

SUPPLEMENTARY MATERIAL

Title

Cost-effectiveness of KTE-X19 for adults with relapsed/refractory B-cell acute lymphoblastic leukemia in the United States

Authors

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Table S1. Goodness-of-fit data for selected EFS and OS curves

Survival Extrapolation	AIC	BIC	Mixed Cure Fraction
KTE-X19			
Selected EFS: Parametric Gen Gamma Function ^a	124.35	129.42	N/A
Selected OS: Exponential Mixed Cure Model	182.02	186.03	29.57%
BLIN			
Selected EFS: Weibull Mixed Cure Model	360.44	368.73	Normalized: 17.47% Scaled: 7.67%
Selected OS: Weibull Mixed Cure Model	1109.01	1119.82	19.80%
INO			
Selected EFS: Log normal Mixed Cure Model	536.80	545.18	Normalized: 18.62% Scaled: 13.74%
Selected OS: Log logistic Mixed Cure Model	962.51	971.81	13.12%
CHEMO			
Selected EFS: Log normal Mixed Cure Model	324.69	331.95	Normalized: 13.05% Scaled: 3.89%
Selected OS: Exponential Mixed Cure Model	1458.72	1466.10	7.03%

^aNote that RFS is used for EFS

AIC, Akaike information criteria; BIC, Bayesian information criteria; BLIN, blinatumomab; CHEMO, salvage chemotherapy; EFS, event-free survival; INO, inotuzumab ozogamicin; MCM, mixture cure model; N/A, not applicable; OS, overall survival; RFS, relapse-free survival

Table S2. Baseline characteristics for scenario analysis with SCA-3 ¹

	Matched ZUMA-3	SCA-3^a	Standardized Difference
Age, median (range)	40 (19-84)	39 (18-78)	-0.056
Male, n (%)	32 (60.4)	33 (62.3)	-0.038
ECOG Performance status, n (%)			
0	16 (30.2)	19 (35.8)	-0.119
1	37 (69.8)	34 (64.2)	
Philadelphia chromosome status, n (%)			
Positive	13 (24.5)	16 (30.2)	-0.154
Negative	40 (75.5)	37 (69.8)	
Percentage bone marrow blasts, median (range)	65 (0-98)	60 (0.3-95)	0.068
Number of prior lines of therapy, n (%)			
≤2	29 (54.7)	30 (56.6)	-0.040
>2	24 (45.3)	23 (43.4)	
Presence of extramedullary disease, n (%)	6 (11.3)	7 (13.2)	-0.065
Prior allogeneic stem cell transplant, n (%)	22 (41.5)	21 (39.6)	0.039
Primary refractory status, n (%)	18 (34)	15 (28.3)	0.130

ECOG, Eastern Cooperative Oncology Group; SCA-3, third synthetic control arm

^aA post-hoc analysis using a synthetic control arm of the SCHOLAR-3 study was done matching patients from ZUMA-3 (irrespective of pre-treatment with BLIN or INO) to BLIN- or INO-naïve patients from historical clinical trials. The matched historical control group is referred to as “SCA-3”; see Methods for more detail.

Table S3. Goodness-of-fit data for scenario analysis with SCA-3^a

Survival Extrapolation	AIC	BIC
Selected OS: Parametric Log Normal Function	156.38	160.17
Selected EFS: Parametric Log Normal Function	90.65	93.70
Selected EFS: Parametric Log Logistic Function	45.88	47.77
Selected OS: Parametric Log Normal Function	255.09	258.87

AIC, Akaike information criteria; BIC, Bayesian information criteria; EFS, event-free survival; OS, overall survival; SCA-3, synthetic control arm

^aA post-hoc scenario analysis was done using a synthetic control arm of the SCHOLAR-3 study. Patients from ZUMA-3 (irrespective of pre-treatment with BLIN or INO) were matched to BLIN- or INO-naïve patients from historical clinical trials. The matched historical control group is referred to as “SCA-3”; see Methods for more detail.

Table S4. Adverse events from treatment arm clinical trials^a

Adverse event	KTE-X19 ^b (ZUMA-3) ^{1,2}	BLIN ^c (TOWER) ³	INO ^d (INO-VATE) ⁴	CHEMO ^e (TOWER, INO-VATE) ^{3,4}
CRS	30.2%	3.0%	NR	0
Anemia	49.1%	19.5%	NR	14.7%
Neutropenia	22.6%	28.5%	NR	24.2%
Platelet count decreased	32.1%	NR	NR	NR
Thrombocytopenia	13.2%	17.6%	NR	15.9%
Encephalopathy	7.6%	NR	NR	NR
Febrile neutropenia	20.8%	NR	11.6%	10.7%
Hypophosphatemia	18.9%	NR	NR	NR
Hypotension	28.3%	NR	NR	0.8%
Leukopenia	NR	6.7%	NR	3.6%
Lymphocyte count decreased	5.7%	NR	NR	NR
Neutrophil count decreased	26.4%	NR	NR	NR
Pyrexia	26.4%	5.6%	1.2%	2.0%
White blood cell count decreased	24.5%	NR	NR	NR
Alanine aminotransferase increased	13.2%	NR	NR	NR
Device related infection	5.7%	3.4%	NR	0.4%
Hyperglycemia	17.0%	NR	NR	NR
Hypertension	9.4%	NR	NR	NR
Hypokalemia	7.6%	NR	NR	NR
Hypoxia	24.5%	NR	NR	NR
Pneumonia	7.6%	NR	5.5%	NR
Respiratory failure	5.7%	NR	1.2%	2.4%
Rash	NR	NR	NR	NR
Diarrhea	NR	NR	NR	NR
Septic shock	NR	NR	1.8%	1.2%
Sepsis	NR	NR	2.4%	4.0%
Neutropenic sepsis	NR	NR	1.8%	1.6%
Abdominal pain	NR	NR	NR	NR
VOD	NR	NR	11.6%	1.2%
Decrease in appetite	NR	NR	NR	NR
Increase in blood bilirubin	NR	NR	NR	1.2%
Fungal pneumonia	NR	NR	NR	1.2%
Subdural hematoma	NR	NR	NR	1.2%
Hypertransaminasemia	NR	8.2%	NR	2.8%
Infection pathogen unspecified	NR	15.0%	NR	13.9%
Bacterial infectious disorders	NR	7.1%	NR	8.3%
Viral infectious disorders	NR	1.5%	NR	0.0%
Fungal infectious disorders	NR	4.9%	NR	3.6%

