Randomized versus real-world evidence on the efficacy and toxicity of checkpoint inhibitors in cancer: a meta-analysis

Evangelos Digkas[1*], Anthony Jagri Tabiim[2*], Daniel Smith[3], Antonis Valachis[4]
[*]The authors have equally contributed to this work
[1]Department of Immunology, Genetics and Pathology, Science for Life Laboratory, Uppsala University, Uppsala, Sweden.
[2] Department of Surgery, Korle-Bu Teaching Hospital, Accra, Ghana
3Clinical Epidemiology and Biostatistics, School of Medical Sciences, Örebro University, Örebro, Sweden.
[4] Department of Oncology, Faculty of Medicine and Health, Örebro University, Sweden

Corresponding author:
Assoc Prof Antonis Valachis
Department of Oncology, Faculty of Medicine and Health, Örebro University, Sweden
Antonios.valachis@oru.se
Tel. +46735617691

Supplementary material

Supplementary Table 1. Characteristics of eligible studies

First author (ref)	No. Patients	Study design	Cancer type	Checkpoint inhibitor	Line of treatment
Abbas W. (1)	11	RWE	NSCLC	Nivolumab	2nd or later
Ahn B.C. (2)	155	RWE	NSCLC	Nivolumab, Pembrolizumab	2nd or later
Amini-Adle M. (3)	74	RWE	Melanoma	Nivolumab, Pembrolizumab	2nd or later
Amode R. (4)	39	RWE	Melanoma	Nivolumab, ipilimumab	2nd or later
Amrane K. (5)	108	RWE	NSCLC	Pembrolizumab	1st
Arbour K.C. (6)	640	RWE	NSCLC	Nivolumab, Pembrolizumab, Atezolizumab, durvalumab	2nd or later
Areses-Manrique M.C. (7)	188	RWE	NSCLC	Nivolumab	2nd or later
Arheden A. (8)	116	RWE	Melanoma	Nivolumab, Pembrolizumab	2nd or later
Ascierto P.A. (9)	210	RCT	Melanoma	Nivolumab	1st
Ascierto P.A. (10)	362	RCT	Melanoma	Ipilimumab	1st
Bjornhart B. (11)	118	RWE	NSCLC	Nivolumab, Pembrolizumab	2nd or later
Borghaei H. (12)	292	RCT	NSCLC	Nivolumab	2nd or later
Brahmer J. (13)	135	RCT	NSCLC	Nivolumab	2nd or later
Brustugun O.T. (14)	58	RWE	NSCLC	Nivolumab	2nd or later
Bylicki O. (15)	51	RWE	NSCLC	Nivolumab	2nd or later
Crinò L. (16)	371	RWE	NSCLC	Nivolumab	2nd or later
Dai W.F. (17)	189	RWE	Melanoma	Ipilimumab	2nd or later
El Karak F. (18)	110	RWE	NSCLC	Nivolumab, Pembrolizumab	2nd or later
Elkrief A.(19)	381	RWE	NSCLC	Nivolumab, Pembrolizumab	2nd or later
Fehrenbacher L. (20)	144	RCT	NSCLC	Atezolizumab	2nd or later
Fehrenbacher L. (21)	613	RCT	NSCLC	Atezolizumab	2nd or later
Figueiredo A. (22)	219	RWE	NSCLC	Nivolumab	2nd or later
Galli G. (23)	290	RWE	NSCLC	Nivolumab, Pembrolizumab, Atezolizumab	2nd or later
Grossi F. (24)	1588	RWE	NSCLC	Nivolumab	2nd or later
Guisier F. (25)	107	RWE	NSCLC	Nivolumab, Pembrolizumab	2nd or later
Hamid O. (26)	180	RCT	Melanoma	Pembrolizumab	2nd or later
Herbst R.S. (27)	107	RCT	NSCLC	Atezolizumab	1st
Herbst R.S. (28)	344	RCT	NSCLC	Pembrolizumab	2nd or later
Hodi F.S. (29)	137	RCT	Melanoma	Ipilimumab	2nd
Hodi F.S. (30)	47	RCT	Melanoma	Ipilimumab	1st

