

The effect of resection of the primary tumour for stage IV colorectal cancer on patient survival: a systematic review and meta-analysis

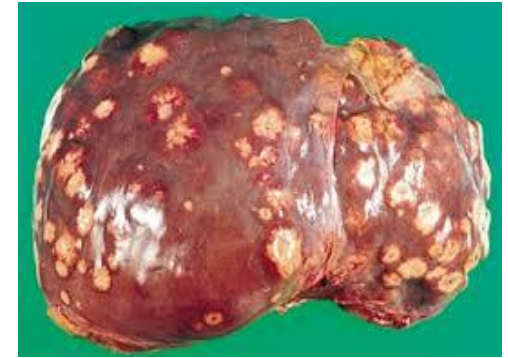
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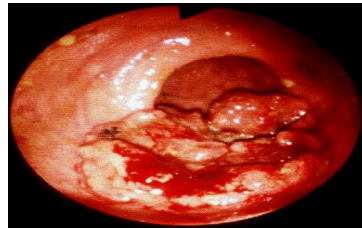
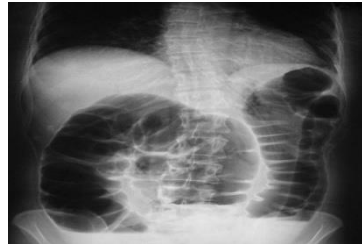
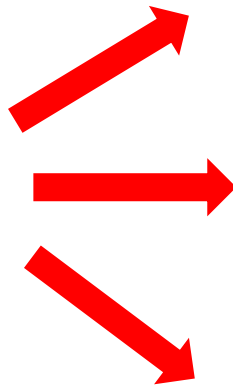


Stage IV Disease

- ~ 25% of newly diagnosed colorectal cancer patients



Emergency presentation



Resection

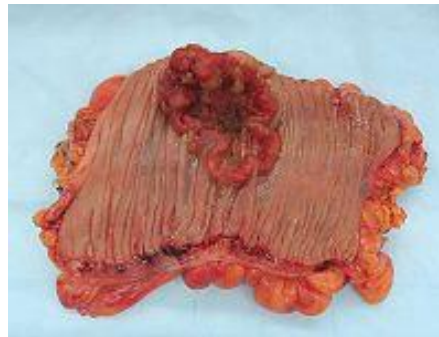


Asymptomatic Stage IV Disease

Management of asymptomatic patients



Primary tumour



Chemotherapy only

Resection + chemotherapy

Resection Vs Chemotherapy

Potential survival benefit associated with removal of primary tumour in other cancers

Ann Surg Oncol (2013) 20:2828–2834
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ORIGINAL ARTICLE – BREAST ONCOLOGY

Meta-Analysis to Determine if Surgical Resection of the Primary Tumour in the Setting of Stage IV Breast Cancer Impacts on Survival

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Pro resection

 Circulating pro-tumorigenic mediators

Against resection

Induce tumour growth



Current Evidence

- No randomised controlled trials



evidence for survival benefit

selection bias



Aim

Conduct a meta-analysis to determine the effect of *primary tumour resection + chemotherapy Vs. chemotherapy only* for stage IV colorectal cancer with unresectable metastases on patient survival

Primary endpoints:

- Survival benefit

Secondary endpoints:

- Patient characteristics
- Tumour location
- Metastatic burden

Methods

- Search of
 - **Pubmed / Embase / Cochrane database**

for published studies which included data on resection vs chemotherapy alone in stage IV colorectal cancer

2 authors independantly examined the full texts of eligible studies

Reference lists of included studies were screened for additional eligible studies



Eligibility criteria

Included – Studies with comparative data on resection + chemotherapy Vs chemotherapy alone in stage IV disease



