

# Meta-analysis results, forest plots, and funnel plots

NOTE: The analysis presented here was performed with StatsDirect software (StatsDirect Ltd, England 2017) [Available from: <http://www.statsdirect.com>]. StatsDirect provides dropdown menus and choice buttons, instead of commands, to select the analysis method. We used the “Meta-Analysis Summary inverse variance method” to estimate the pooled effect size differences. The following results are StatsDirect output for strategy-outcome groups involving >1 study. In numerical results, commas represent decimal points (e.g., 10,3 = 10.3). The StatsDirect output provides detailed information needed to reproduce the analysis with any statistical software.

## Content

### **1. Collaborative improvement vs. control**

Outcome: 1.1 Care-seeking behavior outcomes (%).....	2
Outcome: 1.2 Care-seeking behavior outcomes (continuous) .....	4
Outcome: 1.3 Patient behaviors not related to care-seeking (%).....	7
Outcome: 1.4 Health worker practice outcomes (%).....	9
Outcome: 1.5 Health worker practice outcomes (continuous).....	11
Outcome: 1.6 Patient health outcomes (%).....	14

### **2. Collaborative improvement + training vs. control**

Outcome: 2.1 Patient behaviors not related to care-seeking (%).....	16
Outcome: 2.2 Health worker practice outcomes (%).....	18
Outcome: 2.3 Patient health outcomes (continuous) .....	20

### **3. Collaborative improvement + strengthening infrastructure + regulation and governance vs. control**

Outcome: 3.1 Patient behaviors related to care-seeking (%).....	22
Outcome: 3.2 Patient behaviors not related to care-seeking (%).....	23

## 1. Collaborative improvement vs. control, outcome: 1.1 Care-seeking behavior outcomes (%).

### Summary meta-analysis

Study	* Difference	SE	Approximate 95% CI		
1	10,3	6,9816	-3,383685	23,983685	Catsambas 2008-6
2	21,55	28,483387	-34,276412	77,376412	Catsambas 2008-7
3	-0,45	7,406908	-14,967272	14,067272	Catsambas 2008-9
4	3	12,759608	-22,008373	28,008373	Osibo 2017
5	28,9	20,28047	-10,848992	68,648992	Singh 2013
6	4,752	3,844866	-2,783798	12,287798	Singh 2016-1
7	5,5	4,258659	-2,846819	13,846819	Singh 2016-2
8	9,85	7,764466	-5,368074	25,068074	Singh 2016-3

Stratum	Standardized Effect	Standard Error	% Weights (fixed, random)		
1	10,3	6,9816	10,917316	10,917316	Catsambas 2008-6
2	21,55	28,483387	0,655907	0,655907	Catsambas 2008-7
3	-0,45	7,406908	9,699558	9,699558	Catsambas 2008-9
4	3	12,759608	3,26852	3,26852	Osibo 2017
5	28,9	20,28047	1,293808	1,293808	Singh 2013
6	4,752	3,844866	35,996763	35,996763	Singh 2016-1
7	5,5	4,258659	29,341343	29,341343	Singh 2016-2
8	9,85	7,764466	8,826786	8,826786	Singh 2016-3

#### Fixed effects (inverse variance)

Pooled \* difference = 5,887928 (95% CI = 1,366652 to 10,409204)

Z (test test \* Difference differs from 0) = 2,552405 P = 0,0107

#### Non-combinability of studies

Cochran Q = 3,12863 (df = 7) P = 0,8729

Moment-based estimate of between studies variance = 0

I<sub>2</sub> (inconsistency) = 0% (95% CI = 0% to 56,3%)

#### Random effects (DerSimonian-Laird)

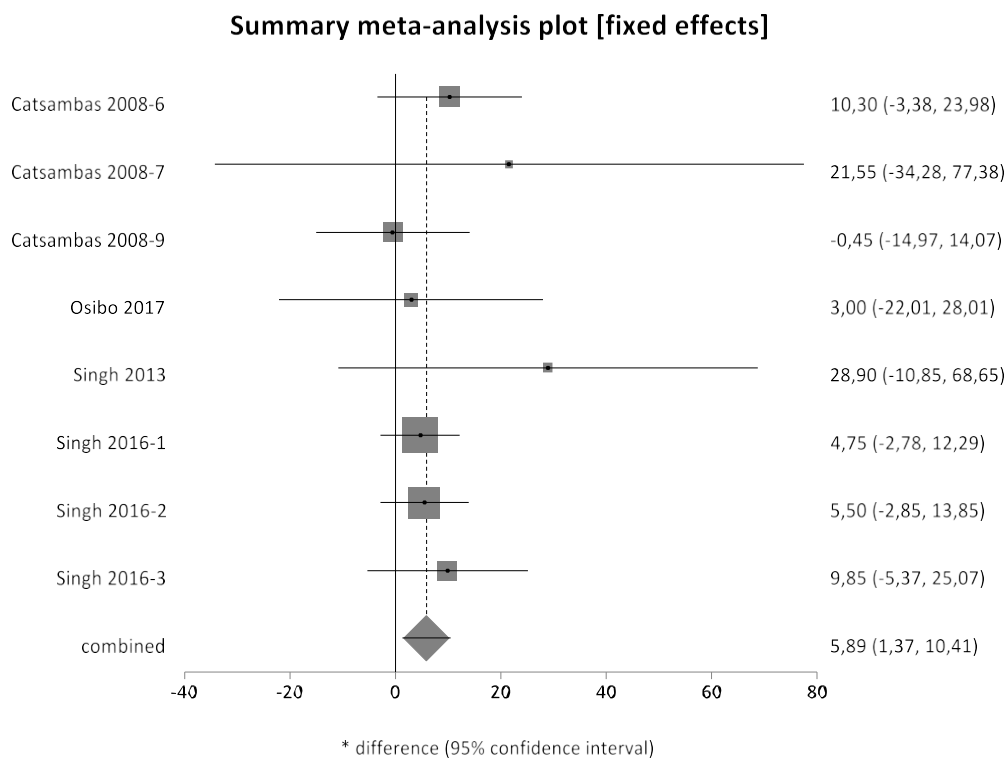
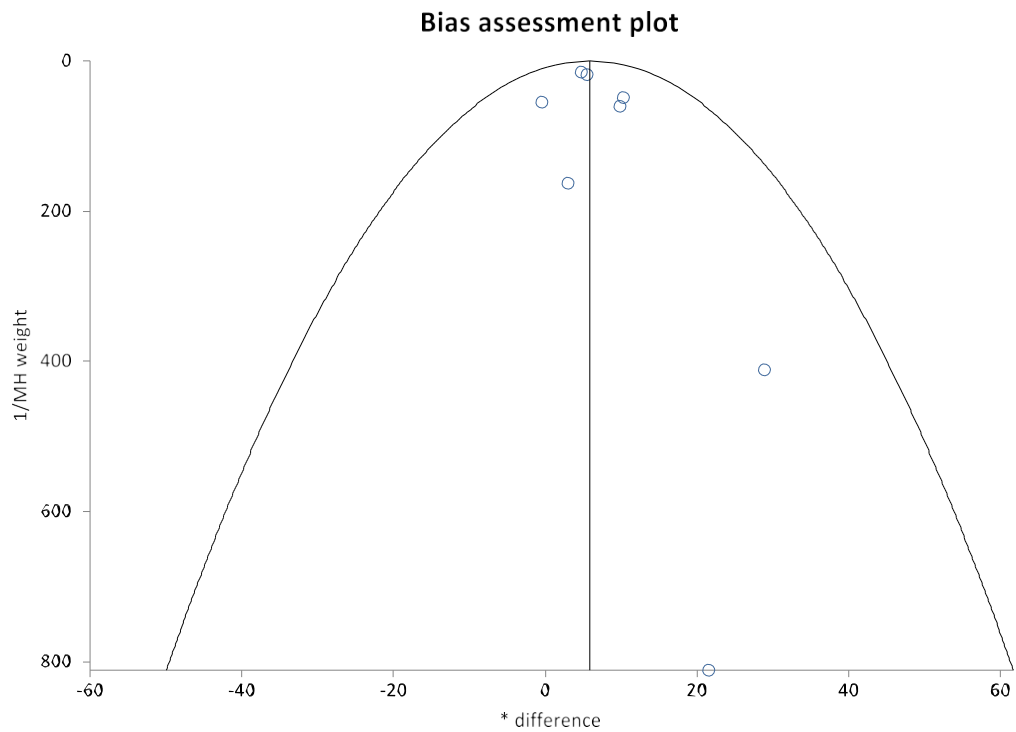
Pooled \* difference = 5,887928 (95% CI = 1,366652 to 10,409204)