Adverse event	KTE-X19 ^b (ZUMA-3) ^{1,2}	BLIN ^c (TOWER) ³	INO ^d (INO-VATE) ⁴	CHEMO ^e (TOWER, INO-VATE) ^{3,4}
Lipase increase	NR	NR	NR	NR
Constipation	NR	NR	NR	NR
Acute kidney injury	NR	NR	NR	NR
Pulmonary edema	NR	NR	NR	NR
Bacteremia	5.0%	NR	NR	NR

^aAll AEs as per the Grade 3 list were included; some AEs may also be counted through the inpatient administration for KTE-X19.

^bSafety inputs for KTE-X19 included Grade 3 or 4 AEs occurring post-infusion and in ≥5% of the population.^{1,2}

^cGrade ≥3 AEs occurring in ≥5% of the population that occurred among adults in the first cycle of therapy for BLIN³

^dSerious AEs in ≥2% of the safety population for INO⁴

^ePooled AEs from the INO-VATE and TOWER trials.^{3,4}

BLIN, blinatumomab; CHEMO, salvage chemotherapy; CRS, cytokine release syndrome; INO, inotuzumab ozogamicin; NR, not reported; VOD, veno-occlusive disease.

Table S5. Drug acquisition and administration costs

Comparator	Drug acquisition		Administration		
	Cost	Source	Component	Value	Source
KTE-X19	\$399,000	RED BOOK ⁵	Hospitalization (non-ICU) Average length of stay , days ICU stay Average length of stay (ICU), days	\$6,223.17 23.67* \$5,630.85 4.00	Barlev et al 2016 ⁶ ZUMA-3 ¹ Roth et al 2018 ⁷ ZUMA-3 ¹
BLIN	\$4,242 per vial	RED BOOK ⁵	Hospitalization (non-ICU), first 9 days Average length of stay (non-ICU), days	\$6,223.17	Roth et al 2018 ⁷
Cycle 1, days 1–7	\$8,484	Calculated based on exposure	Cycle 1	9.0	BLINCYTO PI ⁸
Cycle 1, days 8–28	\$67,872		Cycle 2	2.0	BLINCYTO PI ⁸
Cycle 2+, days 1–28	\$89,082		Cycle 3+ Daily pump cost IV cost in outpatient setting	0.0 \$74.10 \$163.47	BLINCYTO PI ⁸ Delea et al 2019 ⁹ Delea et al 2019 ⁹
INO	\$20,136 per vial	RED BOOK ⁵	Cost of administration 3 administrations per cycle	\$444.90	CMS 2021 ¹⁰
Cycle 1, days 1–21	\$80,544	Calculated based on exposure			
Cycle 2, days 1–28	\$65,688				
CHEMO			11 inpatient days per cycle of treatment	\$67,210	Barlev et al 2016 ⁶
Fludarabine	\$179.99 / 50mg (30 mg/m ² , 5 consecutive days)	RED BOOK ⁵	5 administrations per cycle	\$360.00	CMS 2021 ¹⁰
Cytarabine	\$23.62/1,000mg (2 g/m ² , 6 consecutive days)	RED BOOK ⁵	6 administrations per cycle	\$94.00	CMS 2021 ¹⁰
Filgrastim	\$438.98 / 0.5mg (0.005 mg/kg, 9 total days)	RED BOOK ⁵	9 administrations per cycle	\$439.00	CMS 2021 ¹⁰
Idarubicin	\$88.79 / 5mg, \$170.70 / 10mg (8 mg/m ² , 3 days)	RED BOOK ⁵	3 administrations per cycle	\$341.00	CMS 2021 ¹⁰

*Value is sourced as the mean length of stay from the ZUMA-3 trial data. Seven days are assumed for the initial hospital stay with 12.67 additional days in the cost calculation (19.67 days) excluding four days that are assumed to occur in the ICU (to avoid double counting).

BLIN, blinatumomab; CHEMO, salvage chemotherapy; ICU, intensive care unit; INO, inotuzumab ozogamicin; IV, intravenous.