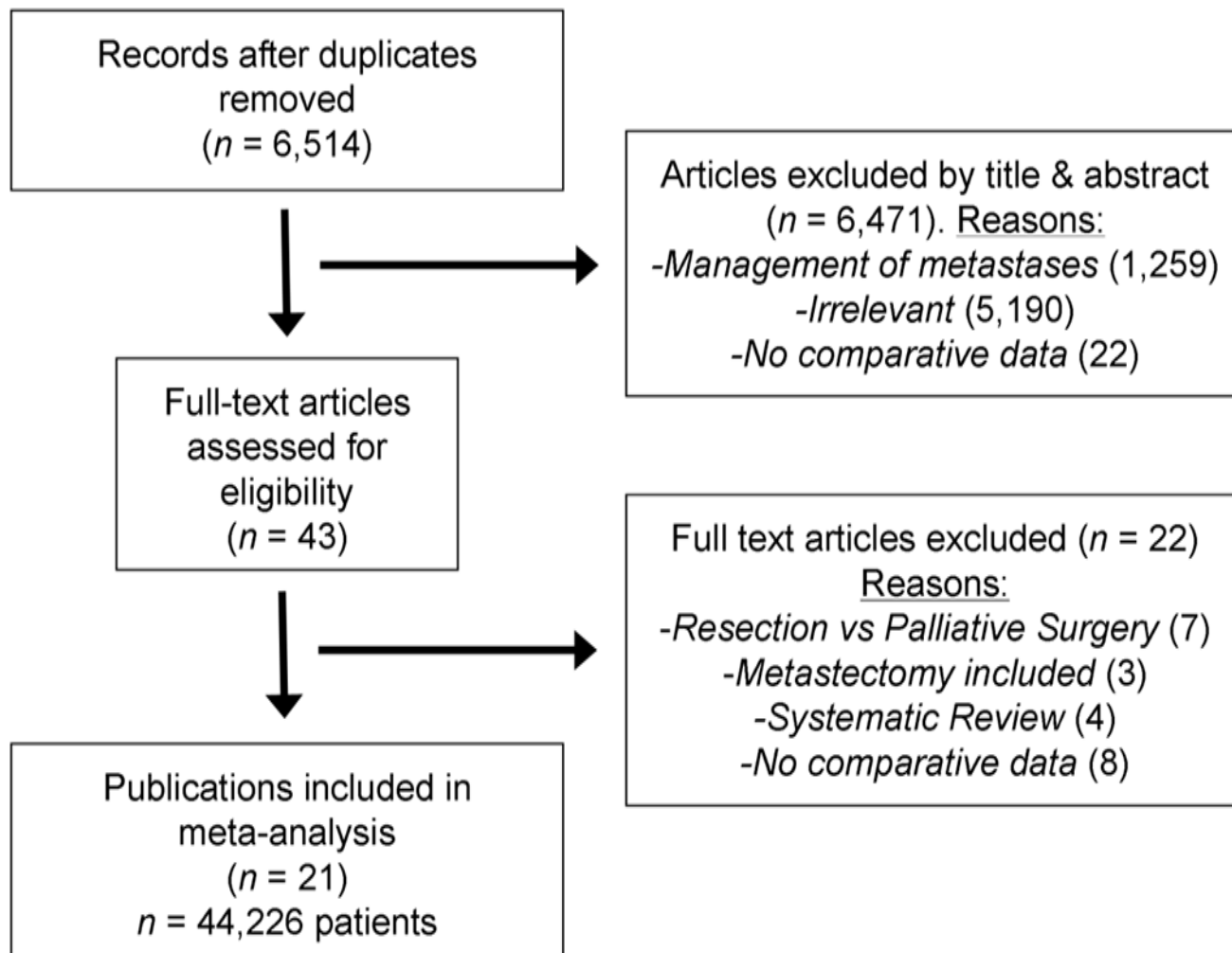
Excluded – Non stage IV, no comparative data, non resection surgery and resection of metastases



