critical Results Reporting QM

Sedated Echo Adverse Events QM

Approved and Posted after ACC 2018 (has been through > 3 cycles of data submission)

TTE Comprehensive Study QM

TTE Image Quality Metric

Diagnostic Accuracy QM



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New Quality Metrics : Pilot testing- 2021

Comprehensive Fetal Echo Study QM

Fetal Echo Diagnostic Accuracy QM

Prenatal Detection of Critical CHD QM

~~Critical Fetal Results Reporting QM~~

Initial Fetal Echocardiogram Image Quality Metric

~~Cardiac MRI (CMRI) study reporting for Lesion
specific CHD (TOF).~~



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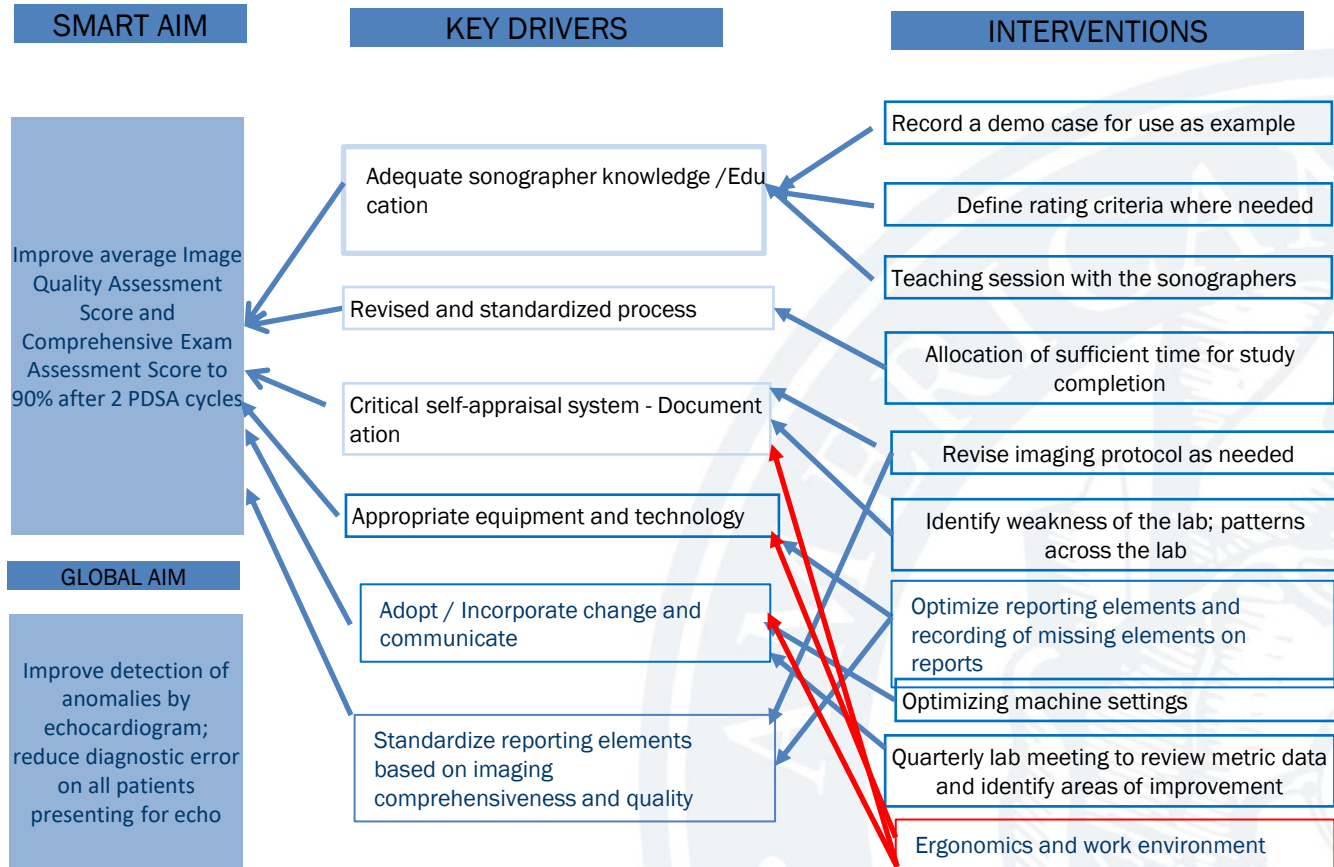
Lessons Learned : Pilot Testing