Iorgulescu J.B.(31)	286	RWE	Melanoma	Ipilimumab	1st
Khozin S. (32)	5257	RWE	NSCLC	Nivolumab, Pembrolizumab, Atezolizumab	2nd or later
Kobayashi K. (33)	142	RWE	NSCLC	Nivolumab	2nd or later
Ksienski D. (34)	271	RWE	NSCLC	Nivolumab, Pembrolizumab	2nd or later
Kumar S. (35)	88	RWE	NSCLC	Nivolumab, Pembrolizumab, Atezolizumab	2nd or later
Larkin J. (36)	315	RCT	Melanoma	Ipilimumab	1st
Larkin J. (37)	272	RCT	Melanoma	Nivolumab	2nd or later
Lin S.Y. (38)	74	RWE	NSCLC	Nivolumab, Pembrolizumab	2nd or later
Martin C. (39)	109	RWE	NSCLC	Nivolumab	2nd or later
Merino Almazán M. (40)	221	RWE	NSCLC	Nivolumab	2nd or later
Mok T.S.K. (41)	299	RCT	NSCLC	Pembrolizumab	1st
Montana M. (42)	98	RWE	NSCLC	Nivolumab	2nd or later
Muchnik E. (43)	75	RWE	NSCLC	Nivolumab, Pembrolizumab	2nd or later
Nieder C. (44)	32	RWE	NSCLC	Pembrolizumab, Atezolizumab	2nd or later
Reck M. (45)	154	RCT	NSCLC	Pembrolizumab	1st
Ridolfi L.(46)	174	RWE	Melanoma	Nivolumab, Pembrolizumab	2nd or later
Robert C. (47)	834	RCT	Melanoma	Pembrolizumab, Ipilimumab	2nd or later
Schwartzberg L. (48)	4240	RWE	NSCLC	Nivolumab, Pembrolizumab, Atezolizumab	2nd or later
Shamai S. (49)	77	RWE	NSCLC	Nivolumab	2nd or later
Simeone J.C. (50)	9656	RWE	NSCLC	Nivolumab	2nd or later
Song P. (51)	39	RWE	NSCLC	Nivolumab, Pembrolizumab, Atezolizumab	2nd or later
Suo A.(52)	186	RWE	Melanoma	Nivolumab or Pembrolizumab	2nd or later
Tambo Y. (53)	95	RWE	NSCLC	Pembrolizumab	1st
Taquin H.(54)	58	RWE	Melanoma	Ipilimumab	1st
Velcheti V. (55)	611	RWE	NSCLC	Pembrolizumab	1st
Weis T.M. (56)	124	RWE	NSCLC	Nivolumab, Atezolizumab	2nd or later
Whitman E.D.(57)	387	RWE	Melanoma	Ipilimumab	1st
Youn B. (58)	1256	RWE	NSCLC	Nivolumab, Pembrolizumab	2nd or later

Abbreviations: RWE, real-world evidence study; RCT, randomized controlled study; NSCLC, non-small-cell lung cancer.