Results



PRISMA diagram



Included Trial Characteristics

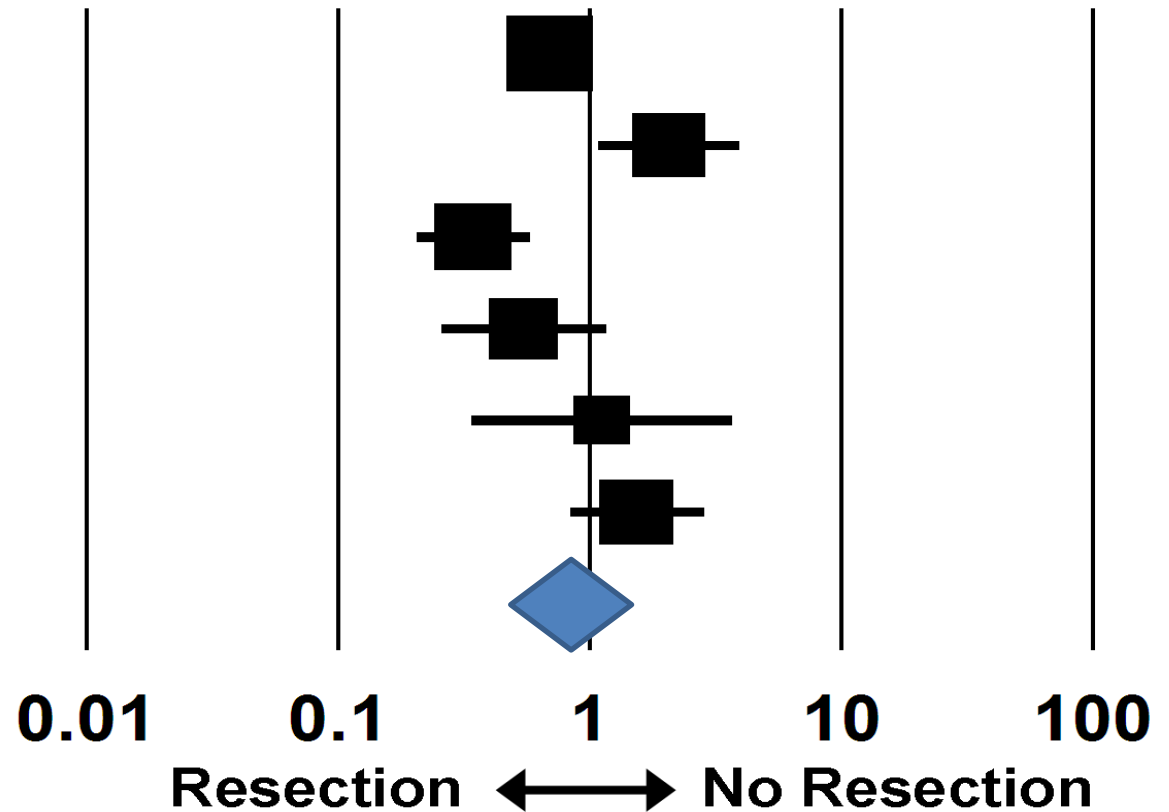
First author	Year	Country	Study Type	Enrolment interval	N resection	N no resection	Median survival Resection	Median survival no resection
Scoggins CR	1999	USA	Retro	1985 - 1997	66	23	14.5 months	16.6 months
Tebbutt NC	2003	UK	Retro	1990 - 2000	280	82	14 months	8.2 months
Ruo L	2003	USA	Retro	1996 -1999	127	103	16 months	9 months
Michel P	2004	France	Retro	1996 -1999	31	23	21 months	14 months
Cummins ER	2004	USA	Retro	1989 - 2003	36	25	11.5 months	4.8 months
Cook AD	2005	USA	Retro	1988 - 2000	17657	9097	11 months	2 months
Benoist S	2005	France	Retro	1997 - 2002	32	27	22 months	23 months
Galizia G	2008	Italy	Retro	1995 - 2005	42	23	36 months	17 months
Kaufman MS	2008	USA	Retro	1998 - 2003	115	70	30 months	15 months
Chan TW	2010	Canada	Retro	2000 - 2002	286	125	14 months	6 months
Aslam MI	2010	UK	Retro	1998 - 2007	366	281	14.5 months	5.8 months
Cellini C	2010	USA	Retro	2002 - 2008	22	9	32 months	37 months
Seo GJ	2010	Korea	Retro	2001 - 2008	144	83	22 months	14 months
Karoui M	2011	France	Retro	1998 - 2007	85	123	30.7 months	21.9 months
Venderbosch S	2011	Netherlands	Cohort	2003 - 2004	258	141	16.7 months	11.4 months
Venderbosch S	2011	Netherlands	Cohort	2005 - 2006	289	159	20.7 months	13.4 months
Kim SK	2012	Korea	Retro	2000 - 2009	105	96	14 months	8 months
Verberne CJ	2012	Netherlands	Retro	2002 - 2006	26	21	26 months	17 months
Ferrand F	2013	France	Cohort	1997 - 2001	156	60	16.3 months	19.5 months
Boselli C	2013	Italy	Retro	2010 - 2011	17	31	4 months	5 months
Tsang WY	2013	USA	Retro	1996-2007	8,599	3,117	21 months	10 months
Ahmed S	2013	Canada	Retro	1992 - 2005	761	419	15.2 months	8.3 months