Table S6. Subsequent treatment distribution, dosing, and costs*

	Subsequent treatment				Source
	BLIN	INO	Cyclophosphamide + dexamethasone	INO + ponatinib	
Initial Regimen Distribution					
KTE-X19	9.09%	9.09%	10.91%	12.73%	ZUMA-3 ¹
BLIN	–	11.62%	13.94%	16.26%	Same as ZUMA-3, BLIN re-distributed ¹
INO	19.01%	–	22.81%	–	Same as ZUMA-3, INO re-distributed ¹
CHEMO	9.09%	9.09%	10.91%	12.73%	ZUMA-3 ¹
Dosing	Von Stackelberg [37]	Cycle 1 (21 days) 0.8 mg/m ² on Day 2, 0.5/m ² on Day 8 and 0.5 mg/m ² on Day 15. Cycle 2+ (28 days) 0.8 mg/m ² or 0.5 mg/m ² on Day 2, 0.5/m ² on Day 8 and 0.5 mg/m ² on Day 15	Cyclophosphamide, 150 mg/m ² for 3 days Dexamethasone, 20 mg 3-4 days per week	INO same as monotherapy Ponatinib, 45 mg daily	–
Number of cycles	2.24	3	–	3	–
Acquisition cost	\$116,952	\$211,919	\$1,071	\$255,278	–
Administration cost	\$64,154	\$1,335	\$0	\$1,335	–

*One-off weighted acquisition and weighted administration costs for subsequent therapies were: KTE-X19 (\$68,986.88 and \$6,217.32), BLIN (\$74,564.58 and \$372.10), INO (\$17,914.65 and \$9,876.86), CHEMO (\$68,986.88 and \$6,217.32), and ponatinib (\$47,028.30 and \$8,693.21).

allo-SCT, allogeneic stem cell transplantation; BLIN, blinatumomab; CHEMO, salvage chemotherapy; INO, inotuzumab ozogamicin.

Table S7. Monitoring and follow-up costs, PPS and PD health state

Item	PPS state				PD state	Unit cost	Cost source ^{10,11}
	Year 1	Year 2	Year 3-5	Year 5+	Weekly frequency		
Consultant visit	0.23	0.08	0.04	0.02	0.11	\$131.20	Physician fee schedule (moderate duration; CPT 99214)
Hematology panel	0.31	0.08	0.04	0.00	0.11	\$6.47	Lab fee schedule (CPT 85027)
CSF	0.02	0.00	0.00	0.00	0.02	\$199.24	Physician fee schedule (CPT 62270) [\$135.39] + (CPT 88108) [\$63.85]
Bone marrow aspirate	0.06	0.00	0.00	0.00	0.02	\$242.16	Physician fee schedule (CPT 38220) [\$172.37] + (CPT 85097) [\$69.79]
Bone marrow biopsy	0.06	0.00	0.00	0.00	0.00	\$236.92	Physician fee schedule (CPT 38221) [\$165.39] + (CPT 88305) [\$71.53]
Echocardiogram	0.00	0.00	0.00	0.00	0.02	\$207.96	Physician fee schedule (CPT 93306)
Liver function test	0.00	0.00	0.00	0.00	0.11	\$8.17	Lab fee schedule (CPT 80076)
ECG	0.02	0.00	0.00	0.00	0.00	\$15.00	Physician fee schedule (CPT 93000)
Serum test	0.10	0.00	0.00	0.00	0.00	\$6.47	Assume same as hematology panel
B-cell and T-cell test	0.15	0.04	0.04	0.00	0.00	\$75.46	Lab fee schedule (CPT 86355) [\$37.73] + (CPT 86359) [\$37.73]
Coagulation panel	0.06	0.00	0.00	0.00	0.00	\$22.73	Lab fee schedule (CPT 85650) [\$4.29] + (CPT 85730) [\$6.01] + (CPT 85370) [\$12.43]
Chemistry panel	0.31	0.08	0.04	0.00	0.00	\$13.73	Lab fee schedule (CPT 80047)
Weekly cost	\$81.51	\$14.50	\$8.70	\$2.51	\$29.22	--	—

CMS, Centers for Medicare and Medicaid Services; CSF, cerebrospinal fluid; ECG, echocardiogram; PD, progressive disease; PPS, pre-progression survival.

