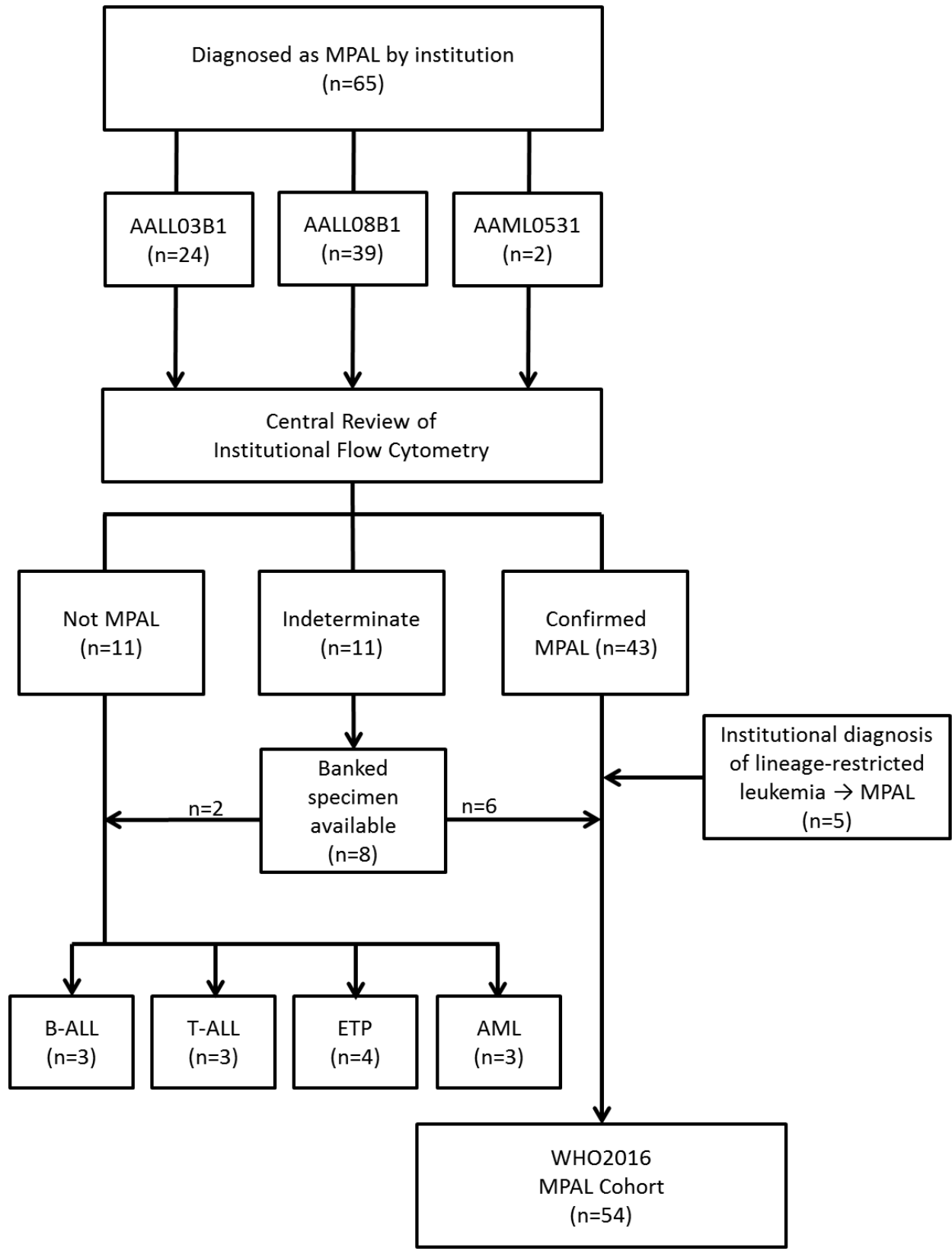


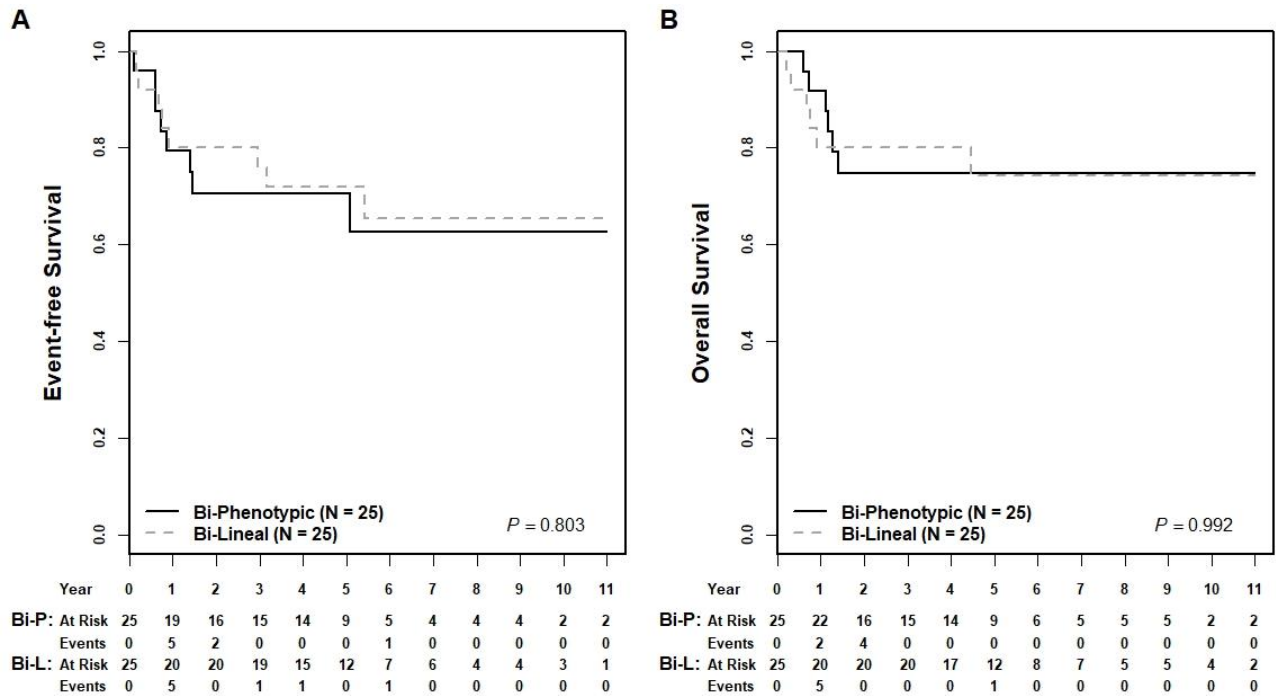
Description of Supplemental Data:

1. Supplemental Figure 1: CONSORT DIAGRAM
2. Supplemental Figure 2: Association of post- induction complete remission and survival
3. Supplemental Figure 3: Association of MPAL clonality and survival.
4. Supplemental Figure 4: Survival for patients receiving ALL chemotherapy alone without hematopoietic stem cell transplantation.
5. Supplemental Table 1: Multivariable analysis of EFS and OS adjusting for starting therapy and HSCT
6. Supplemental Table 2: Description of COG Acute Leukemia of Ambiguous Lineage Task Force