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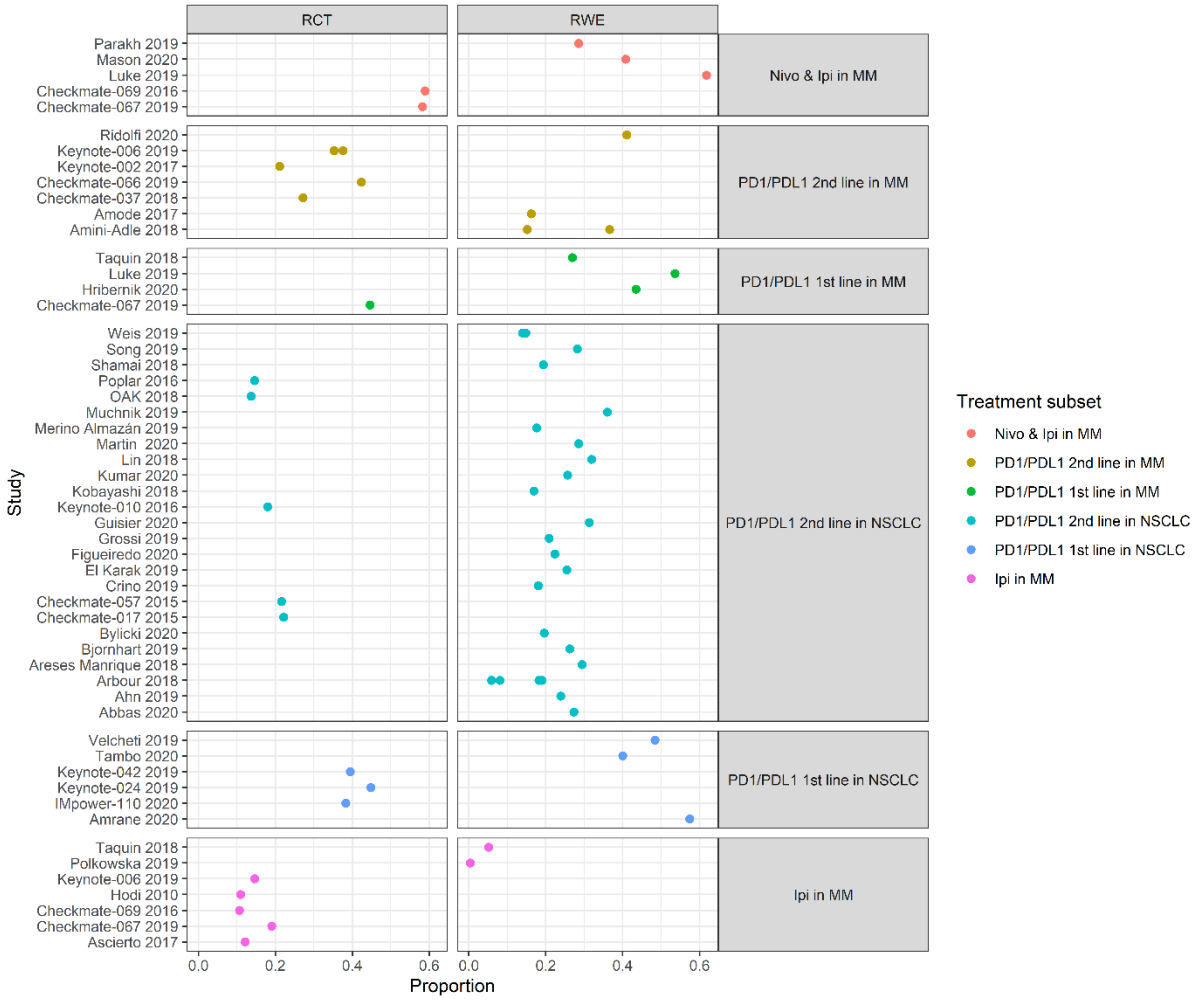