Table S8. AE unit costs

Adverse event	Unit cost	Assumption, source
CRS	\$4,511.60	Cost of treatment with tocilizumab ⁵
Anemia	\$7,710.40	Anemia, unspecified ICD-9:276.9 ¹²
Neutropenia	\$14,544.68	Neutropenia, unspecified ICD-9:288.00 ¹²
Platelet count decreased	\$12,176.22	Assume same as thrombocytopenia
Thrombocytopenia	\$12,176.22	Thrombocytopenia, unspecified ICD-9:287.5 ¹²
Encephalopathy	\$16,614.96	Other encephalopathy ICD-9:348.39 ¹²
Febrile neutropenia	\$8,106.22	Electrolyte and fluid disorders not elsewhere classified ICD-9:276.9 ¹²
Hypophosphatemia	\$8,106.22	Electrolyte and fluid disorders not elsewhere classified ICD-9:276.9 ¹²
Fluid overload	\$8,106.22	Electrolyte and fluid disorders not elsewhere classified ICD-9:276.9 ¹²
Hypotension	\$8,641.10	Hypotension, unspecified ICD-9:458.9 ¹²
Leukopenia	\$11,735.95	Disease of spleen, unspecified ICD-9:289.50 ¹²
Lymphocyte count decreased	\$11,735.95	Disease of spleen, unspecified ICD-9:289.51 ¹²
Neutrophil count decreased	\$14,544.68	Assume same as neutropenia
Pyrexia	\$29,448.53	Fever, unspecified ICD-9:573.9 ¹²
White blood cell count decreased	\$35,591.06	Unspecified diseases of blood and blood-forming organs ICD-9:289.89 ¹²
Alanine aminotransferase increased	\$55,863.73	Unspecified disorder of liver ICD-9:289.9 ¹²
Device-related infection	\$28,044.72	Assume same as viral infection
Hyperglycemia	\$11,735.95	Disease of spleen, unspecified ICD-9:289.50 ¹²
Hypertension	\$12,687.42	Other unspecified secondary hypertension ICD-9:405.99 ¹²
Hypokalemia	\$8,106.22	Electrolyte and fluid disorders not elsewhere classified ICD-9:276.9 ¹²
Hypoxia	\$20,527.00	Viral pneumonia, unspecified ICD-9:480.9 ¹²
Pneumonia	\$9,148.06	Viral pneumonia, unspecified ICD-9:480.9 ¹²
Respiratory failure	\$20,527.00	Acute and chronic respiratory failure ICD-9:518.84 ¹²
Rash	\$5,470.56	Rash and other nonspecific skin eruption ICD-9:782.1 ¹²
Diarrhea	\$8,284.31	Diarrhea ICD-9:787.91 ¹²
Septic shock	\$12,974.89	CMS inpatient estimated payment (Weighted average cost of DRGs 870,871,872 using 2017 # of discharges from AHRQ HCUPNet and 2021 CMS reimbursement--see separate inpatient worksheet) ¹²

Adverse event	Unit cost	Assumption, source
Sepsis	\$12,974.89	CMS inpatient estimated payment (Weighted average cost of DRGs 870,871,872 using 2017 # of discharges from AHRQ HCUPNet and 2021 CMS reimbursement--see separate inpatient worksheet) ¹²
Neutropenic sepsis	\$12,974.89	CMS inpatient estimated payment (Weighted average cost of DRGs 870,871,872 using 2017 # of discharges from AHRQ HCUPNet and 2021 CMS reimbursement--see separate inpatient worksheet) ¹²
Abdominal pain	\$8,284.31	Assume same as diarrhea
VOD	\$60,999.95	Zhang et al 2018 ¹³
Decrease in appetite	\$18,808.30	Eating disorder, unspecified ICD-9:307.50 ¹²
Increase in blood bilirubin	\$9,193.96	Toxic effect of unspecified substance, chiefly nonmedicinal as to source ICD-9:989.9 ¹²
Fungal pneumonia	\$9,148.06	Assume same as pneumonia
Subdural hematoma	\$23,324.88	Subdural hemorrhage ICD-9:432.1 ¹²
Hypertransaminasemia	\$55,863.73	Assume same as ALT increase
Infection pathogen unspecified	\$28,044.72	Unspecified viral infection ICD-9:079.99 ¹²
Bacterial infectious disorders	\$28,044.72	Unspecified viral infection ICD-9:079.99 ¹²
Viral infectious disorders	\$28,044.72	Unspecified viral infection ICD-9:079.99 ¹²
Fungal infectious disorders	\$28,044.72	Unspecified viral infection ICD-9:079.99 ¹²
Lipase increase	\$25,825.06	Other nonspecific abnormal serum enzyme levels ICD-9:780.79 ¹²
Constipation	\$8,284.31	Assume same as diarrhea
Acute kidney injury	\$10,248.36	Acute kidney failure, unspecified ICD-9:584.9 ¹²
Pulmonary edema	\$9,284.84	Acute edema of lung, unspecified ICD-9:518.4 ¹²
Bacteremia	\$12,974.89	CMS inpatient estimated payment (Weighted average cost of DRGs 870,871,872 using 2017 # of discharges from AHRQ HCUPNet and 2021 CMS reimbursement) ¹²

CRS, cytokine release syndrome; ICU, intensive care unit; NR, not reported; VOD, veno-occlusive disease.