Z (test \* Difference) = 2,552405 P = 0,0107

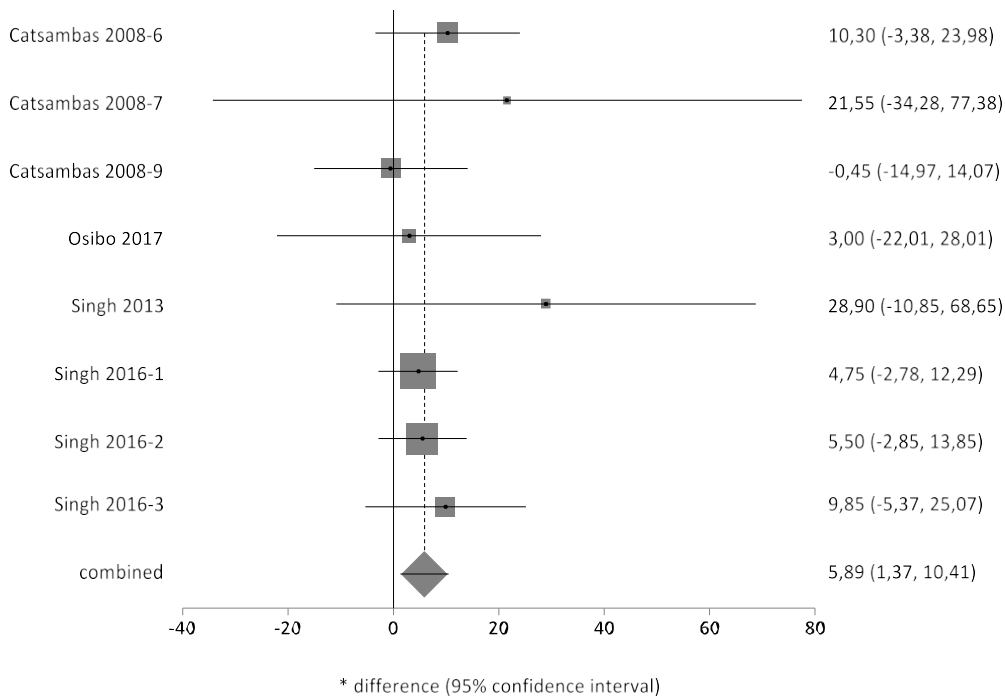
#### Bias indicators

Begg-Mazumdar: Kendall's tau = 0,357143 P = 0,2751 (low power)

Egger: bias = 0,690367 (95% CI = -0,363794 to 1,744529) P = 0,1602



### Summary meta-analysis plot [random effects]



### 1. Collaborative improvement vs. control, outcome: 1.2 Care-seeking behavior outcomes (continuous).

#### Summary meta-analysis

#### Summary meta-analysis

Study	* Difference	SE	Approximate 95% CI		
1	52,75	153,399199	-247,906906	353,406906	Crigler 2012
2	20,4	45,564999	-68,905756	109,705756	Singh 2016-1
3	71,7	60,75	-47,367812	190,767812	Singh 2016-2
4	116,1	71,291	-23,627793	255,827793	Singh 2013
5	85,7	55,435593	-22,951766	194,351766	Jaribu Pilot
6	7,1	13,43086	-19,224002	33,424002	Jaribu Imp

Stratum	Standardized Effect	Standard Error	% Weights (fixed, random)		
1	52,75	153,399199	0,619404	0,619404	Crigler 2012
2	20,4	45,564999	7,020328	7,020328	Singh 2016-1
3	71,7	60,75	3,949367	3,949367	Singh 2016-2
4	116,1	71,291	2,867812	2,867812	Singh 2013
5	85,7	55,435593	4,742886	4,742886	Jaribu Pilot
6	7,1	13,43086	80,800203	80,800203	Jaribu Imp

#### Fixed effects (inverse variance)

Pooled \* difference = 17,721576 (95% CI = -5,940788 to 41,383941)

Z (test test \* Difference differs from 0) = 1,467886 P = 0,1421

#### Non-combinability of studies

Cochran Q = 4,878499 (df = 5) P = 0,4309

Moment-based estimate of between studies variance = 0

$I_2$  (inconsistency) = 0% (95% CI = 0% to 61%)

Random effects (DerSimonian-Laird)

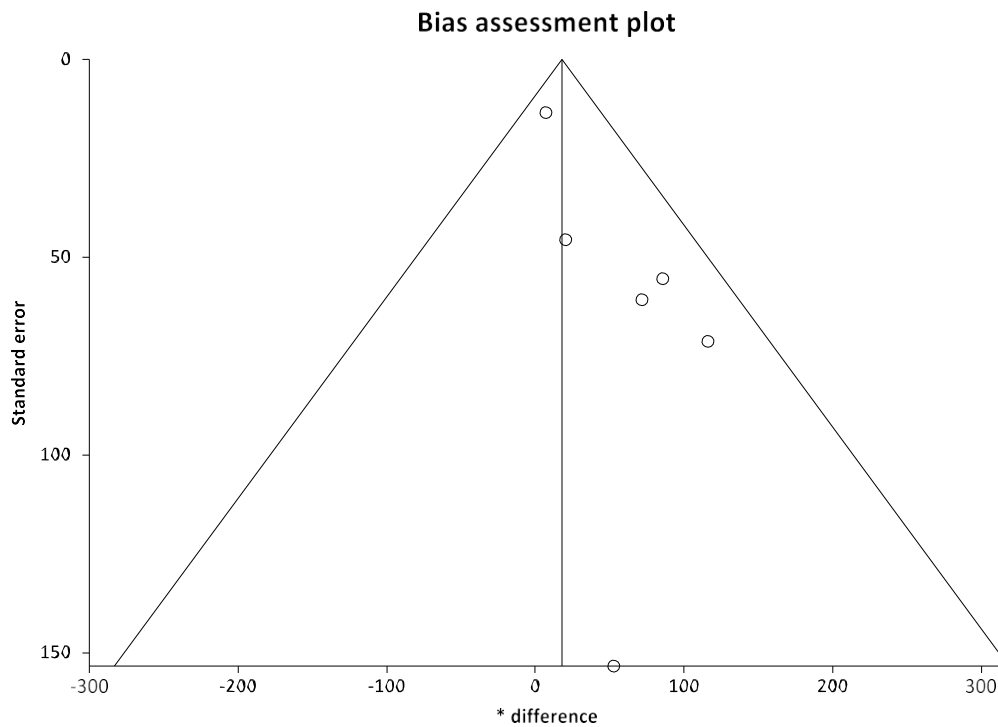
Pooled \* difference = 17,721576 (95% CI = -5,940788 to 41,383941)

Z (test \* Difference) = 1,467886 P = 0,1421

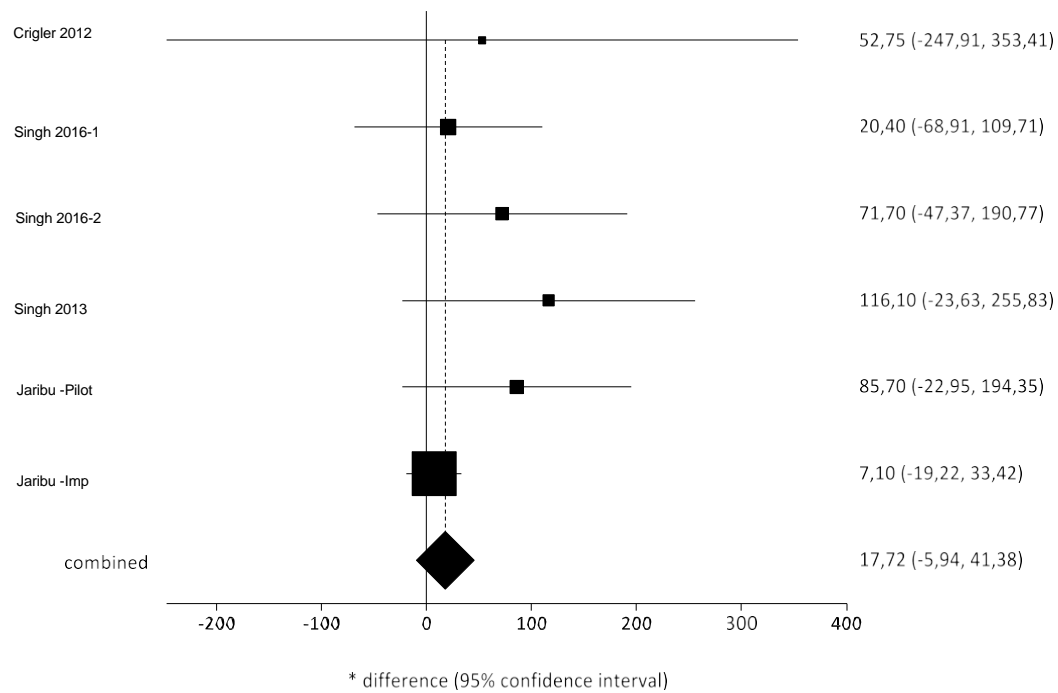
Bias indicators

Begg-Mazumdar: Kendall's tau = 0,466667 P = 0,2722 (low power)