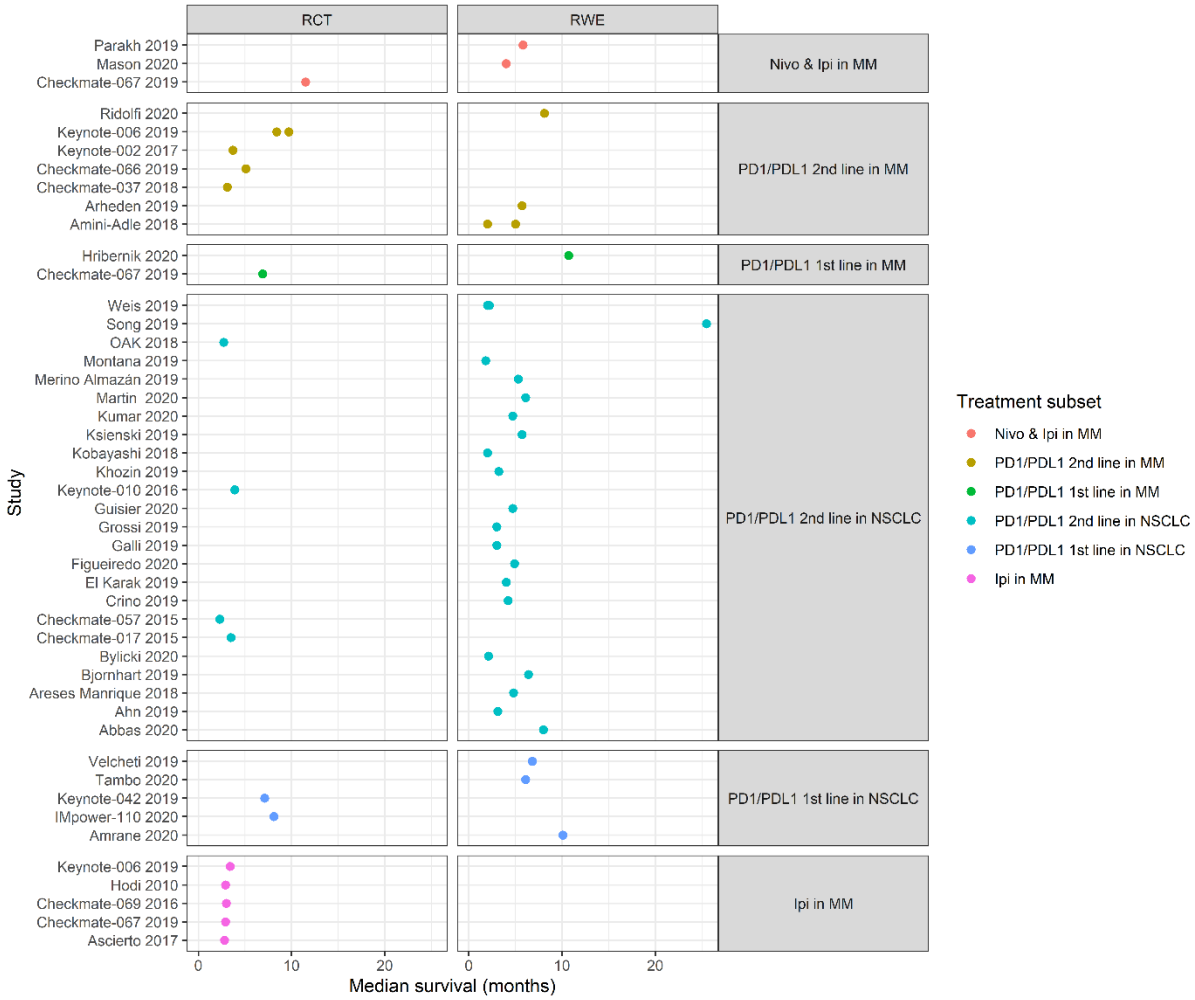
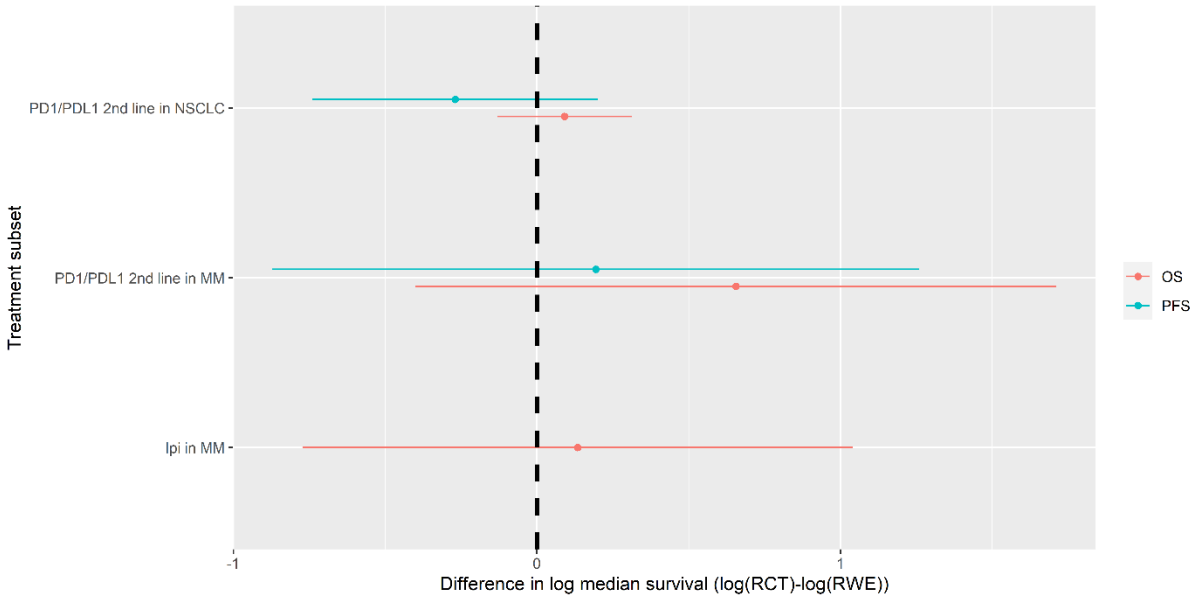