Patient Characteristics



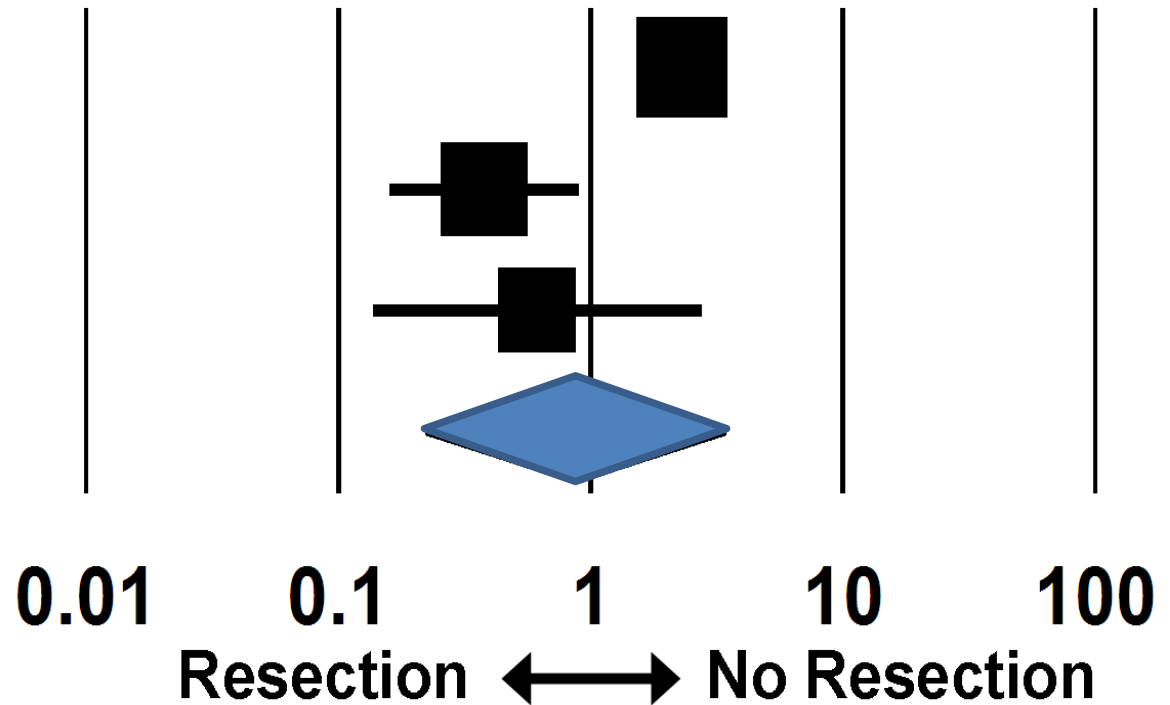
Treatment type and age > 65

N	27,915
Odds Ratio	0.846
95% CI	0.529 – 1.353
P value	0.48



Treatment type and ASA grade ≥ 3

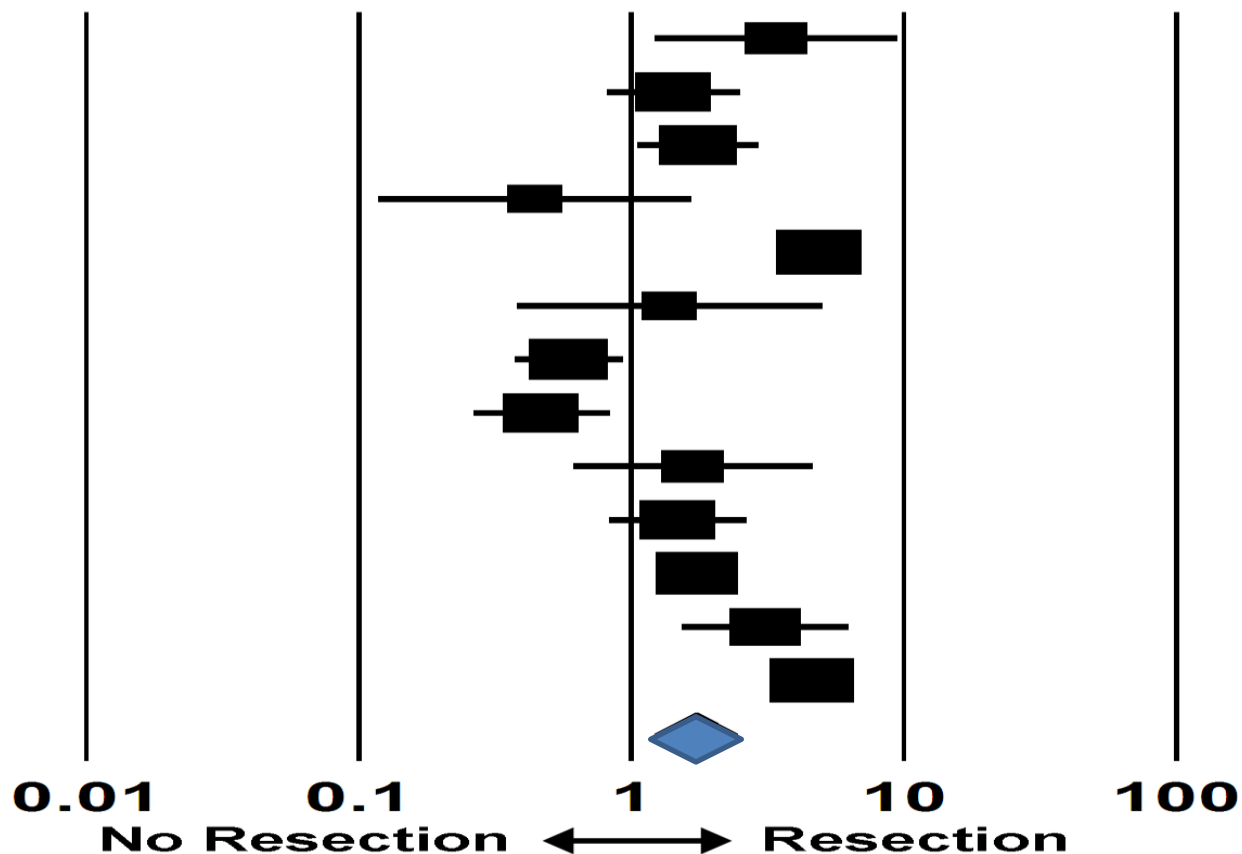
N	896
Odds Ratio	0.868
95% CI	0.223 – 3.384
P value	0.84



