Supplement to *Dagogo-Jack et al.*

Clinical Utility of Rapid EGFR Genotyping in Advanced Lung Cancer

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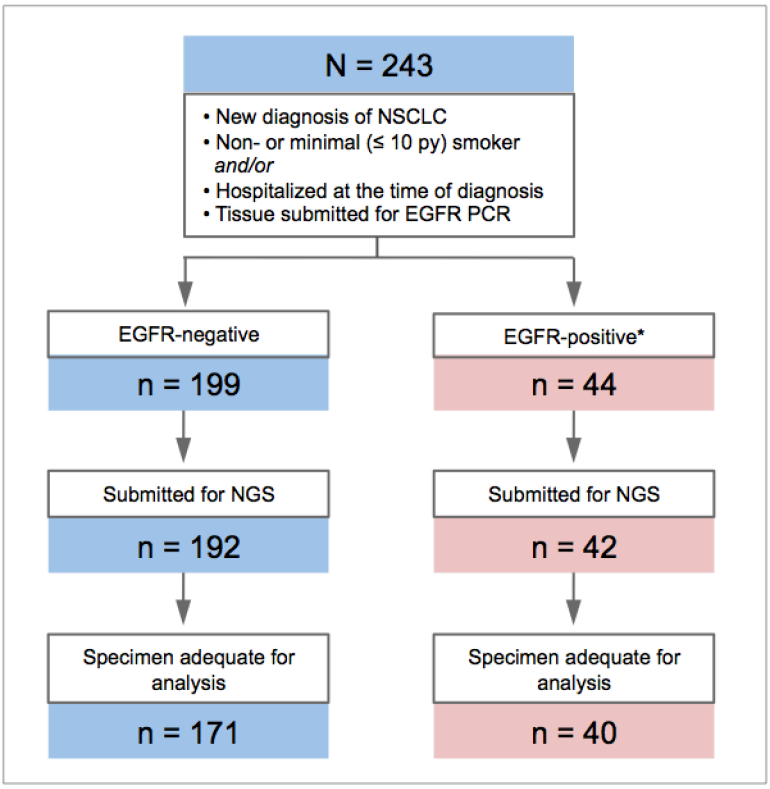
Supplemental Figures