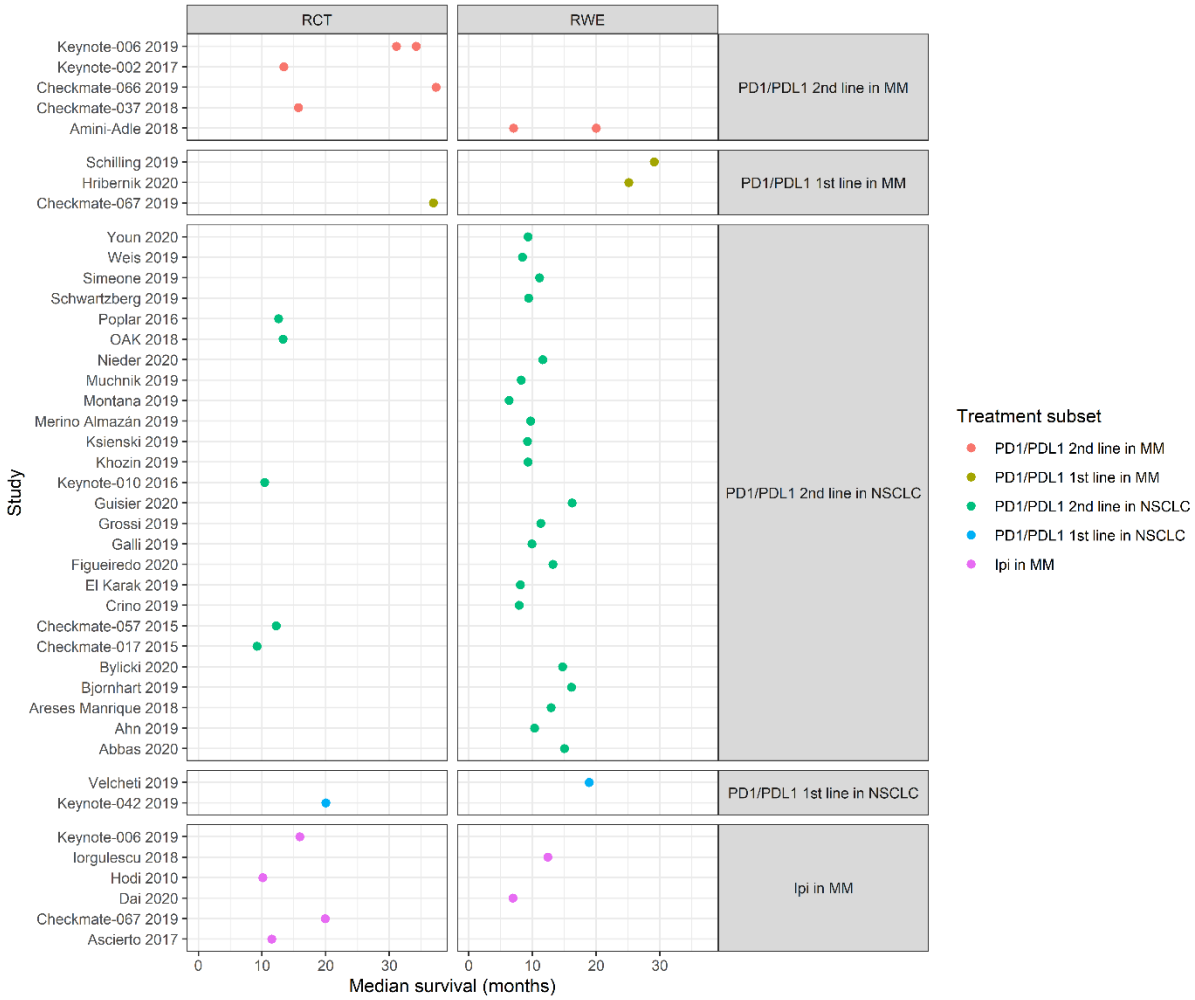
Supplementary Figure 1. Eligible studies presented data on objective response rate divided by indication and source of evidence