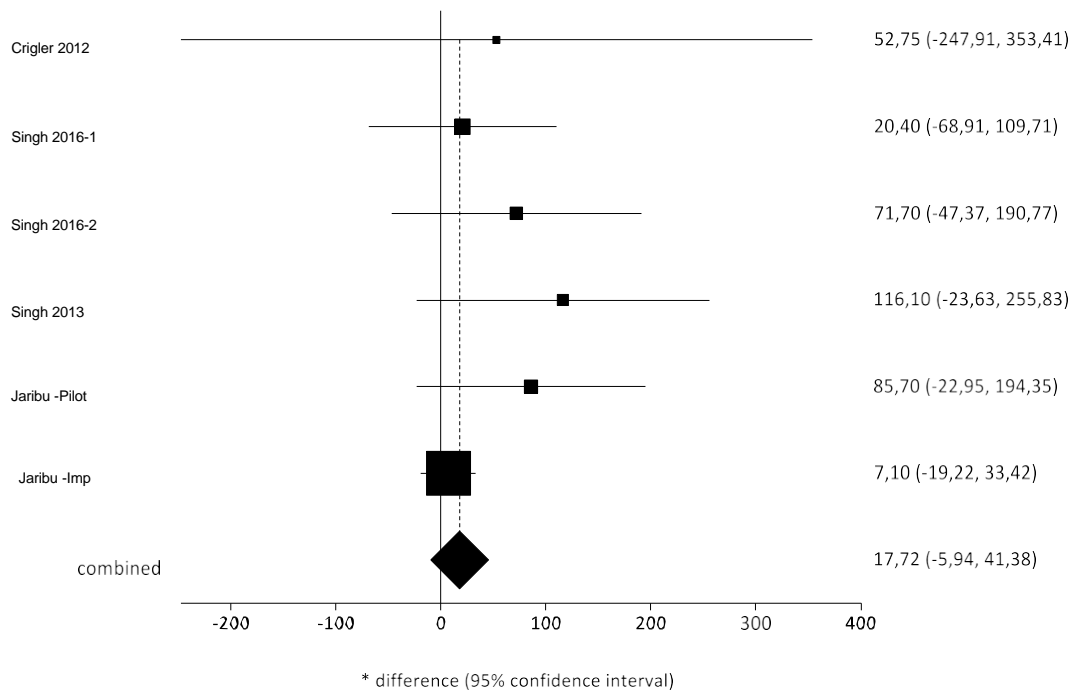
Egger: bias = 1,125756 (95% CI = 0,078756 to 2,172756) P = 0,0405



### Summary meta-analysis plot [fixed effects]



### Summary meta-analysis plot [random effects]



**1. Collaborative improvement vs. control, outcome: 1.3 Patient behaviors not related to care-seeking (%).**  
**Summary meta-analysis**

<u>Study</u>	<u>* Difference</u>	<u>SE</u>	<u>Approximate 95% CI</u>		
1	26,2	7,4982	11,503798	40,896202	Catsambas 2008-10
2	17,6	3,5744	10,594305	24,605695	Catsambas 2008-11
3	12,5	1,1266	10,291905	14,708095	Catsambas 2008-6

<u>Stratum</u>	<u>Standardized Effect</u>	<u>Standard Error</u>	<u>% Weights (fixed, random)</u>		
1	26,2	7,4982	2,01217	13,263826	Catsambas 2008-10
2	17,6	3,5744	8,854672	32,835536	Catsambas 2008-11
3	12,5	1,1266	89,133158	53,900637	Catsambas 2008-6

Fixed effects (inverse variance)

Pooled \* difference = 13,227256 (95% CI = 11,142585 to 15,311926)

Z (test test \* Difference differs from 0) = 12,43599 P < 0,0001

Non-combinability of studies

Cochran Q = 4,906594 (df = 2) P = 0,086

Moment-based estimate of between studies variance = 16,667646

I<sub>2</sub> (inconsistency) = 59,2% (95% CI = 0% to 86,6%)

Random effects (DerSimonian-Laird)

Pooled \* difference = 15,991757 (95% CI = 9,897533 to 22,085981)

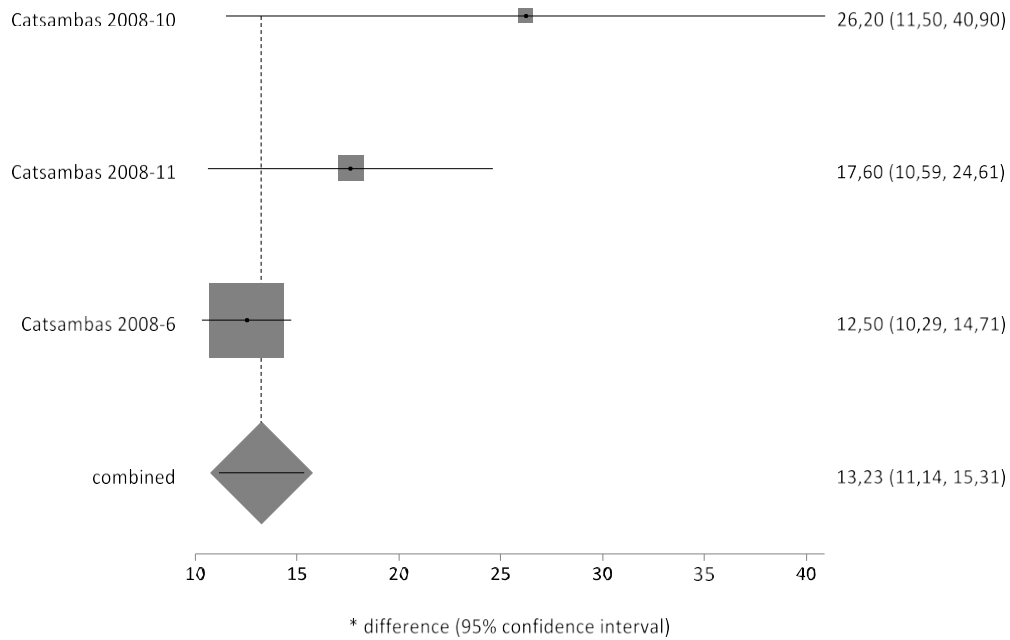
Z (test \* Difference) = 5,14311 P < 0,0001

Bias indicators

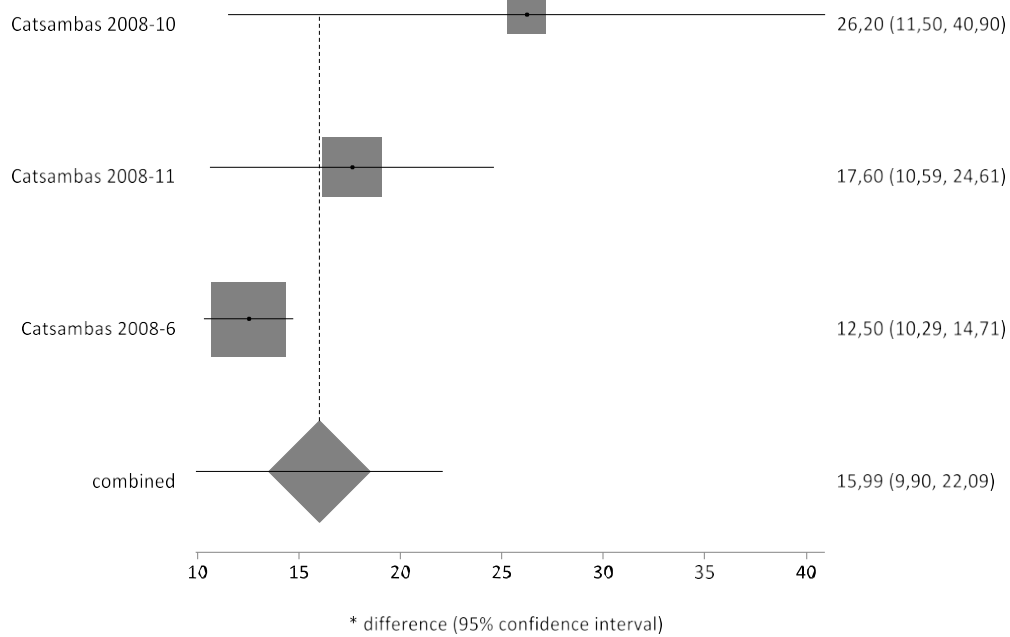
Begg-Mazumdar: Kendall's <too few strata> \*

