

Deliberate Practice and Process Analysis in DIEP Flap Breast Reconstruction: An Immediate and Sustained Decrease in Morbidity and Operative Time



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BACKGROUND

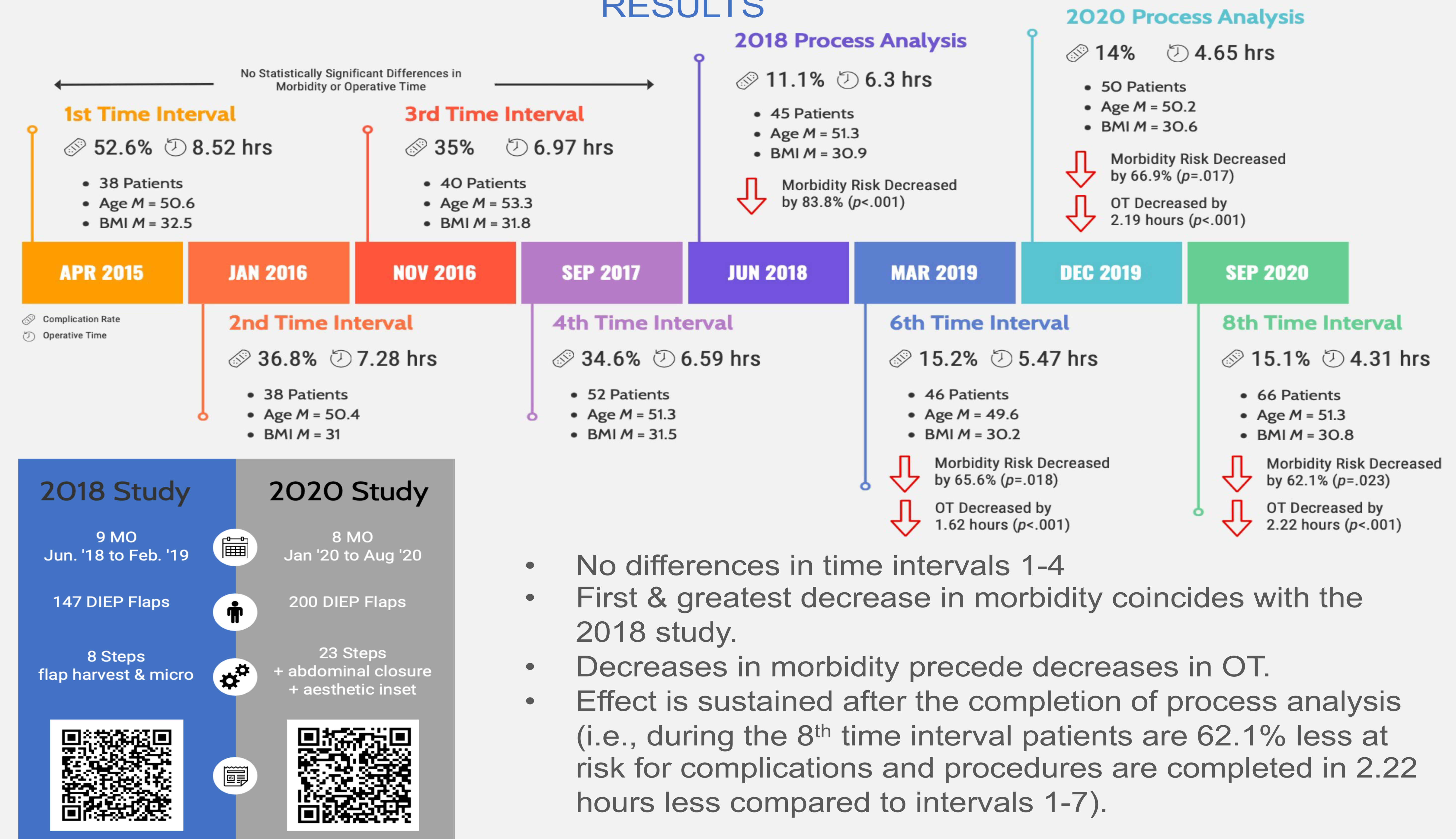
- Deep inferior epigastric perforator (DIEP) flap is the gold standard for autologous breast reconstruction.
- Operative efficiency can be a sensitive barometer for complications, pain, length of stay and aesthetic outcomes.
- Various industries and surgical disciplines leverage process mapping and analysis to identify inefficiencies.
- Senior authors (N.T.H. and S.S.T.) implemented two prospective process analysis studies and defined steps critical to maximizing safety and efficiency in DIEP flaps.

This study objectively evaluates process analysis as a toolkit for immediate and sustained decrease in operative time and morbidity in DIEP flap reconstruction.

METHODS

- 375 bilateral DIEP flap patients were divided into eight consecutive 9-month intervals completed before, during and after the two studies (April 2015 to May 2021).
- Two models: risk-adjusted multivariate regressions with a Difference contrast and GLM with a Repeated contrast.
- Morbidity included any major flap, donor-site or medical complications requiring treatment in clinic or OR.
- All continuous and categorical covariates were normally distributed across all time intervals.

RESULTS



- No differences in time intervals 1-4
- First & greatest decrease in morbidity coincides with the 2018 study.
- Decreases in morbidity precede decreases in OT.
- Effect is sustained after the completion of process analysis (i.e., during the 8th time interval patients are 62.1% less at risk for complications and procedures are completed in 2.22 hours less compared to intervals 1-7).

Process mapping and analysis in DIEP flap reconstruction can lead to immediate and sustained decreases in morbidity and operative time.