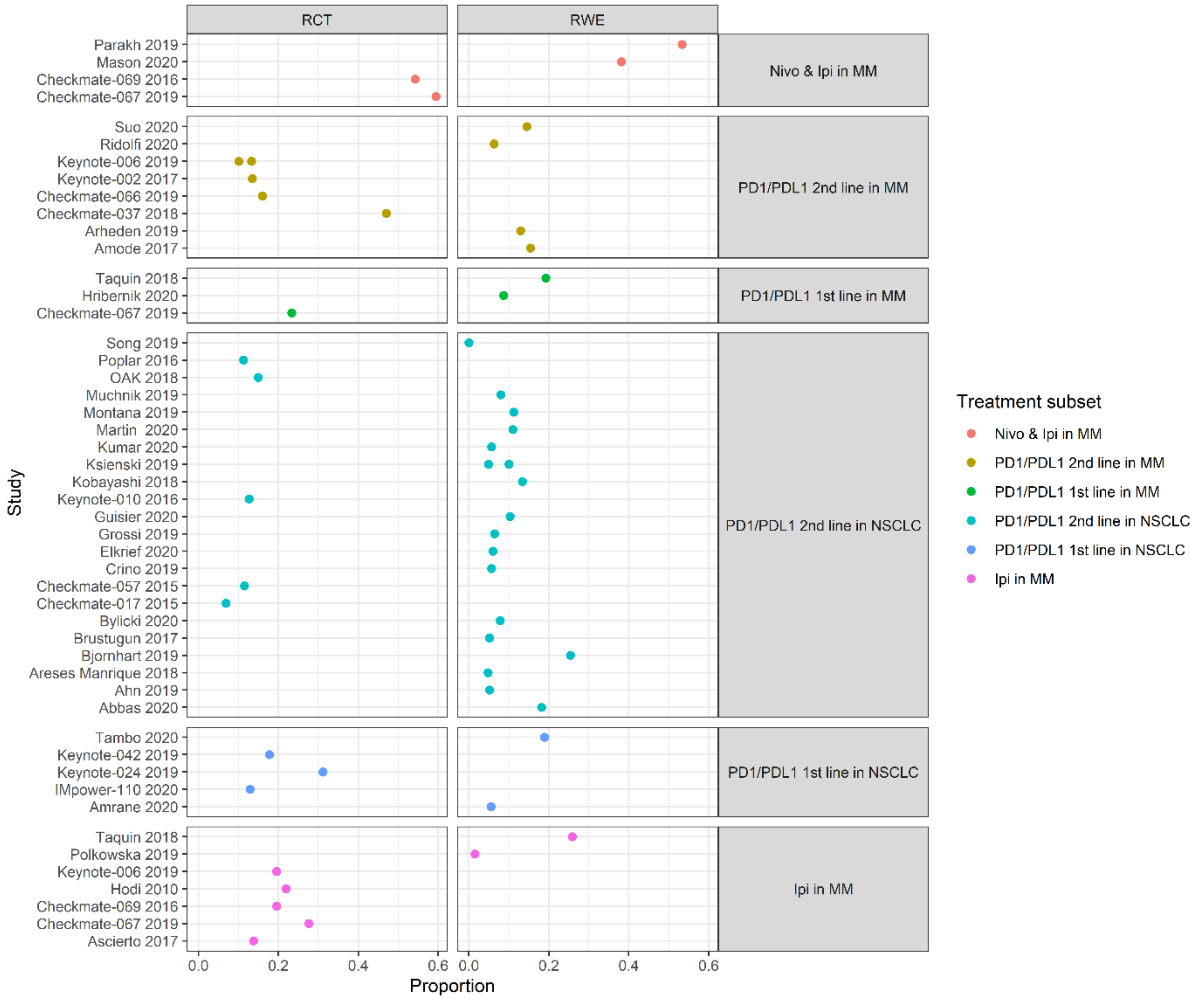
Supplementary Figure 2. Eligible studies presented data on progression-free survival divided by indication and source of evidence