Egger: bias = <too few strata> (95% CI = \* to \*) P = \*

### Summary meta-analysis plot [fixed effects]



### Summary meta-analysis plot [random effects]





# 1. Collaborative improvement vs. control, outcome: 1.4 Health worker practice outcomes (%).

## Summary meta-analysis

Study	* Difference	SE	Approximate 95% CI		
1	71,15	12,23982	47,160394	95,139606	Barceló 2010
2	19,6	13,751256	-7,351966	46,551966	Catsambas 2008-10
3	14,3	12,46081	-10,122739	38,722739	Catsambas 2008-12
4	34,3	9,9103	14,876169	53,723831	Catsambas 2008-4
5	49,7	26,40644	-2,055671	101,455671	Catsambas 2008-5
6	27,2	15,635106	-3,444244	57,844244	Catsambas 2008-9
7	64	12,189755	40,108519	87,891481	Chitashvili 2017
8	8,1	24,1	-39,135133	55,335133	Crigler 2012
9	30,15	7,807667	14,847254	45,452746	N'Guessan 2011

Stratum	Standardized Effect	Standard Error	% Weights (fixed, random)		
1	71,15	12,23982	11,320012	12,427115	Barceló 2010
2	19,6	13,751256	8,968343	11,320192	Catsambas 2008-10
3	14,3	12,46081	10,922056	12,260529	Catsambas 2008-12
4	34,3	9,9103	17,267257	14,258434	Catsambas 2008-4
5	49,7	26,40644	2,432077	5,259548	Catsambas 2008-5
6	27,2	15,635106	6,937377	10,057712	Catsambas 2008-9
7	64	12,189755	11,413188	12,465063	Chitashvili 2017
8	8,1	24,1	2,919866	5,995292	Crigler 2012
9	30,15	7,807667	27,819825	15,956113	N'Guessan 2011

### Fixed effects (inverse variance)

Pooled \* difference = 36,320842 (95% CI = 28,249485 to 44,392199)

Z (test test \* Difference differs from 0) = 8,819774 P < 0,0001

### Non-combinability of studies

Cochran Q = 20,489284 (df = 8) P = 0,0086

Moment-based estimate of between studies variance = 251,931713

I<sub>2</sub> (inconsistency) = 61% (95% CI = 0% to 79,4%)

### Random effects (DerSimonian-Laird)

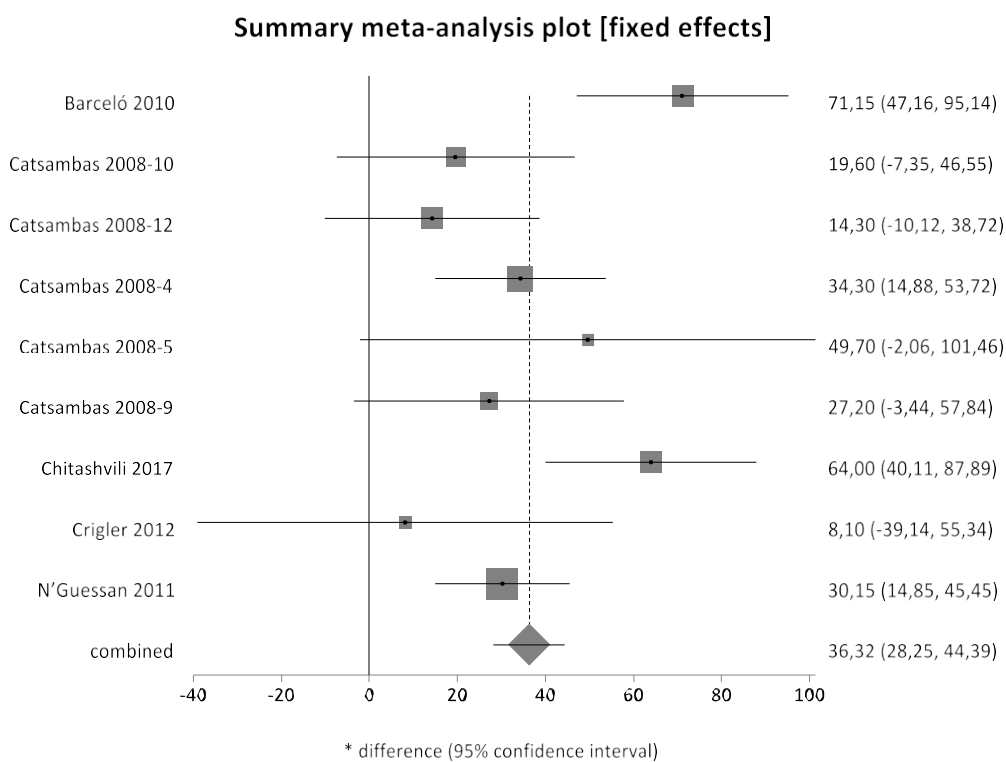
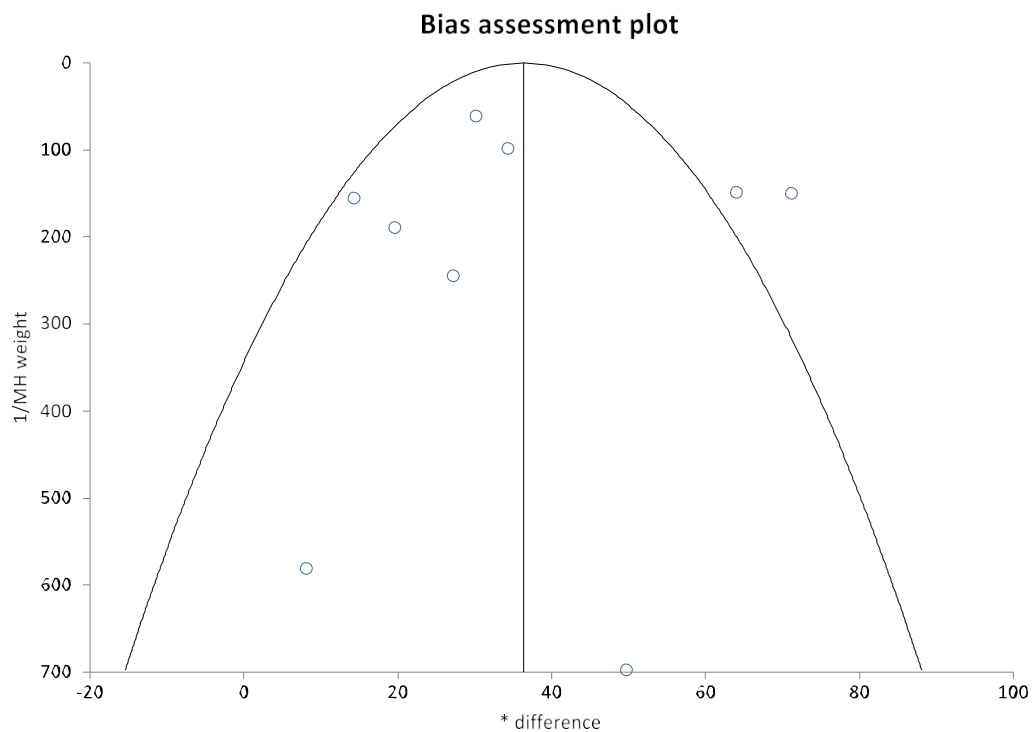
Pooled \* difference = 36,328269 (95% CI = 22,479587 to 50,176951)

Z (test \* Difference) = 5,141435 P < 0,0001

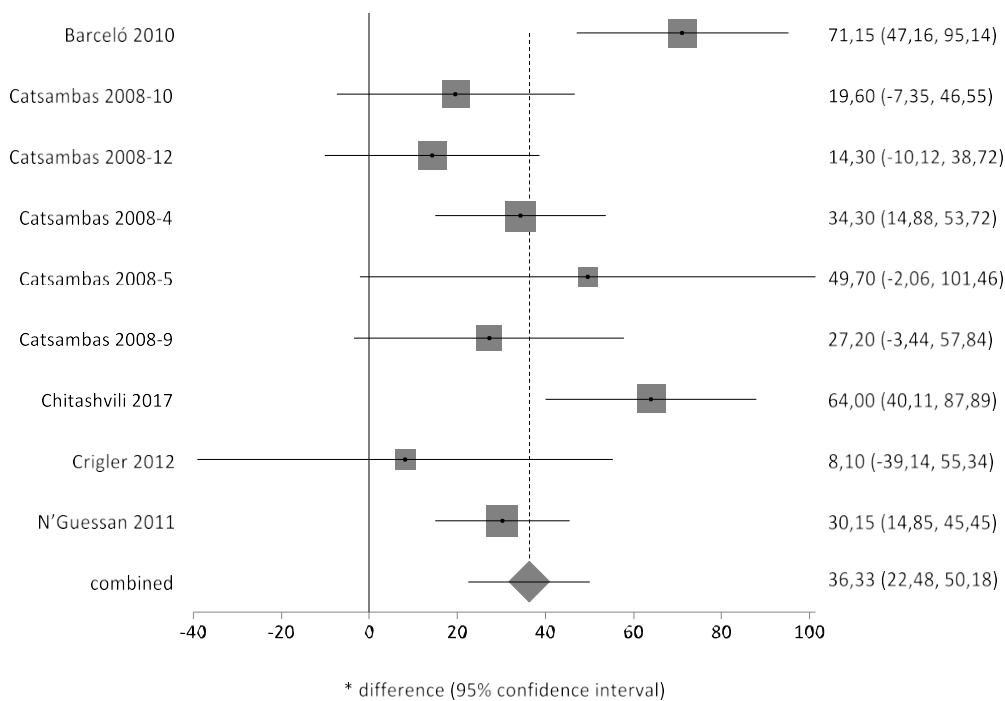
### Bias indicators

Begg-Mazumdar: Kendall's tau = 0 P = 0,9195 (low power)