Table S9. Utility decrements associated with adverse events

Adverse event	Utility decrement	Duration (days)	Source
CRS	-0.85	4.3	Assumption
Anemia	-0.12	14.9	Swinburn 2010 ¹⁴
Neutropenia	-0.09	13.2	Nafees 2008 ¹⁵
Platelet count decreased	-0.05	11.9	TA416 ¹⁶
Thrombocytopenia	-0.11	20.1	Tolley 2013 ¹⁷
Encephalopathy	-0.22	5.86	TA416 ¹⁶
Febrile neutropenia	-0.09	6.2	Nafees 2008 ¹⁵
Hypophosphatemia	-0.07	2.3	TA510 ¹⁸
Fluid overload	-0.09	11.8	Nafees 2008 ¹⁵
Hypotension	-0.07	19.0	TA510 ¹⁸
Leukopenia	0.0	9.8	TA520 ¹⁹
Lymphocyte count decreased	-0.11	1.2	Beusterien 2010 ²⁰
Neutrophil count decreased	-0.05	16.9	In line with TA520 ¹⁹
Pyrexia	0.00	20.0	Assumption
White blood cell count decreased	-0.05	4.3	Assume same as dyspnea
Alanine aminotransferase increased	-0.06	7.5	Nafees 2016 ¹⁵
Device related infection	-0.07	4.0	Assumed same as hypotension
Hyperglycemia	-0.20	1.0	Assumed same as hypokalemia
Hypertension	-0.20	1.0	TA510 ¹⁸
Hypokalemia	-0.07	3.37	TA510 ¹⁸
Hypoxia	-0.22	2.4	Lachaine 2015 ²¹
Pneumonia	-0.22	11.3	Stein 2017 ²²
Respiratory failure	-0.22	1.6	Assumption same as pneumonia
Rash	-0.06	7.0	Stein 2017 ²²
Diarrhea	-0.05	7.0	Nafees 2008 ¹⁵
Septic shock	-0.20	6.0	Tolley 2013 ¹⁷
Sepsis	-0.20	15.1	Tolley 2013 ¹⁷
Neutropenic sepsis	-0.20	15.1	Assumption same as sepsis
Abdominal pain	-0.05	7.0	Assumption same as diarrhea
VOD	-0.21	28.0	TA541 ²³
Decrease in appetite	0	0	Assumption
Increase in blood bilirubin	0	0	Assumption
Fungal pneumonia	-0.19	11.3	Assumption same as pneumonia
Subdural hematoma	-0.22	5.9	Assumption same as encephalopathy in line with TA559
Hypertransaminasemia	0	20.0	Assumption
Infection pathogen unspecified	-0.22	15.1	Assumption same as sepsis
Bacterial infectious disorders	-0.22	15.1	Assumption same as sepsis

Adverse event	Utility decrement	Duration (days)	Source
Viral infectious disorders	-0.22	15.1	Assumption same as sepsis
Fungal infectious disorders	-0.22	15.1	Assumption same as sepsis
Lipase increase	0	20.0	Assume same as alanine aminotransferase
Constipation	-0.05	7.0	Assumption same as diarrhea
Acute kidney injury	-0.11	15.14	Armstrong 2009 ²⁴
Pulmonary edema	-0.01	11.25	Doyle 2008 ²⁵
Bacteremia	-0.20	14.8	Assumption same as sepsis

CRS, cytokine release syndrome; NR, not reported; VOD, veno-occlusive disease.

Table S10. Cost outcomes of KTE-X19 versus BLIN: SCA-3 scenario analysis

Cost Component	KTE-X19	BLIN
Drug costs	\$351,877	\$7,230
Administration costs	\$199,238	\$75,431
Monitoring costs – PPS	\$2,511	\$261
Monitoring costs - PD	\$9,160	\$2,761
Subsequent Tx acquisition costs	\$59,219	\$61,909
Subsequent Tx administration costs	\$5,802	\$6,065
allo-SCT cost - one-off	\$75,724	\$95,483
AE costs	\$49,172	\$20,009
End of life costs	\$22,061	\$27,023
Total costs	\$774,763	\$296,173

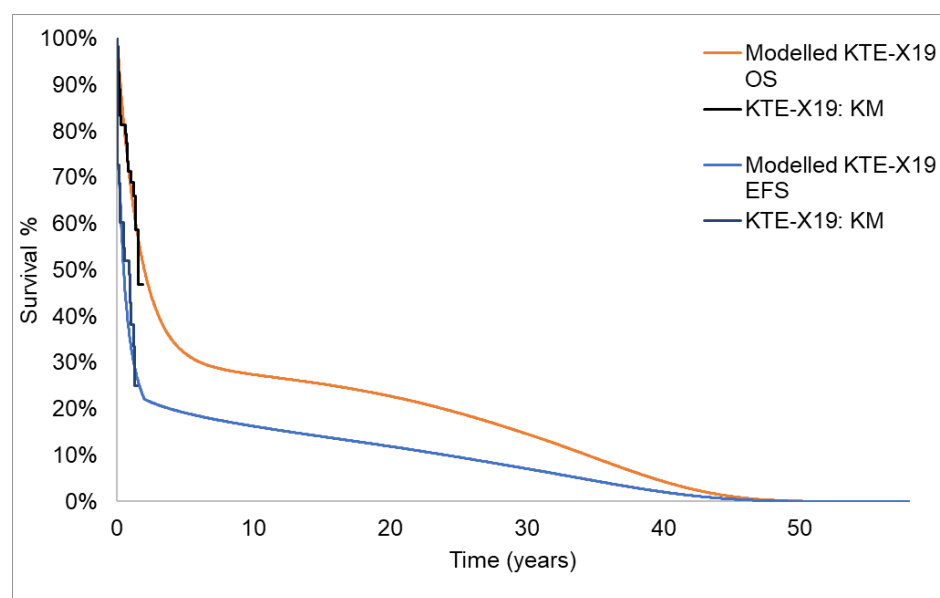
AE, adverse event; allo-SCT, allogeneic stem cell transplant; BLIN, blinatumomab; PD, progressed disease; PPS, pre-progression survival; Tx, treatment

Table S11. Incremental cost-effectiveness of KTE-X19 versus BLIN: SCA-3 scenario analysis

Treatment	Total estimates			Incremental estimates, KTE-X19 versus BLIN			
	Costs	LYs	QALYs	Costs	LYs	QALYs	ICER
KTE-X19	\$774,763	8.10	6.10	–	–	–	–
BLIN	\$706,330	4.72	3.39	\$68,432	3.37	2.71	\$25,274

BLIN, blinatumomab; ICER, incremental cost-effectiveness ratio; LY, life-years; QALY, quality-adjusted life-year.