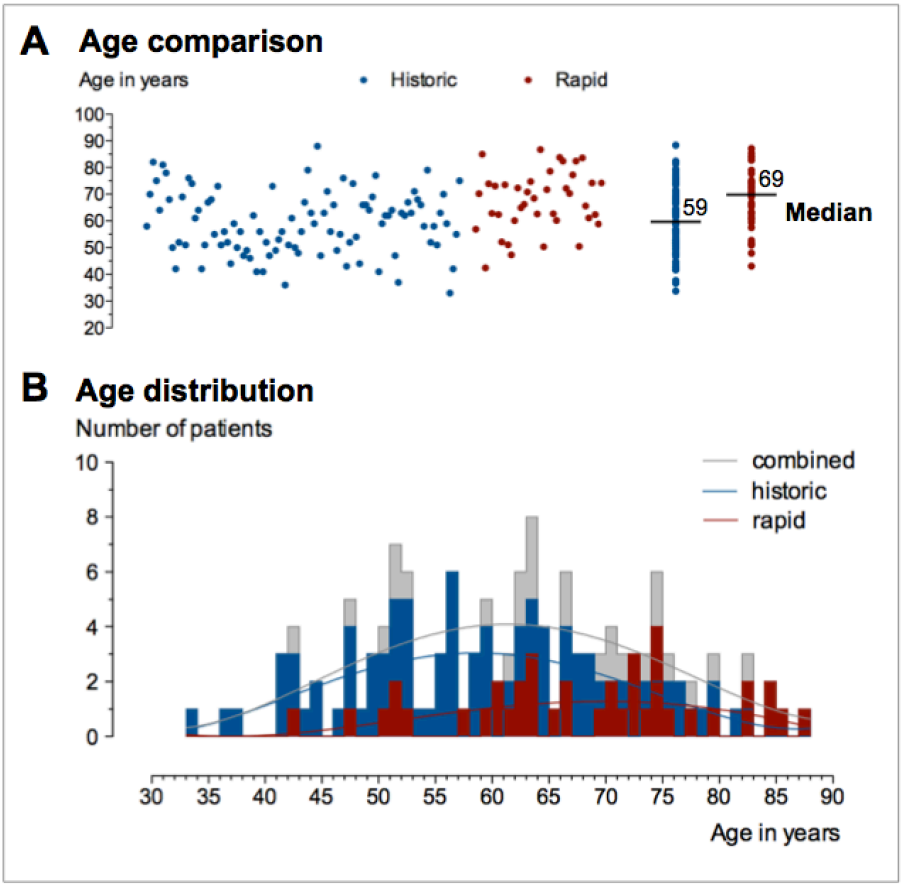
Supplemental Tables

Supplemental Figure 1. Inclusion criteria, patient numbers, and EGFR results

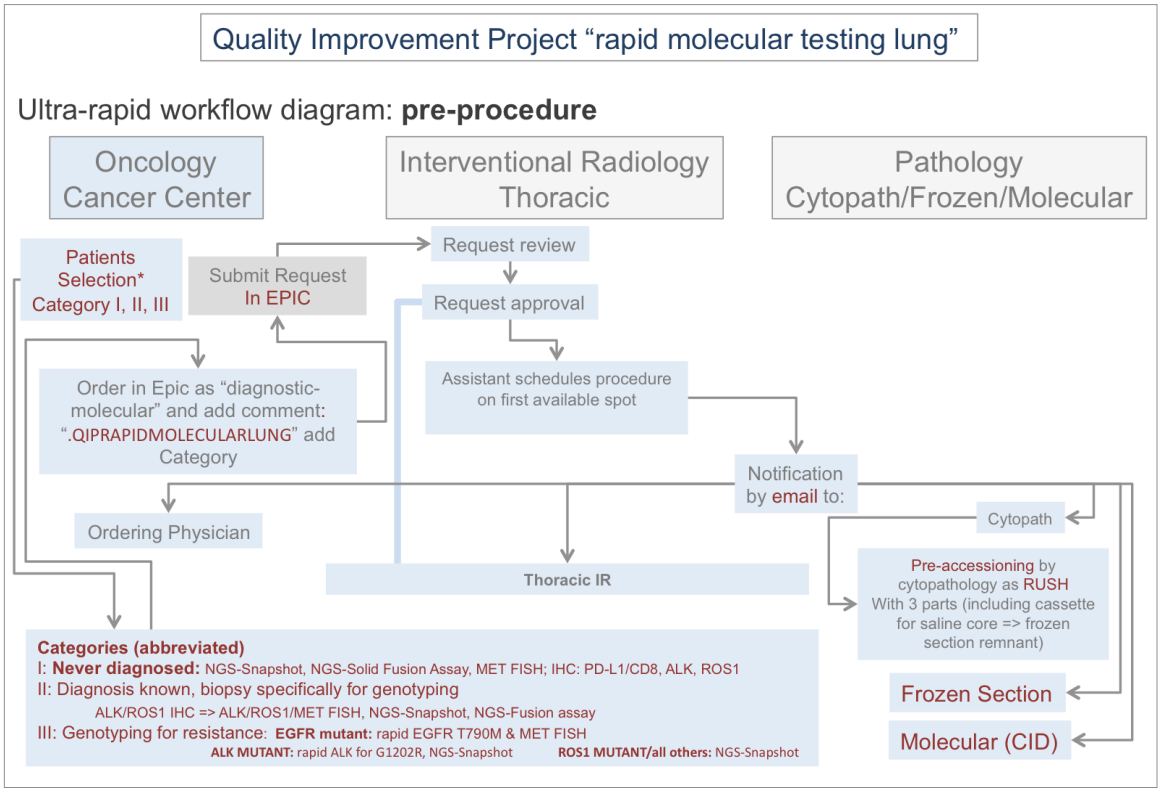


**Includes one patient with a non-canonical EGFR exon19del*

Supplemental Figure 2. Age comparison and distribution between cohorts.