Tumour Location

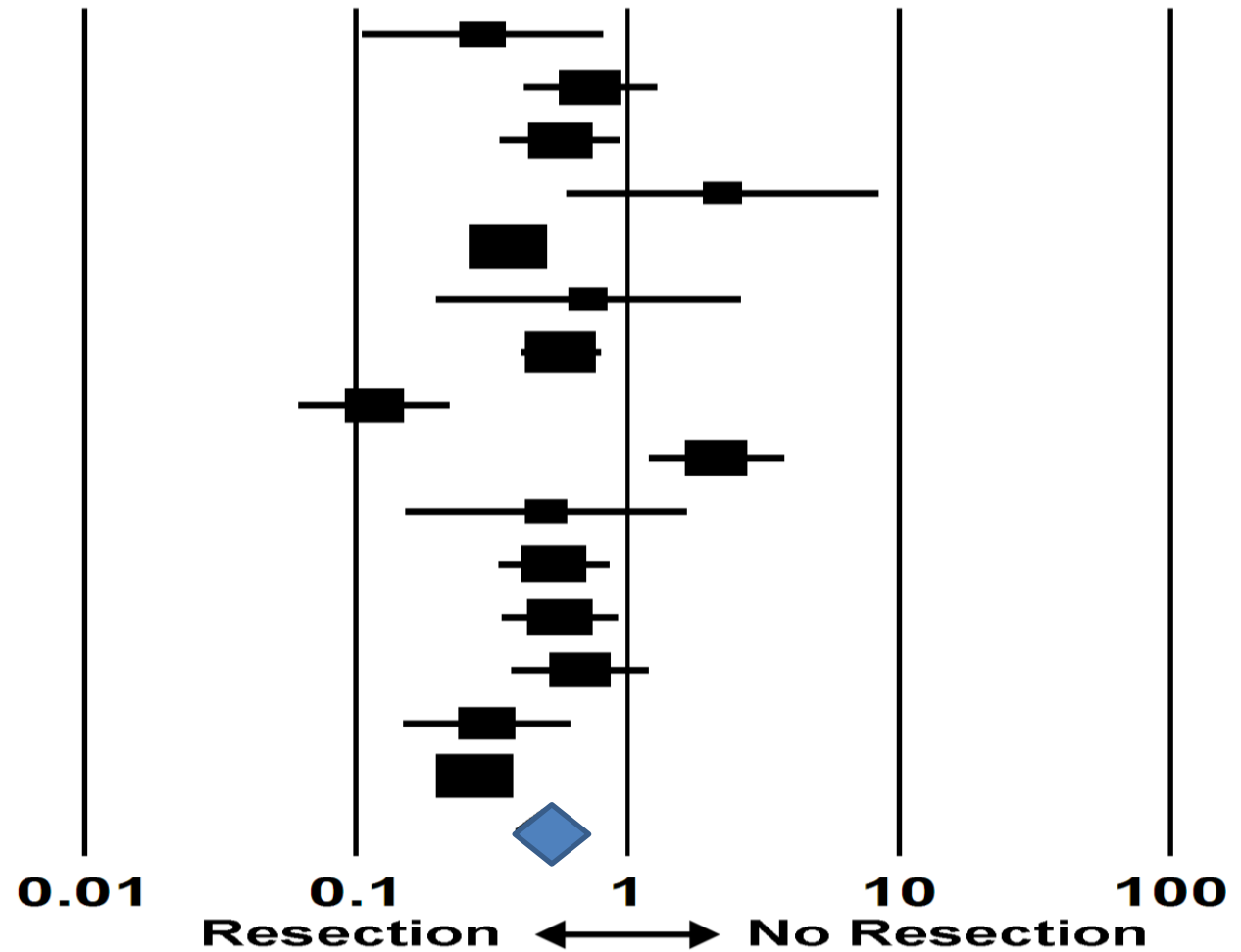
Treatment type and colon tumours

N	41,185
Odds Ratio	1.728
95% CI	1.231 – 2.434
P value	0.002



Treatment type and rectal tumours

N	42,079