Egger: bias = -0,114721 (95% CI = -4,266469 to 4,037028) P = 0,9497



### Summary meta-analysis plot [random effects]



## 1. Collaborative improvement vs. control, outcome: 1.5 Health worker practice outcomes (continuous)

### Summary meta-analysis

Study	* Difference	SE	Approximate 95% CI		
1	4,3	4,058258	-3,654039	12,254039	Casambas 2008-5
2	-28,2	45,0155	-116,428759	60,028759	Casambas 2008-6
3	135,2	120,381639	-100,743676	371,143676	Jaribu 2018- Imp

Stratum	Standardized Effect	Standard Error	% Weights (fixed, random)		
1	4,3	4,058258	99,08211	99,08211	Casambas 2008-5
2	-28,2	45,0155	0,805286	0,805286	Casambas 2008-6
3	135,2	120,381639	0,112604	0,112604	Jaribu 2018- Imp

### Fixed effects (inverse variance)

Pooled \* difference = 4,185681 (95% CI = -3,73177 to 12,103131)

Z (test test \* Difference differs from 0) = 1,036165 P = 0,3001

### Non-combinability of studies

Cochran Q = 1,70283 (df = 2) P = 0,4268

Moment-based estimate of between studies variance = 0

I<sub>2</sub> (inconsistency) = 0% (95% CI = 0% to 72,9%)

Random effects (DerSimonian-Laird)

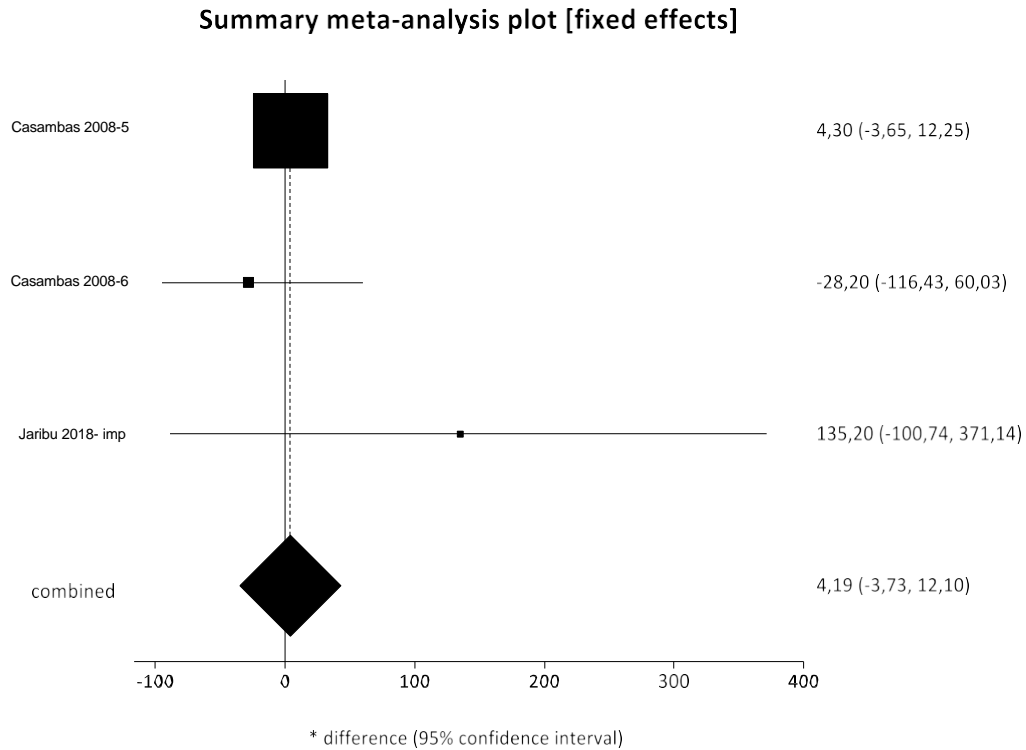
Pooled \* difference = 4,185681 (95% CI = -3,73177 to 12,103131)

Z (test \* Difference) = 1,036165 P = 0,3001

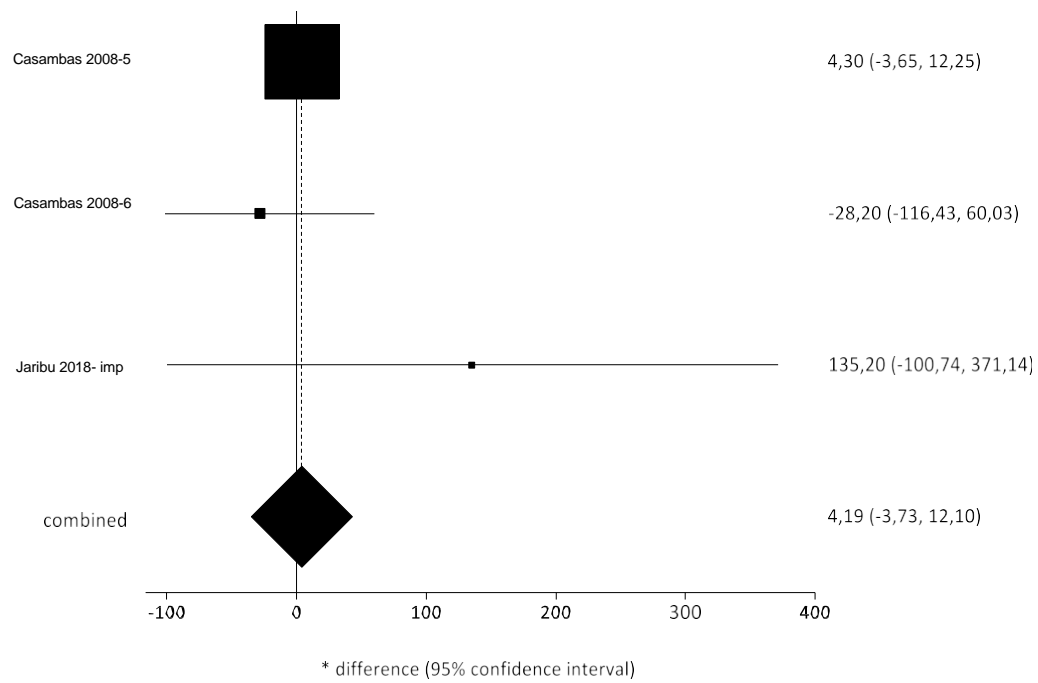
Bias indicators

Begg-Mazumdar: Kendall's <too few strata> \*

Egger: bias = <too few strata> (95% CI = \* to \*) P = \*



### Summary meta-analysis plot [random effects]



# 1. Collaborative improvement vs. control, outcome: 1.6 Patient health outcomes (%).

## Summary meta-analysis

Study	* Difference	SE	Approximate 95% CI		
1	11,4	13,636159	-15,32638	38,12638	Barceló 2010
2	0,3	8,4695	-16,299915	16,899915	Catsambas 2008-11
3	-15	9,8196	-34,246062	4,246062	Catsambas 2008-6

Stratum	Standardized Effect	Standard Error	% Weights (fixed, random)		
1	11,4	13,636159	18,113981	21,438082	Barceló 2010
2	0,3	8,4695	46,955067	43,158366	Catsambas 2008-11
3	-15	9,8196	34,930952	35,403551	Catsambas 2008-6

### Fixed effects (inverse variance)

Pooled \* difference = -3,033784 (95% CI = -14,408671 to 8,341103)

Z (test test \* Difference differs from 0) = -0,52274 P = 0,6012

### Non-combinability of studies

Cochran Q = 2,760346 (df = 2) P = 0,2515

Moment-based estimate of between studies variance = 40,996056

I<sub>2</sub> (inconsistency) = 27,5% (95% CI = 0% to 79,6%)