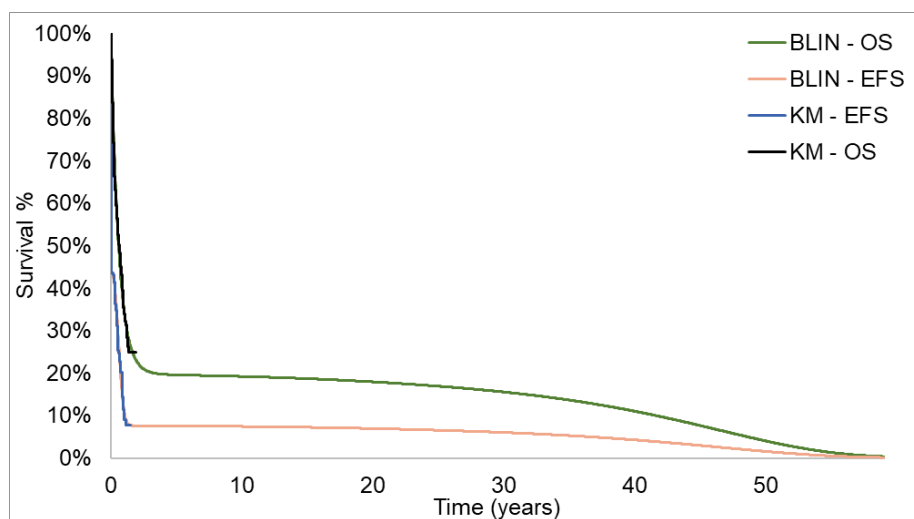
Figure S1. Base case KTE-X19 EFS and OS curves overlaid on ZUMA-3 mITT KM data



OS data fit with an exponential mixture cure model and EFS data fit with a parametric gen gamma function.

EFS, event-free survival; KM, Kaplan Meier; mITT, modified intent to treat; OS, overall survival.

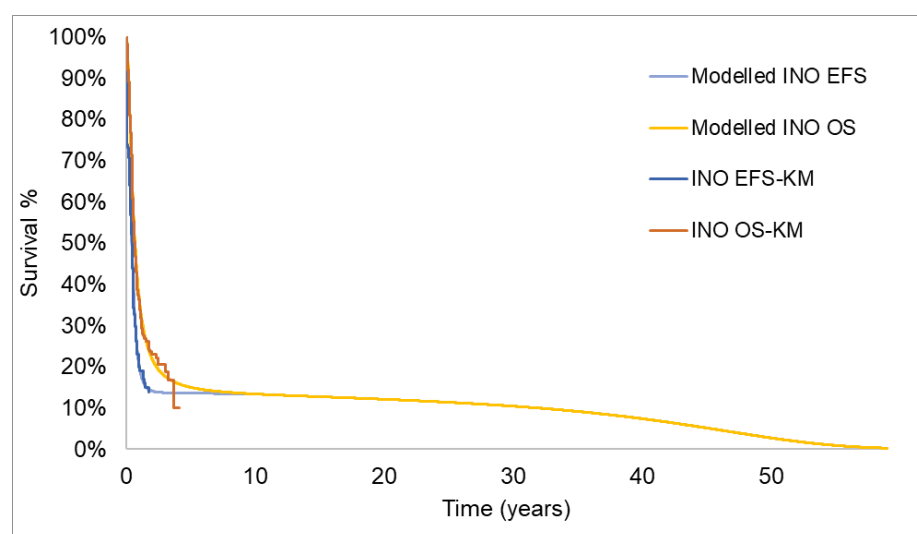
Figure S2. Base case BLIN EFS and OS curves overlaid on TOWER KM data



OS and EFS data fit with a Weibull mixed cure model.

BLIN, blinatumomab; EFS, event-free survival; KM, Kaplan Meier; OS, overall survival.

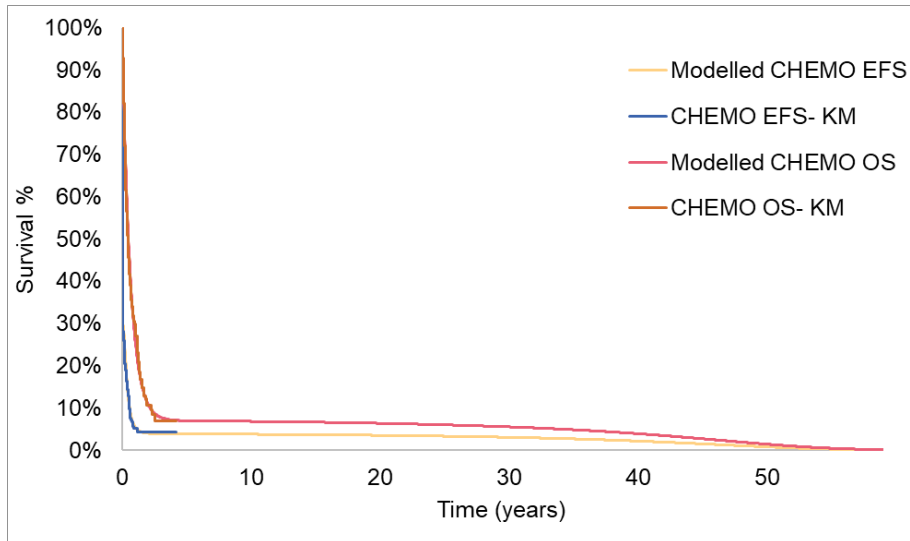
Figure S3. Base case INO EFS and OS curves overlaid on INO-VATE KM data



OS data fit with a log logistic mixed cure model; EFS data fit with a log normal mixed cure model.