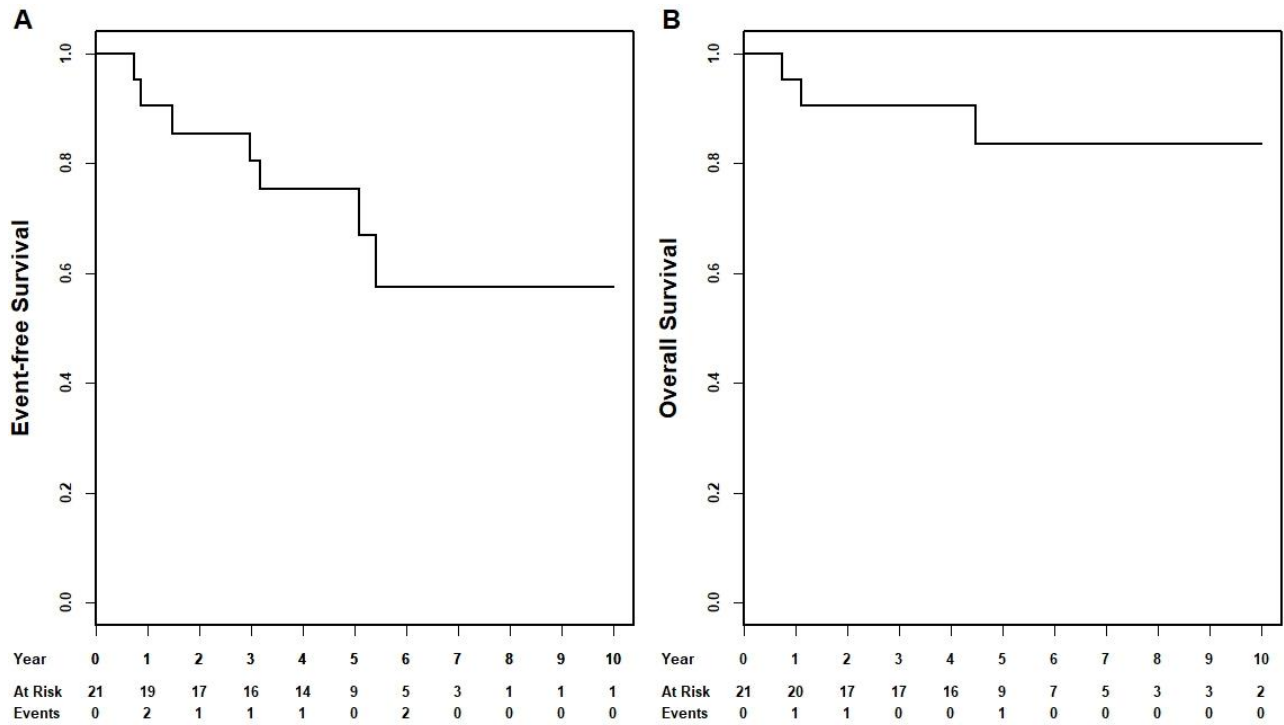
Supplemental Figure 1: CONSORT DIAGRAM



Supplemental Figure 3: Association of MPAL clonality and survival. (A) Five-year EFS rates for patients with Bi-phenotypic (Bi-P, one cell population) compared to Bi- or Tri-lineal (Bi-L, two or more distinct cell populations) MPAL were $71\pm 13\%$ and $72\pm 11\%$ ($p=0.803$); (B) five-year OS rates were $75\pm 13\%$ versus $74\pm 11\%$ ($p=0.992$).



Supplemental Figure 4: Survival for patients receiving ALL chemotherapy alone without hematopoietic stem cell transplantation. Five-year EFS and OS rates for patients who received ALL chemotherapy alone without HSCT (n=21) were 75±13% and 84±11%, respectively.