### Random effects (DerSimonian-Laird)

Pooled \* difference = -2,737116 (95% CI = -16,408026 to 10,933794)

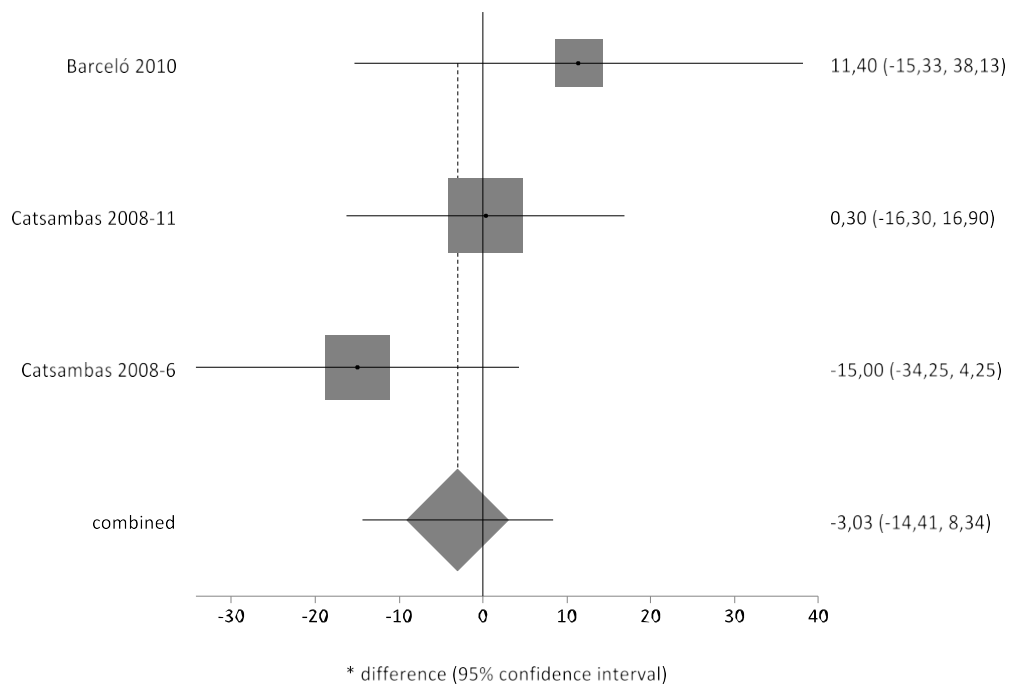
Z (test \* Difference) = -0,392413 P = 0,6948

### Bias indicators

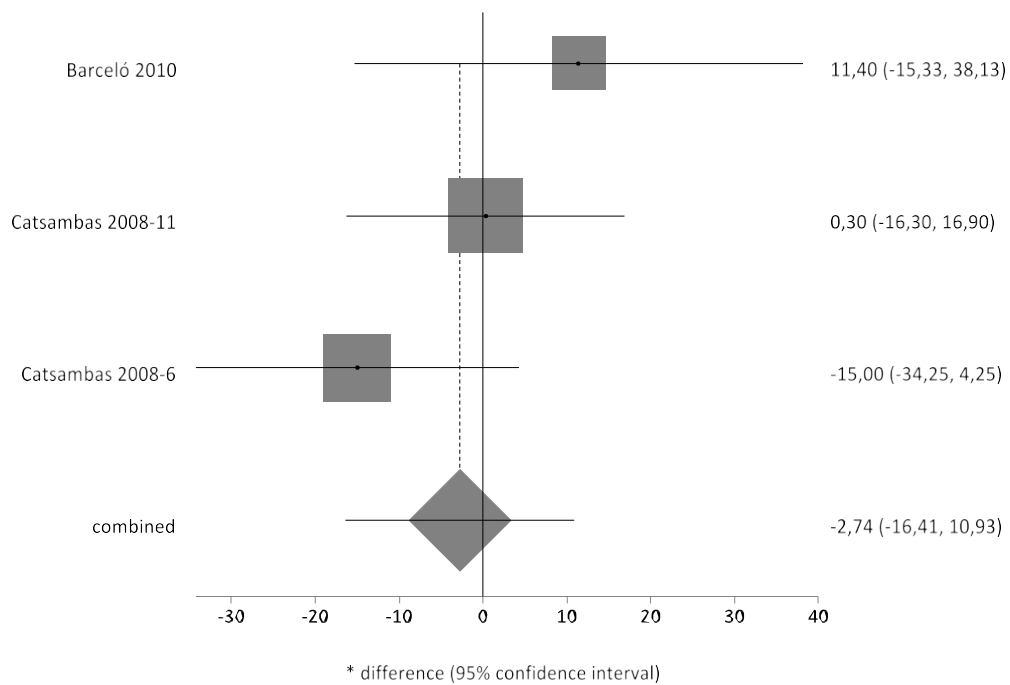
Begg-Mazumdar: Kendall's <too few strata> \*

Egger: bias = <too few strata> (95% CI = \* to \*) P = \*

### Summary meta-analysis plot [fixed effects]



### Summary meta-analysis plot [random effects]



## **2. Collaborative improvement + training vs. control, outcome: 2.1 Patient behaviors not related to care-seeking (%).**

### **Summary meta-analysis**

<u>Study</u>	<u>* Difference</u>	<u>SE</u>	<u>Approximate 95% CI</u>		
1	78,7	3,8606	71,133363	86,266637	Catsambas 2008-1
2	96,7	2,199	92,390039	101,009961	Catsambas 2008-2

<u>Stratum</u>	<u>Standardized Effect</u>	<u>Standard Error</u>	<u>% Weights (fixed, random)</u>		
1	78,7	3,8606	24,496666	48,446199	Catsambas 2008-1
2	96,7	2,199	75,503334	51,553801	Catsambas 2008-2

#### Fixed effects (inverse variance)

Pooled \* difference = 92,2906 (95% CI = 88,545561 to 96,03564)

Z (test test \* Difference differs from 0) = 48,300227 P < 0,0001

#### Non-combinability of studies

Cochran Q = 16,413512 (df = 1) P < 0,0001

Moment-based estimate of between studies variance = 152,130083

I<sub>2</sub> (inconsistency) = 93,9% (95% CI = \*% to \*%)

#### Random effects (DerSimonian-Laird)

Pooled \* difference = 87,979684 (95% CI = 70,348528 to 105,610841)