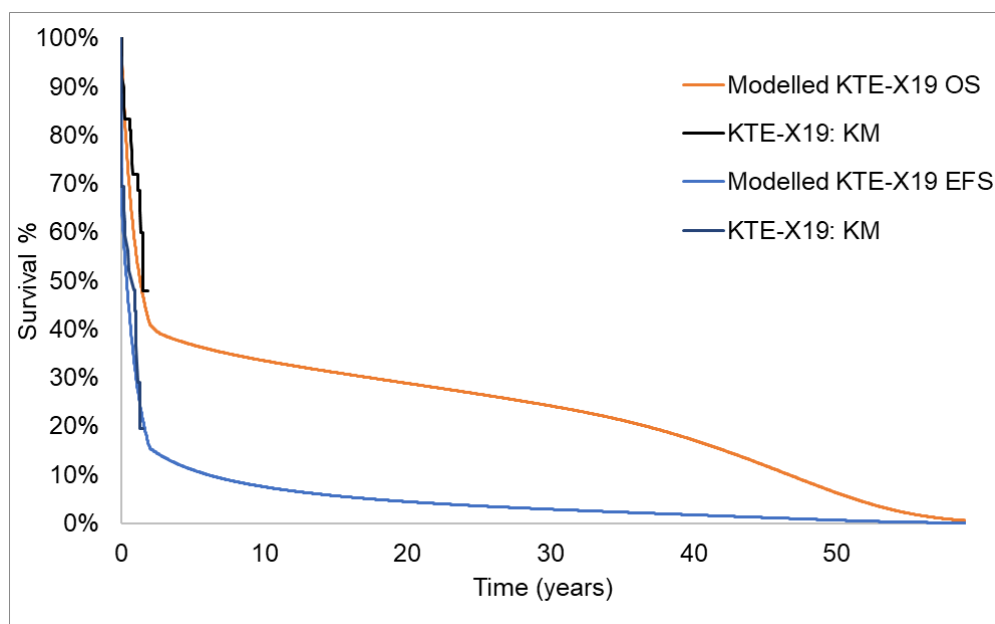
EFS, event-free survival; INO, inotuzumab ozogamicin; KM, Kaplan Meier; OS, overall survival.

Figure S4. CHEMO EFS and OS curves overlaid on INO-VATE KM data



OS data fit with an exponential mixed cure model; EFS data fit with a log normal mixed cure model.
CHEMO, salvage chemotherapy; EFS, event-free survival; KM, Kaplan Meier; OS, overall survival.

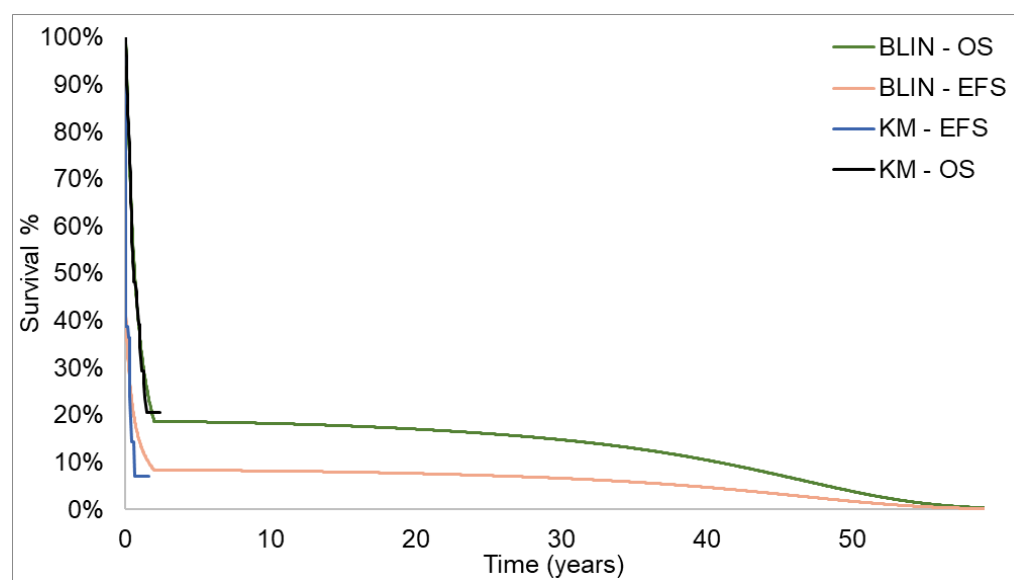
Figure S5. Selected KTE-X19 EFS and OS curves overlaid on SCHOLAR-3 KM data



OS and EFS data fit with parametric log normal function.

EFS, event-free survival; KM, Kaplan Meier; OS, overall survival.

Figure S6. Selected BLIN EFS and OS curves overlaid on SCHOLAR-3 KM data



OS fit with parametric log normal function; EFS data fit with parametric log logistic function.