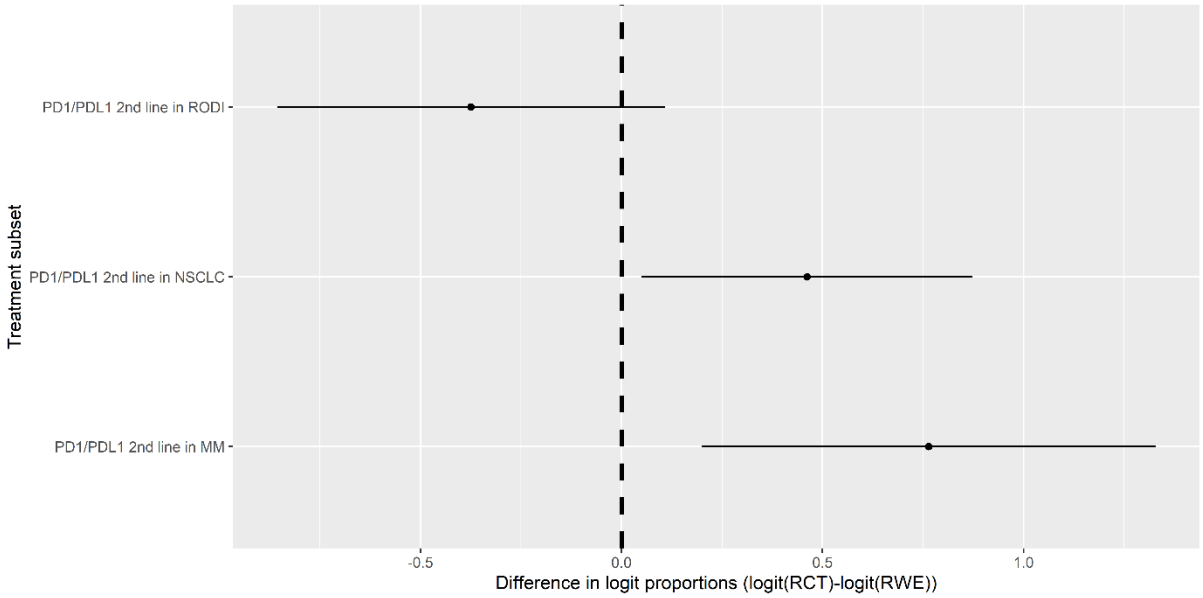
Supplementary Figure 3. Contrasts illustrating the differences in pooled median progression-free and overall survival between randomized and real-world evidence in different indications