Supplemental Table 1: Multivariable analysis of EFS and OS adjusting for starting therapy and HSCT

Co-variables of interest*	Univariate Analysis EFS		Multivariate Analysis EFS		Univariate Analysis OS		Multivariate Analysis OS	
	HR (95CI)	p-value	HR (95CI)	p-value	HR (95CI)	p-value	HR (95CI)	p-value
Starting therapy ALL vs AML	0.772 (0.271, 2.193)	0.627	0.703 (0.245, 2.020)	0.513	0.693 (0.209, 2.303)	0.550	0.681 (0.203, 2.287)	0.534
HSCT No HSCT vs Any HSCT	1.826 (0.522, 6.384)	0.346	1.932 (0.546, 6.840)	0.307	1.092 (0.295, 4.034)	0.895	1.152 (0.308, 4.308)	0.834

*Only these two co-variables were included in the multivariate analyses. EFS= event free survival; OS = overall survival; ALL = acute lymphoid leukemia; AML = acute myeloid leukemia; HSCT = hematopoietic stem cell transplantation; HR = hazard ratio; 95CI = 95% Confidence Interval

Supplemental Table 2

CHILDREN'S ONCOLOGY GROUP ACUTE LEUKEMIA OF AMBIGUOUS LINEAGE TASK FORCE (in alphabetical order)

<u>Member</u>	<u>Institution</u>
Thomas B. Alexander	UNC Lineberger Comprehensive Cancer Center (Chapel Hill, NC)
Todd A. Alonzo**	University of Southern California (Los Angeles, CA), Children's Oncology Group
Jason N. Berman	IWK Health Centre (Halifax, NS, Canada)
Michael J. Borowitz*	Johns Hopkins University (Baltimore, MD)
Erin H. Breese	Cincinnati Children's Hospital Medical Center (Cincinnati, OH)
Andrew J. Carroll III*	University of Alabama at Birmingham (Birmingham, AL)
Meenakshi Devidas**	University of Florida (Gainesville, FL), Children's Oncology Group
Alan S. Gamis	Children's Mercy Hospital (Kansas City, MO)
Terri L. Guinipero	Nationwide Children's Hospital (Columbus, OH)
Nyla A. Heerema*	The Ohio State University, Wexner Medical Center (Columbus, OH)
John T. Horan†	Children's Healthcare of Atlanta (Atlanta, GA)
Terzah M. Horton	Baylor College of Medicine (Houston, TX)
Stephen P. Hunger	Children's Hospital of Philadelphia (Philadelphia, PA)
Hiroto Inaba	St Jude Children's Research Hospital (Memphis, TN)
Samir B. Kahwash*	Nationwide Children's Hospital (Columbus, OH)
Mignon L. Loh	UCSF Medical Center-Mission Bay (San Francisco, CA)
Soheil Meshinchi	Seattle Children's Hospital (Seattle, WA)
Charles G. Mullighan*	St Jude Children's Research Hospital (Memphis, TN)
Matthew J. Oberley*	Children's Hospital Los Angeles (Los Angeles, CA)
Maureen M. O'Brien	Cincinnati Children's Hospital Medical Center (Cincinnati, OH)
Etan Orgel†	Children's Hospital Los Angeles (Los Angeles, CA)
John P. Perentesis	Cincinnati Children's Hospital Medical Center (Cincinnati, OH)
Karen R. Rabin	Baylor College of Medicine (Houston, TX)
Elizabeth A. Raetz	Hassenfeld Children's Hospital, NYU Langone Health (New York, NY)
Sunil S. Raikar	Children's Healthcare of Atlanta (Atlanta, GA)
Reuven J. Schore	Children's National Medical Center (Washington, DC)
Alix E. Seif	Children's Hospital of Philadelphia (Philadelphia, PA)
Shalini Shenoy	Washington University School of Medicine (St Louis, MO)
Kirk R. Schultz	British Columbia Children's Hospital (Vancouver, BC, Canada)
David T. Teachey	Children's Hospital of Philadelphia (Philadelphia, PA)
Brent L. Wood*	University of Washington (Seattle, WA)
William G. Woods	Children's Healthcare of Atlanta (Atlanta, GA)
Patrick A. Zweidler- McKay	ImmunoGen, Inc (Waltham, MA)

*Hematopathology/cytogenetics;

**Biostatistician/Data Center;

†Task Force Co-Chair