Z (test \* Difference) = 9,780244 P < 0,0001

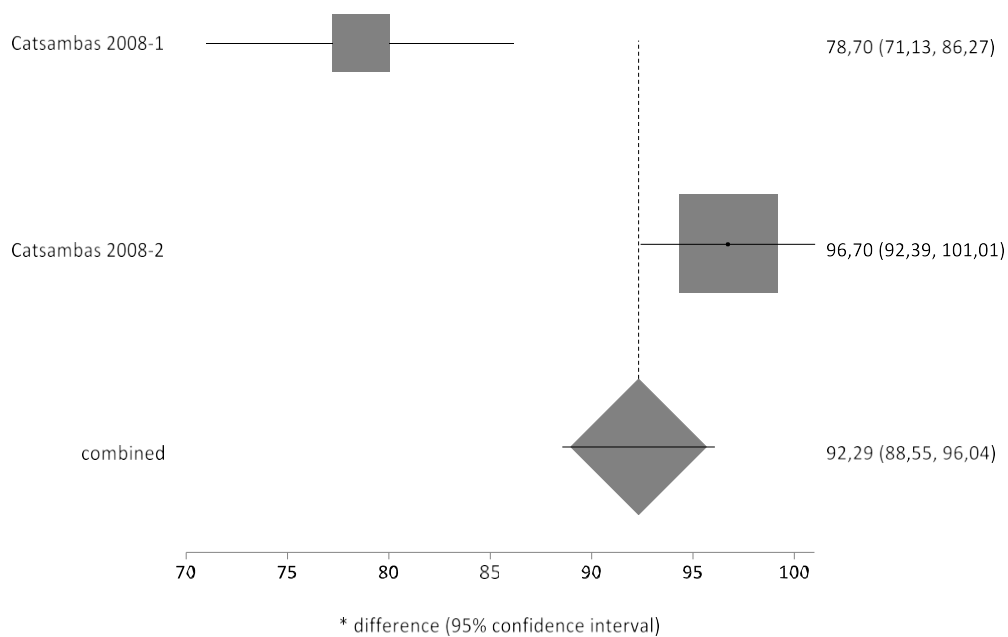
#### Bias indicators

Begg-Mazumdar: Kendall's <too few strata> \*

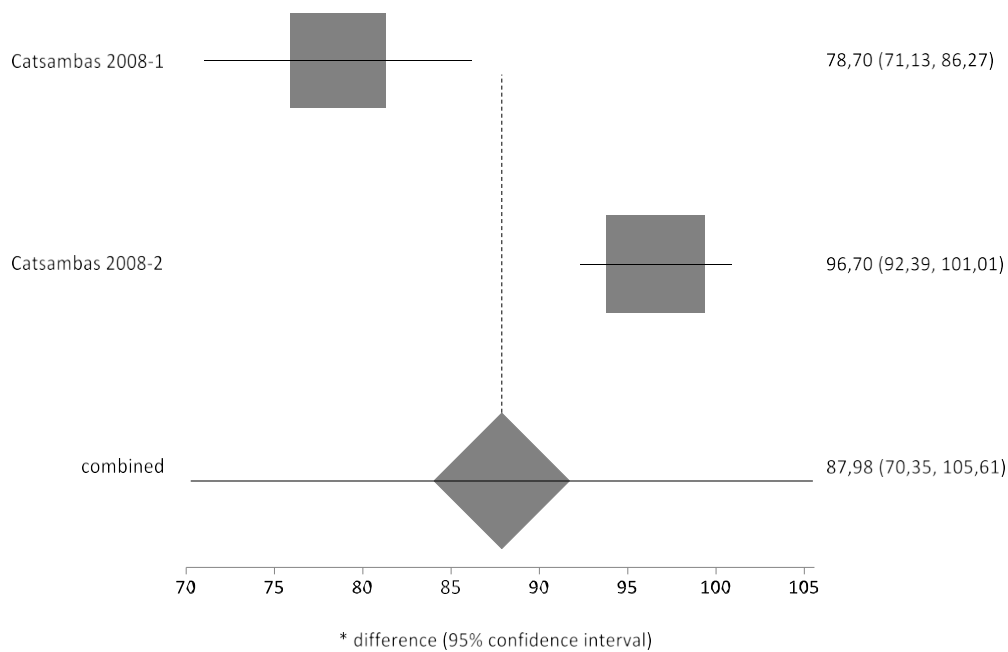
Egger: bias = <too few strata> (95% CI = \* to \*) P = \*



### Summary meta-analysis plot [fixed effects]



### Summary meta-analysis plot [random effects]



**2. Collaborative improvement + training vs. control, outcome: 2.2 Health worker practice outcomes (%).**  
**Summary meta-analysis**

<u>Study</u>	<u>* Difference</u>	<u>SE</u>	<u>Approximate 95% CI</u>		
1	65,95	3,629204	58,836892	73,063108	Catsambas 2008-1
2	89,6	16,207633	57,833622	121,366378	Catsambas 2008-2
3	35,3	10,28542	15,140947	55,459053	Catsambas 2008-3
4	60,85	4,503655	52,022999	69,677001	Westercamp 2017

<u>Stratum</u>	<u>Standardized Effect</u>	<u>Standard Error</u>	<u>% Weights (fixed, random)</u>		
1	65,95	3,629204	54,824174	35,703222	Catsambas 2008-1
2	89,6	16,207633	2,748878	11,111408	Catsambas 2008-2
3	35,3	10,28542	6,825755	19,600716	Catsambas 2008-3
4	60,85	4,503655	35,601193	33,584654	Westercamp 2017

Fixed effects (inverse variance)

Pooled \* difference = 62,692355 (95% CI = 57,425572 to 67,959138)

Z (test test \* Difference differs from 0) = 23,330133 P < 0,0001

Non-combinability of studies

Cochran Q = 10,822027 (df = 3) P = 0,0127

Moment-based estimate of between studies variance = 99,568713

I<sub>2</sub> (inconsistency) = 72,3% (95% CI = 0% to 88,1%)

Random effects (DerSimonian-Laird)

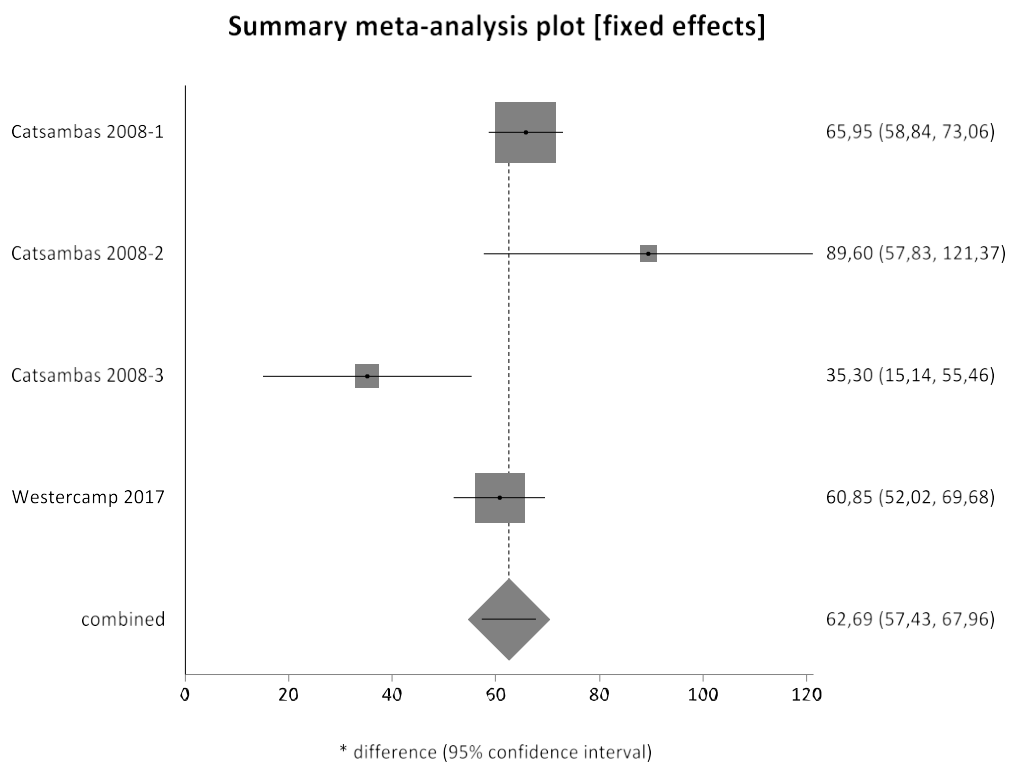
Pooled \* difference = 60,857411 (95% CI = 48,422563 to 73,292259)

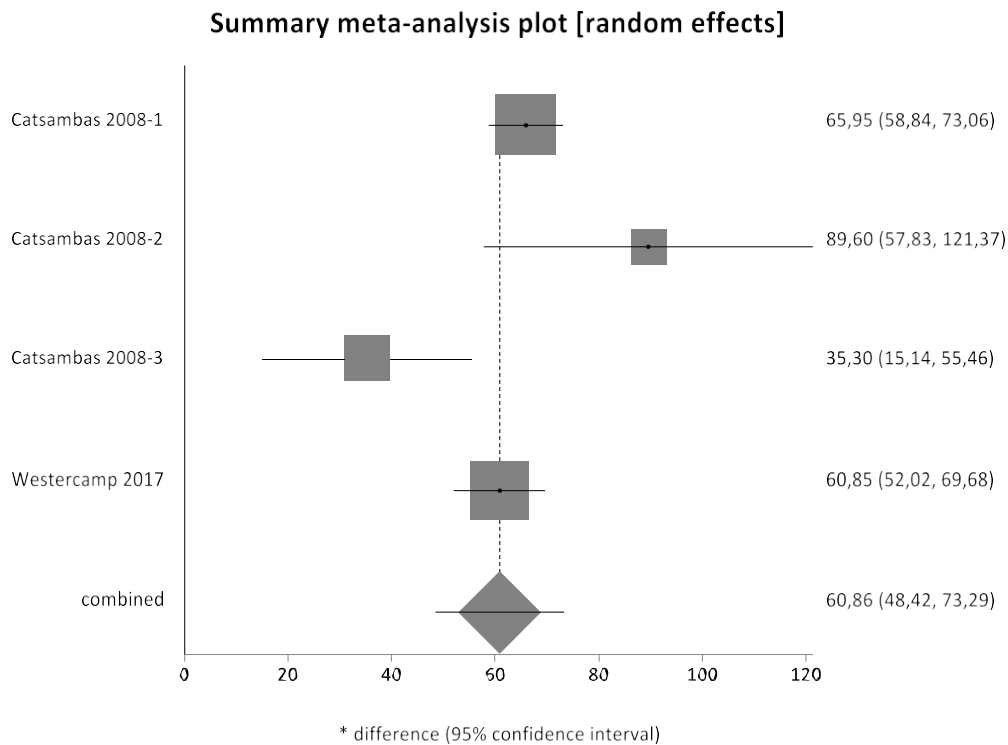
Z (test \* Difference) = 9,592263 P < 0,0001