- How to develop a self explanatory metric
- Understand and share process involved
- Institutional variability – and how each Institution can use the Metric to inform change
- Education needs regarding the required standards



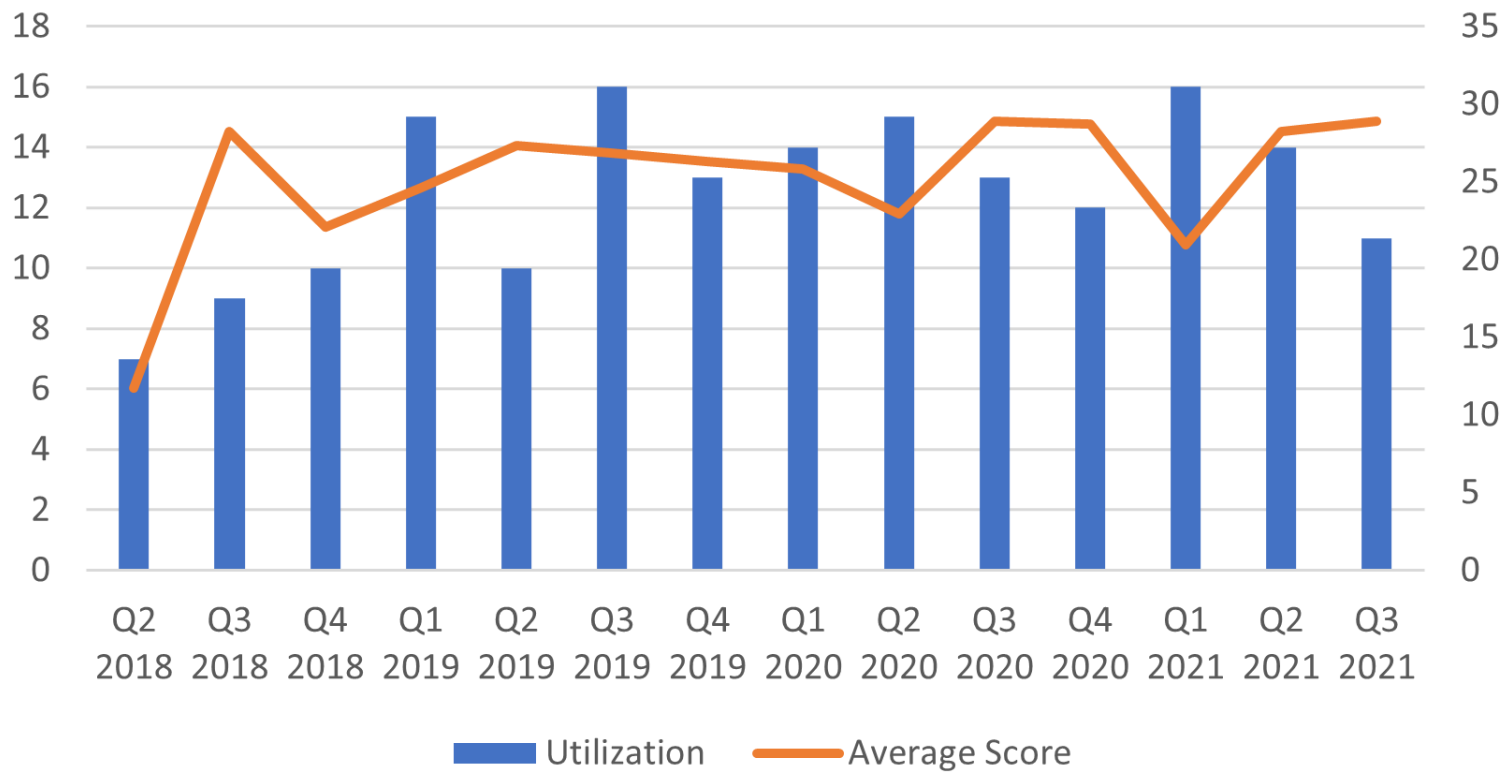
Key Driver Diagram

Fetal Comprehensiveness/Quality Metric

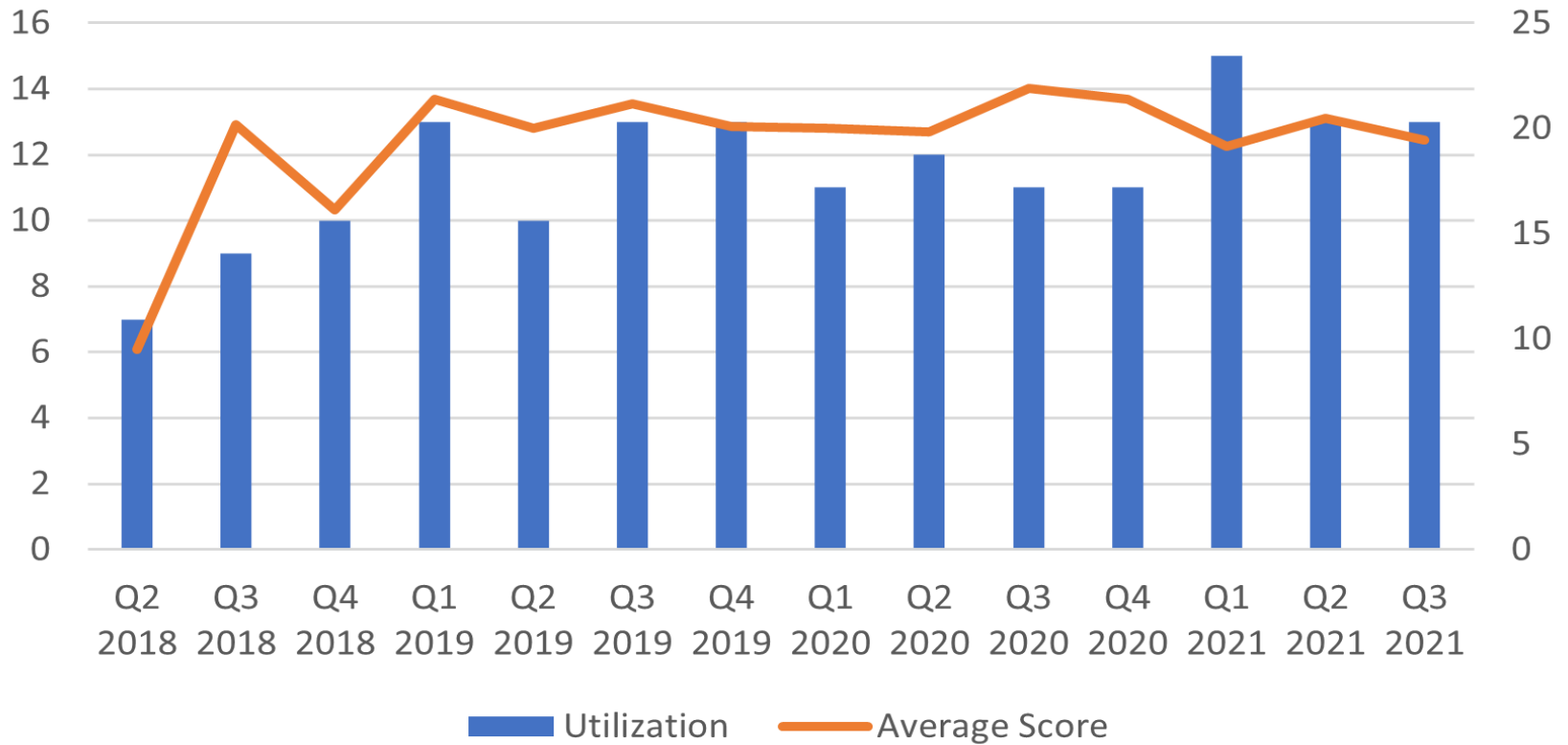


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Metric 27: Comprehensive Echocardiographic Examination



Metric 26: Initial Transthoracic Echocardiogram Image Quality



Non Invasive Imaging Quality Metrics

	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020
	52 Sites Enrolled				33 Sites Enrolled	
#004 Non-invasive Imaging: Critical Results Reporting in Pediatric Echocardiography	0	0	0	0	2	0
#005 Non-invasive Imaging: Adverse Events with Sedated Pediatric Echocardiography	6	4	2	4	5	0
#009 Echocardiogram for exertional chest pain	14	13	10	10	9	2
#019 Kawasaki Disease: Complete Echocardiogram Evaluation	17	13	10	11	9	2
#021 Echocardiogram performed during the first year of life for ASO Patients	6	4	3	4	5	1
#025 Echocardiography Diagnostic Accuracy	9	7	10	8	10	2
#026 Initial Transthoracic Echocardiogram Image Quality	13	12	13	14	11	2
#027 Comprehensive Echocardiographic Examination	15	12	16	16	14	3



Conclusion

- QM use allow an institution to evaluate practice and process and compare within and to others
- Allows standardization of clinical practice
- Allows process improvement
- Assess diagnostic errors
- Critical and adverse event reporting
- Span all imaging modalities