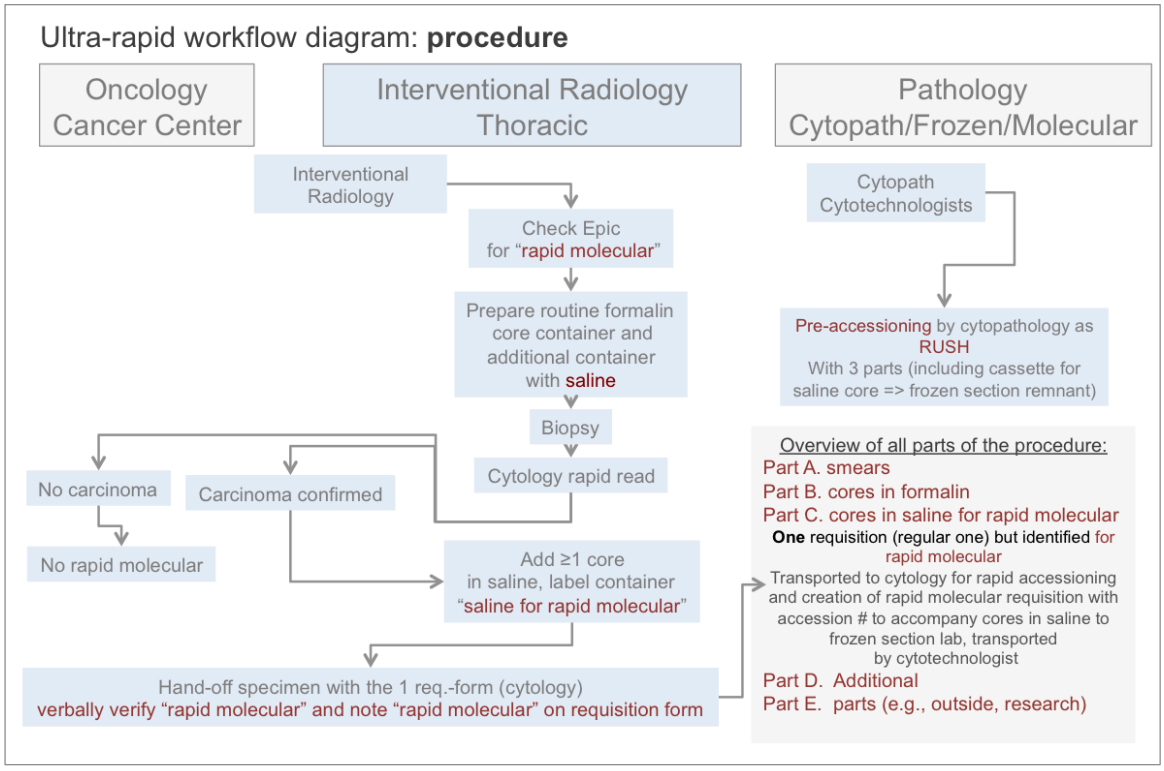
Supplemental Figure 3. Ultra-rapid workflow: pre-procedure



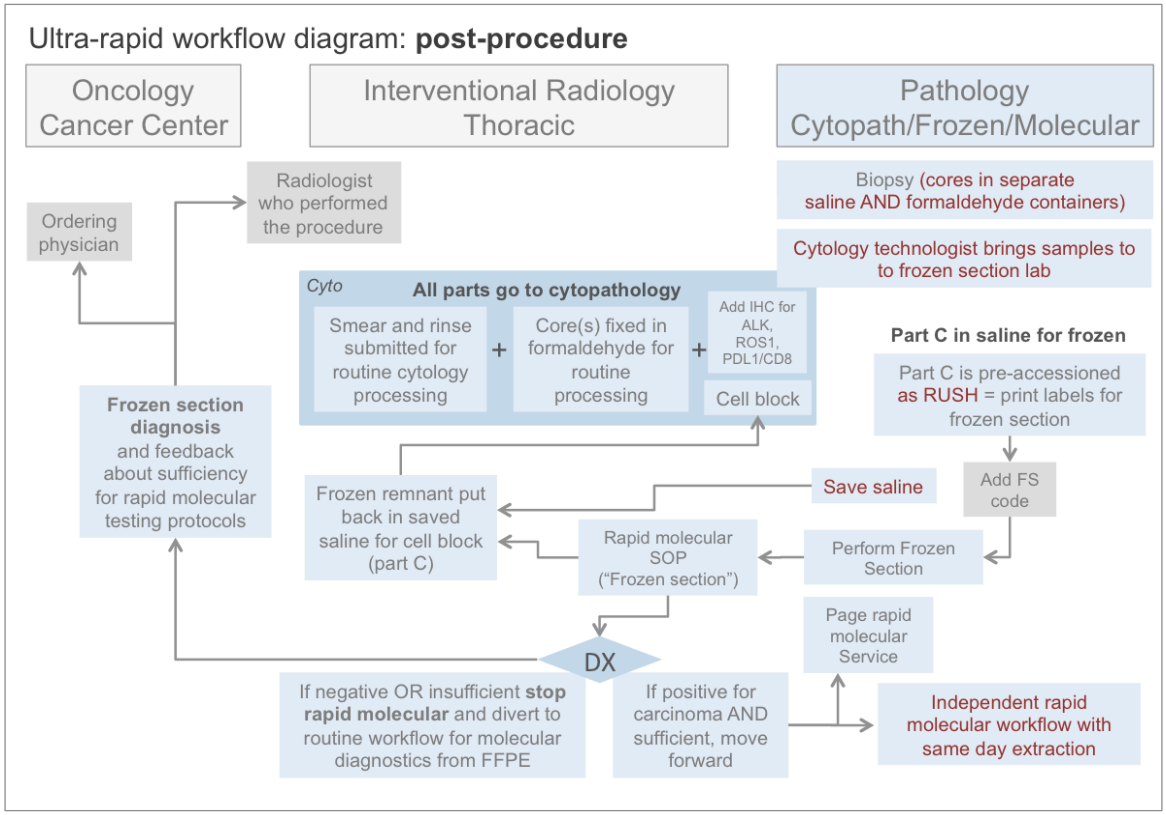
*** Clarification of patient selection in our practice**