BLIN, blinatumomab; EFS, event-free survival; KM, Kaplan Meier; OS, overall survival.

REFERENCES

1. KITE. A study evaluating brexucabtagene autoleucel (KTE-X19) in adult subjects with relapsed/refractory B-precursor acute lymphoblastic leukemia (ZUMA-3). In: Data on file, ed.
2. Shah BD, Ghobadi A, Oluwole OO, et al. KTE-X19 for relapsed or refractory adult B-cell acute lymphoblastic leukaemia: phase 2 results of the single-arm, open-label, multicentre ZUMA-3 study. *The Lancet*. 2021;398(10299):491-502.
3. Kantarjian H, Stein A, Gökbuğet N, et al. Blinatumomab versus Chemotherapy for Advanced Acute Lymphoblastic Leukemia. *New England Journal of Medicine*. 2017;376(9):836-847.
4. Kantarjian HM, DeAngelo DJ, Stelljes M, et al. Inotuzumab ozogamicin versus standard of care in relapsed or refractory acute lymphoblastic leukemia: Final report and long-term survival follow-up from the randomized, phase 3 INO-VATE study. *Cancer*. 2019;125(14):2474-2487.
5. IBM Micromedex RED BOOK. <https://www.ibm.com/products/micromedex-red-book>. Published 2021. Accessed.
6. Barlev A, Lin VW, Song X. Burden of hospitalization in relapsed acute lymphoblastic leukemia. *Curr Med Res Opin*. 2016;32(7):1209-1212.
7. Roth JA, Sullivan SD, Lin VW, et al. Cost-effectiveness of axicabtagene ciloleucel for adult patients with relapsed or refractory large B-cell lymphoma in the United States. *J Med Econ*. 2018;21(12):1238-1245.
8. Summary of product characteristics: Blincyto 38.5 micrograms powder for concentrate and solution for infusion. In.
9. Delea TE, Zhang X, Amdahl J, et al. Cost Effectiveness of Blinatumomab Versus Inotuzumab Ozogamicin in Adult Patients with Relapsed or Refractory B-Cell Precursor Acute Lymphoblastic Leukemia in the United States. *PharmacoEconomics*. 2019;37(9):1177-1193.
10. CMS Laboratory Fee Schedule. <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/ClinicalLabFeeSched>. Published 2021. Accessed.
11. CMS Physician Fee Schedule. <https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeeSched>. Published 2021. Accessed.
12. HCUP. Healthcare Cost and Utilization Project. <https://hcupnet.ahrq.gov/>. Published 2021. Accessed October 12, 2021.
13. Zhang X, Song X, Lopez-Gonzalez L, Jariwala-Parikh K, Romanov V, Cong Z. Economic Burden of Venous-occlusive Disease in Patients With B-cell Acute Lymphoblastic Leukemia in the United States. *Clin Ther*. 2018;40(10):1711-1719.e1711.
14. Swinburn P, Lloyd A, Nathan P, Choueiri TK, Cella D, Neary MP. Elicitation of health state utilities in metastatic renal cell carcinoma. *Curr Med Res Opin*. 2010;26(5):1091-1096.
15. Nafees B, Stafford M, Gavriel S, Bhalla S, Watkins J. Health state utilities for non small cell lung cancer. *Health Qual Life Outcomes*. 2008;6:84.
16. NICE - National Institute for Health and Care Excellence. Osimertinib for treating locally advanced or metastatic EGFR T790M mutation-positive non-small-cell lung cancer [TA416]. 2016.
17. Tolley K, Goad C, Yi Y, Maroudas P, Haiderali A, Thompson G. Utility elicitation study in the UK general public for late-stage chronic lymphocytic leukaemia. *Eur J Health Econ*. 2013;14(5):749-759.
18. NICE - National Institute for Health and Care Excellence. Daratumumab monotherapy for treating relapsed and refractory multiple myeloma [TA510]. 2018.

19. NICE - National Institute for Health and Care Excellence. Atezolizumab for treating locally advanced or metastatic non-small-cell lung cancer after chemotherapy [TA520]. 2018.
20. Beusterien KM, Davies J, Leach M, et al. Population preference values for treatment outcomes in chronic lymphocytic leukaemia: a cross-sectional utility study. *Health Qual Life Outcomes*. 2010;8:50.
21. Lachaine J, Mathurin K, Barakat S, Couban S. Economic evaluation of arsenic trioxide compared to all-trans retinoic acid + conventional chemotherapy for treatment of relapsed acute promyelocytic leukemia in Canada. *Eur J Haematol*. 2015;95(3):218-229.
22. Stein. An online survey designed using the DCE approach to generate utility values for acute myeloid leukemia (AML). International Society for Pharmacoeconomic and Outcomes Research Annual European Conference; 2017.
23. NICE - National Institute for Health and Care Excellence. Inotuzumab ozogamicin for treating relapsed or refractory B-cell acute lymphoblastic leukaemia [TA541]. 2018.
24. Armstrong N, Vale L, Deverill M, et al. Surgical treatments for men with benign prostatic enlargement: cost effectiveness study. *BMJ*. 2009;338:b1288.
25. Doyle S, Lloyd A, Walker M. Health state utility scores in advanced non-small cell lung cancer. *Lung Cancer*. 2008;62(3):374-380.