Odds Ratio	0.495
95% CI	0.390 – 0.629
P value	<0.001

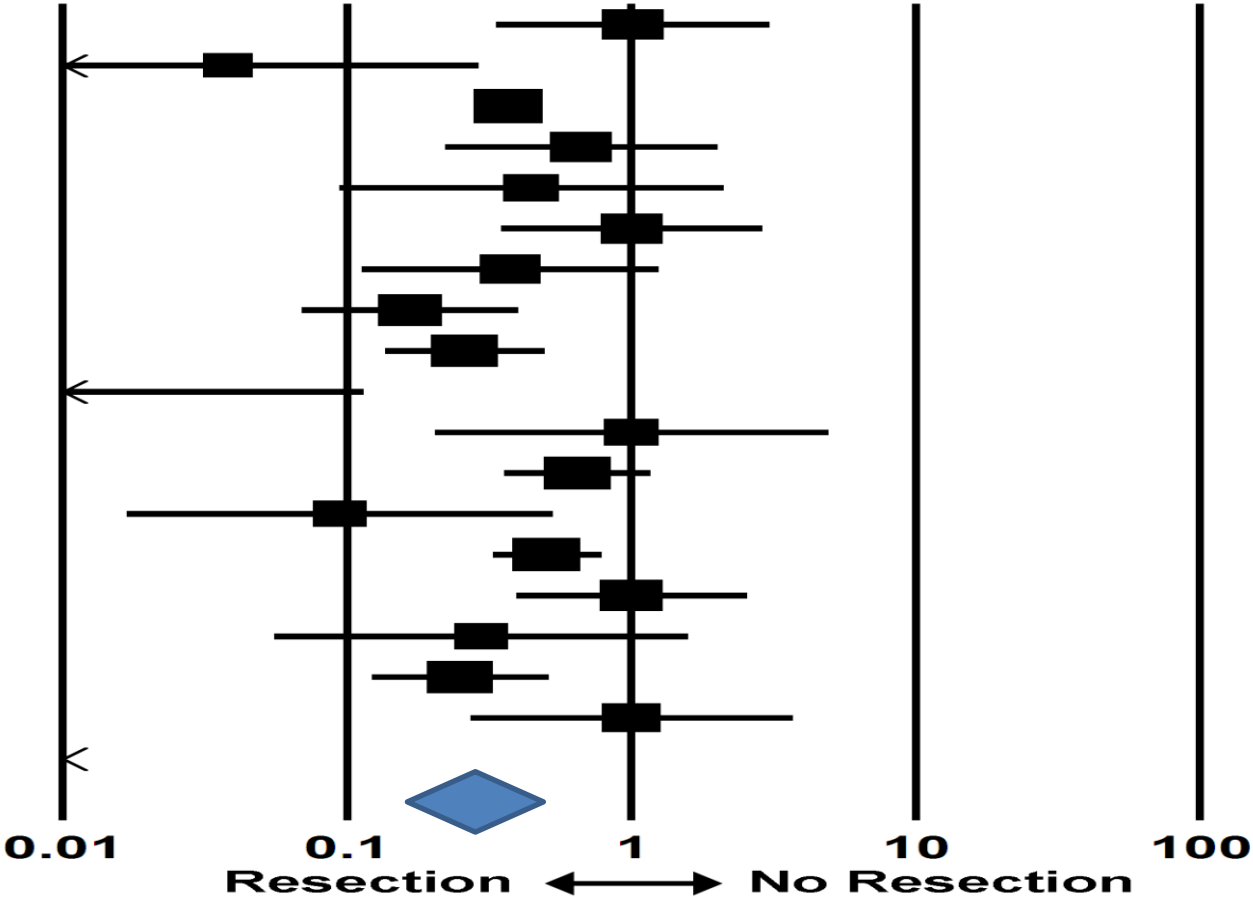


Mortality Risk and Survival Benefit



Mortality Risk

N	16,295
Odds Ratio	0.28
95% CI	0.165 – 0.474
P value	<0.001