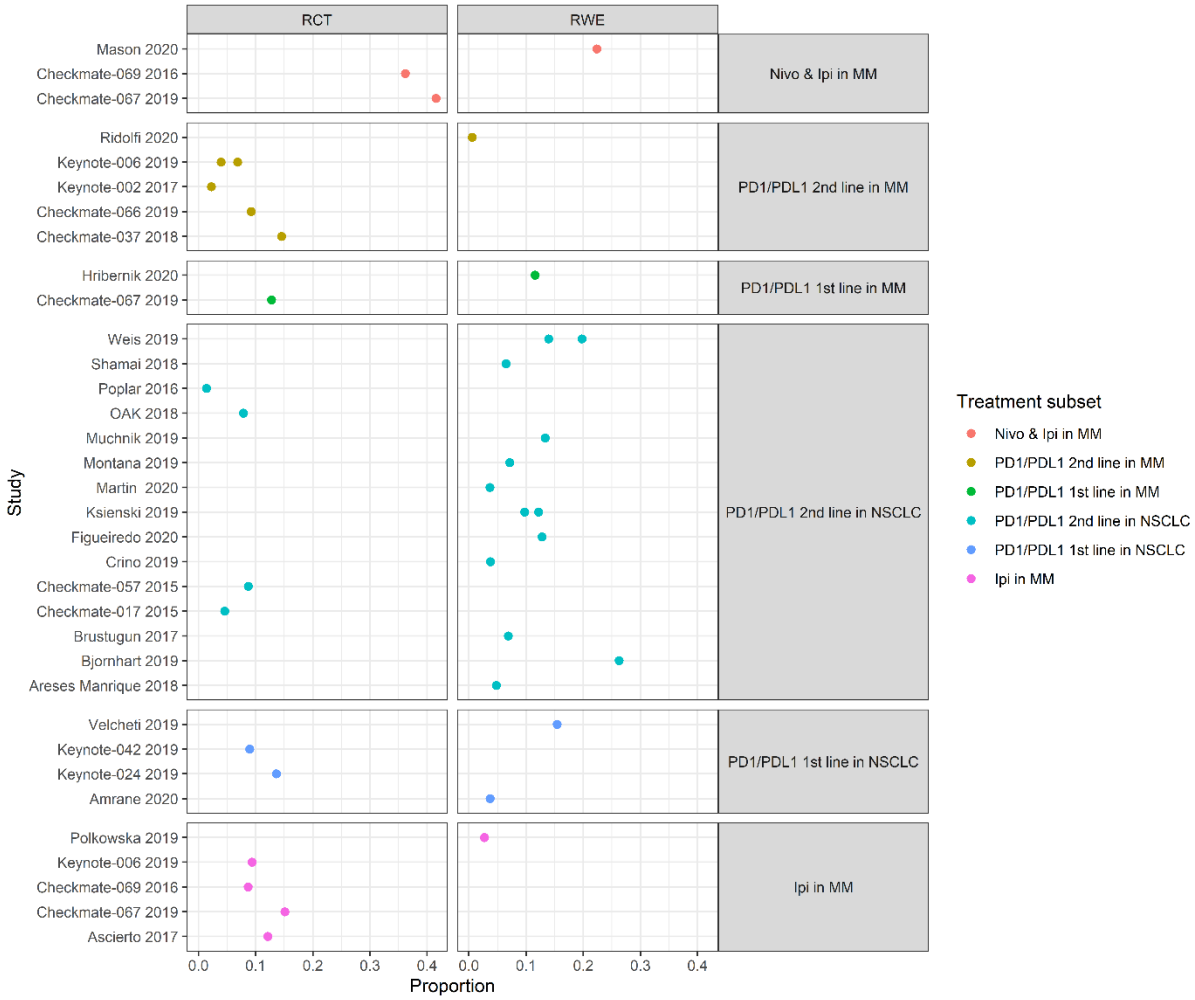
Supplementary Figure 4. Eligible studies presented data on overall survival divided by indication and source of evidence



Supplementary Figure 5. Eligible studies presented data on grade 3-4 immune-related toxicity rates divided by indication and source of evidence



Supplementary Figure 6. Contrasts illustrating the differences in pooled rates of toxicity and treatment discontinuation due to toxicity (RODI) between randomized and real-world evidence in different indications



Supplementary Figure 7. Eligible studies presented data on rates for treatment discontinuation due to toxicity divided by indication and source of evidence