At our institution, we have an inpatient oncology consult service that is run by an oncology nurse practitioner and staffed by disease center-specific medical oncologists. When patients are admitted to the general medicine service and there is a suspicion for lung cancer, the oncology service is contacted to provide guidance regarding optimal biopsy sites and recommended diagnostic tests. In our practice, thoracic oncologists exclusively initiate the illustrated rapid lung cancer-testing pathway; however, the execution of the rapid workflow is very much multidisciplinary (see also main Figure 1). Specifically, triggering the pathway and coordinating the biopsy/specimen collection involves communication between thoracic oncology, molecular pathology, general surgical pathology, and the interventionalist performing the procedure (either interventional pulmonology, thoracic surgery, or interventional radiology). We believe that limiting the providers who can initiate the pathway makes the best use of resources and ensures selection of appropriate patients.

Supplemental Figure 4. Ultra-rapid workflow: procedure



Supplemental Figure 5. Ultra-rapid workflow: post-procedure



Supplemental Table 1. Clinicopathological features of EGFR-mutant patients in the rapid and historic cohorts

Clinical Characteristics	Rapid Group (*n* = 44)*	Historical Group (*n* = 121)	*P* value
Age at Diagnosis (years)			
Average	67.2	58.3	<0.001
Median	68	58	
Range	42–86	26–88	
Sex—number (%)			
Male	12 (27)	41 (34)	0.457
Female	32 (73)	80 (66)	
Smoking History—number (%)			
Never	32 (73)	76 (63)	0.569
Light (≤10 pack years)	5 (11)	13 (11)	
Heavy (> 10 pack years)	6 (14)	27 (22)	
Unknown	1 (2)	5 (4)	
Histology—number (%)			
Adenocarcinoma	44 (100)	117 (97)	0.22
Squamous	0 (0)	2 (1.5)	
Poorly Differentiated Carcinoma	0 (0)	2 (1.5)	
Other	0 (0)	0 (0)	
ECOG—number (%)**			
0 or 1	37 (76)	56 (46)	0.56
≥ 2	7 (10)	7 (6)	
Unknown	0 (0)	58 (48)	
Brain Metastases*—number (%)**			
Present	25 (57)	47 (39)	**0.05**
Absent	19 (43)	74 (61)	
EGFR TKI Line of Therapy—no (%)			
1st	40 (91)	98 (81)	**0.006**
Other	2 (4.5)	23 (19)	
Unknown (Lost to Follow-Up)	2 (4.5)	0 (0)	

* Includes the false-negative EGFR+ patient. As a result, the calculations are slightly different than those described in the manuscript. **As documented by the treating physician at diagnosis; ***At diagnosis; The patient in the rapid cohort with an *EGFR* exon 19 deletion that did not involve the LREA segment is not included in this analysis. *P* values from t-test, Fisher's exact test for dichotomous variables, or $\chi 2$ test.

Supplemental Table 2. Probabilities of therapeutically actionable variants pre- and post rapid EGFR testing

Subsets		**pre-rapid probabilities**			**post-rapid probabilities rapid EGFR negative**			
	N=	**N=243**			**N=200**			
EGFR (rapid)	**43**	17.60%	**actionable**			**actionable**		
		%	n=	%	%	n=	%	delta by subset
EGFR (remaining)	15	6.17	1	0.41	7.5	1	0.50	0.09
ALK	11	4.53	11	4.53	5.5	11	5.50	0.97
ROS1	6	2.47	6	2.47	3	6	3.00	0.53
MET	15	6.17	15	6.17	7.5	15	7.50	1.33
ERBB2	8	3.29	8	3.29	4	8	4.00	0.71
RET	2	0.82	2	0.82	1	2	1.00	0.18
BRAF	10	4.12	10	4.12	5	10	5.00	0.88
PIK3CA	6	2.47			3			
KRAS	60	24.69			30			
other	33	13.58			16.5			
not detected	15	6.17			7.5			
NGS failed	19	7.82			9.5			

rapid EGFR	17.60%				delta pre vs. post
added NGS	21.81%	**21.81**	**added NGS if rapid=neg.**	**26.50**	**4.69**
total	**39.41%**				

Supplemental Table 3. Involved sites and presenting symptoms of patients in the ultra-rapid cohort

Patient	Sites of Disease at Diagnosis*	Symptoms at Presentation
1	axillary node, brain	chest pain
2	left ventricle	cardioembolic stroke with vision loss, chest pain
3	brain, multiple lung nodules	cough
4	bone	bone pain
5	brain, liver	left arm weakness, gait instability
6	bone, brain, lung	difficulty swallowing, hearing loss, gait instability, cough
7	bone, supraclavicular nodes	bone pain
8	brain, choroid, liver, pleura	vision loss

*Excludes primary lung mass and thoracic nodes