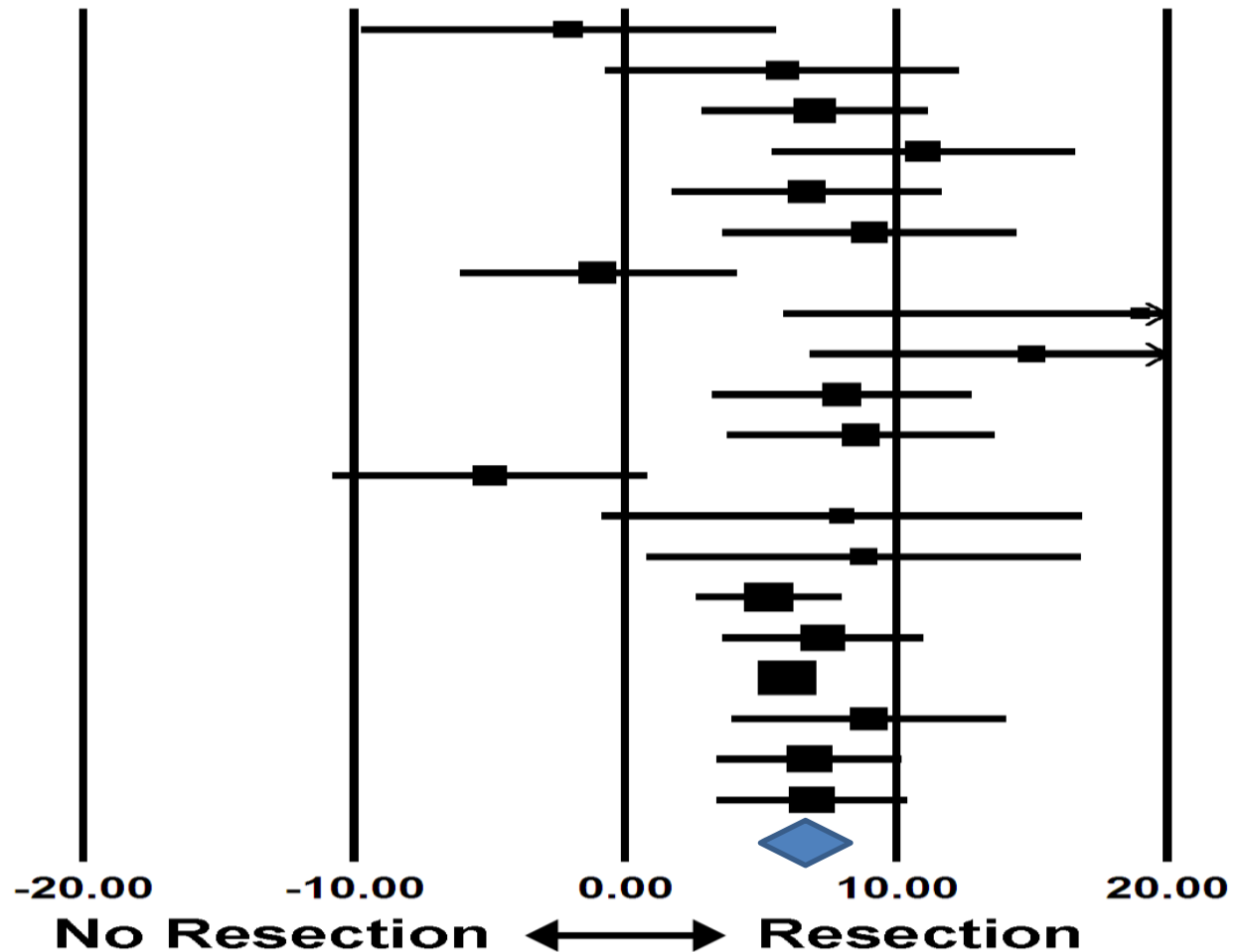


Mean follow up 33 +/- 15 months



Survival Benefit

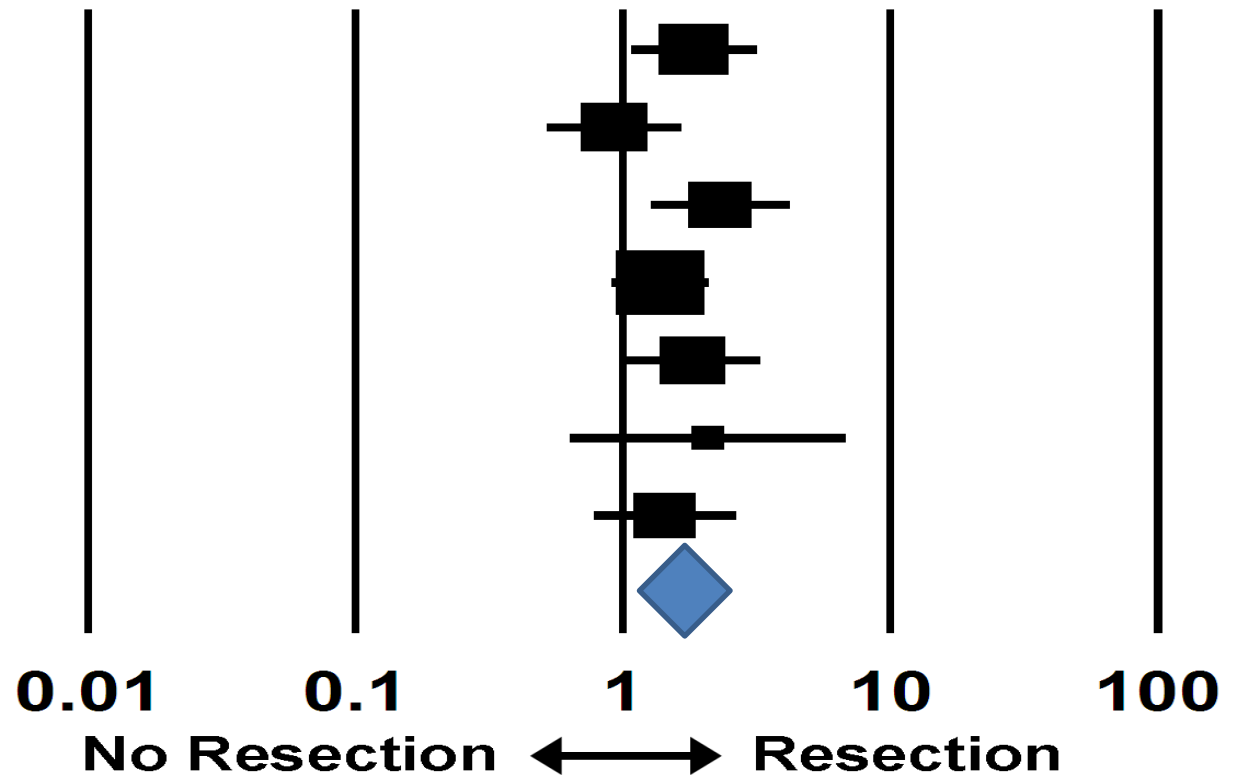
N	43,720
SMD	6.4 months
95% CI	5.025 – 7.858
P value	<0.001



Metastatic Burden

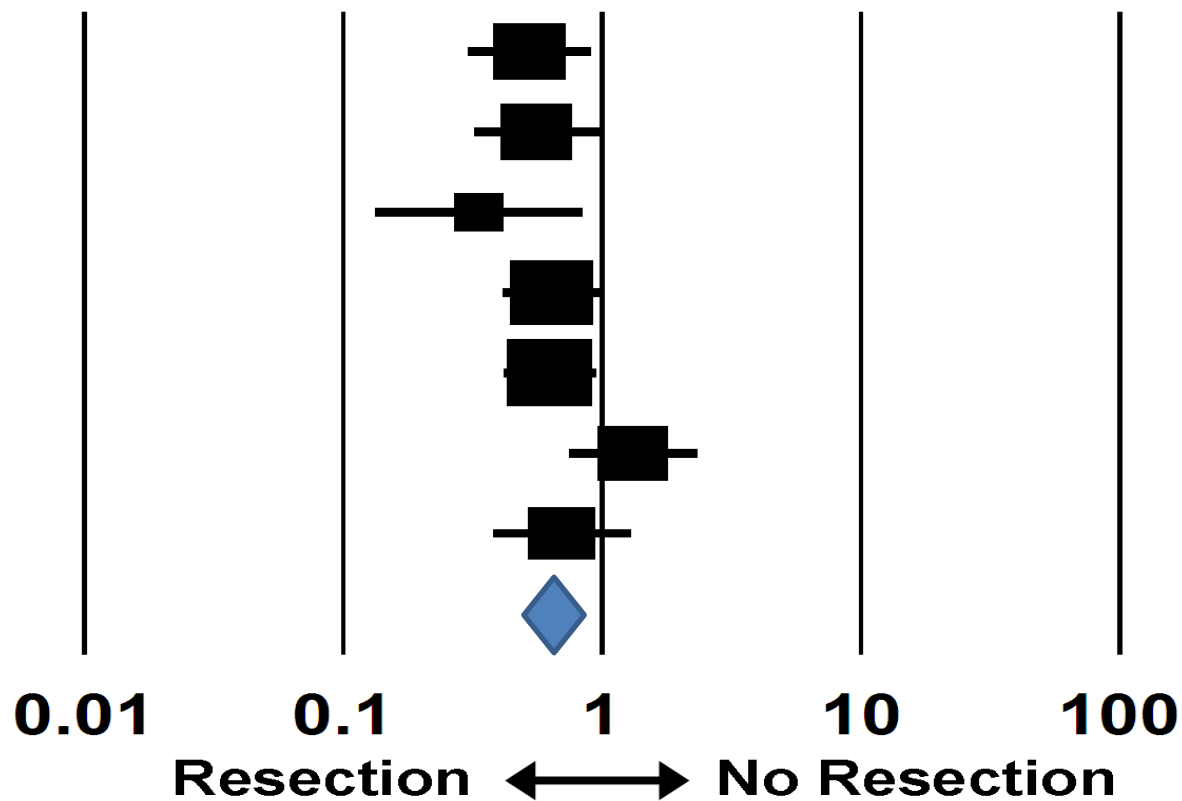
Treatment type and metastases confined to the liver

N	1,749
OR	1.551
95% CI	1.247 – 1.929
P value	<0.001



Treatment type and ≥ 2 metastases

N	2,132
OR	0.653
95% CI	0.508 – 0.839
P value	= 0.001



Summary

There is a reduced mortality risk associated with resection of the primary tumour over a follow up over 33 months

There is a standard mean difference in survival of 6.4 months in favour of resection

Resection of the primary tumour in stage IV colorectal cancer is performed more commonly in

- colon cancer compared to rectal cancer
- patients with single metastases and liver only metastases

Conclusions

Current literature suggests resection of the primary tumour in stage IV colorectal cancer confers a survival advantage

There is significant selection bias present in all available data however, as all studies are retrospective and those undergoing resection have a lower metastatic burden

Randomised controlled trials to determine the optimal treatment for patients with stage IV colorectal cancer are urgently required