Bias indicators

Begg-Mazumdar: Kendall's tau = 0 P = 0,75 (low power)

Egger: bias = -0,57956 (95% CI = -11,054836 to 9,895717) P = 0,834





## 2. Collaborative improvement + training vs. control, outcome: 2.3 Patient health outcomes (continuous)

### Summary meta-analysis

Study	* Difference	SE	Approximate 95% CI		
1	96	23,041074	50,840324	141,159676	Catsambas 2008-1
2	127,1	194,274725	-253,671464	507,871464	Catsambas 2008-2

Stratum	Standardized Effect	Standard Error	% Weights (fixed, random)		
1	96	23,041074	98,612904	98,612904	Catsambas 2008-1
2	127,1	194,274725	1,387096	1,387096	Catsambas 2008-2

#### Fixed effects (inverse variance)

Pooled \* difference = 96,431387 (95% CI = 51,586009 to 141,276765)

Z (test test \* Difference differs from 0) = 4,214527 P < 0,0001

#### Non-combinability of studies

Cochran Q = 0,025271 (df = 1) P = 0,8737

Moment-based estimate of between studies variance = 0

I<sub>2</sub> (inconsistency) = 0% (95% CI = \*% to \*%)

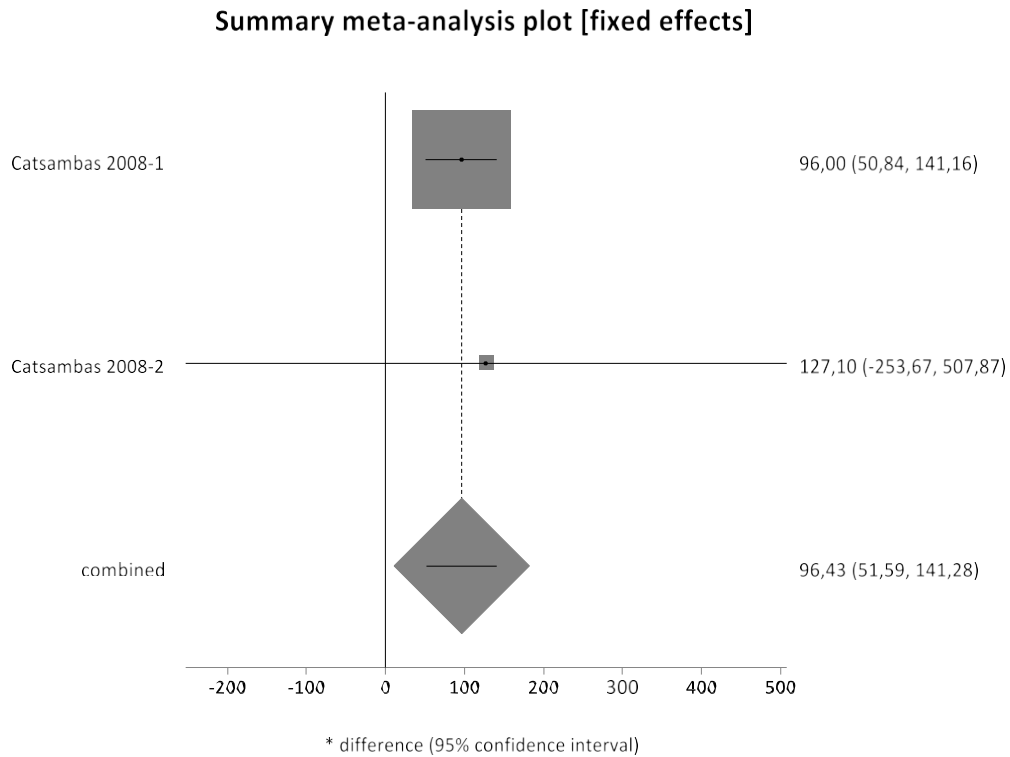
#### Random effects (DerSimonian-Laird)

Pooled \* difference = 96,431387 (95% CI = 51,586009 to 141,276765)  
Z (test \* Difference) = 4,214527 P < 0,0001

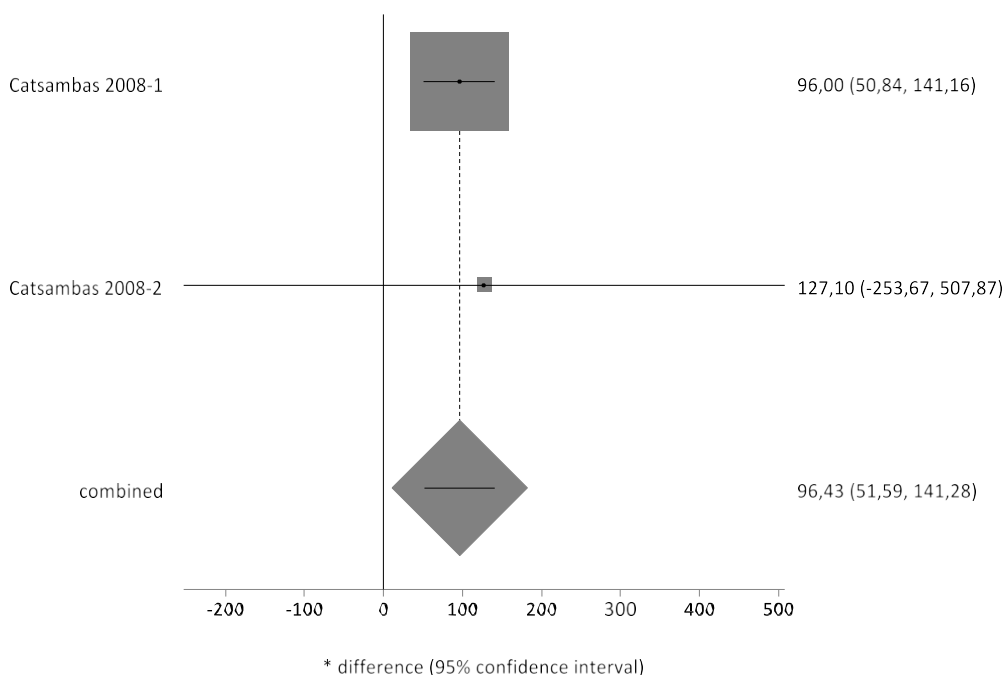
Bias indicators

Begg-Mazumdar: Kendall's <too few strata> \*

Egger: bias = <too few strata> (95% CI = \* to \*) P = \*



### Summary meta-analysis plot [random effects]



### **3. Collaborative improvement + strengthening infrastructure + regulation and governance vs. control, outcome: 3.1 Patient behaviors related to care-seeking (%).**

#### **Summary meta-analysis**

Study	* Difference	SE	Approximate 95% CI		
1	16,5	4,47742	7,724419	25,275581	Waiswa 2017-1
2	2,5	3,855342	-5,056331	10,056331	Waiswa 2017-2

Stratum	Standardized Effect	Standard Error	% Weights (fixed, random)		
1	16,5	4,47742	42,575928	48,677646	Waiswa 2017-1
2	2,5	3,855342	57,424072	51,322354	Waiswa 2017-2

#### Fixed effects (inverse variance)

Pooled \* difference = 8,46063 (95% CI = 2,734543 to 14,186717)

Z (test test \* Difference differs from 0) = 2,895962 P = 0,0038

#### Non-combinability of studies

Cochran Q = 5,614285 (df = 1) P = 0,0178

Moment-based estimate of between studies variance = 80,544526

I<sub>2</sub> (inconsistency) = 82,2% (95% CI = \*% to \*%)

#### Random effects (DerSimonian-Laird)

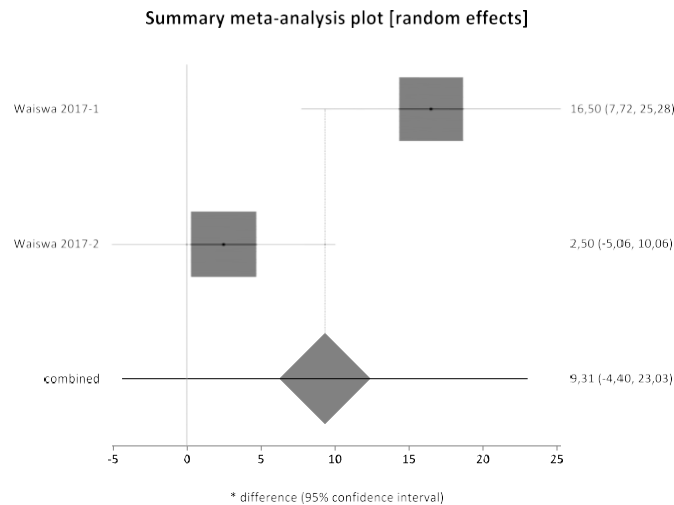
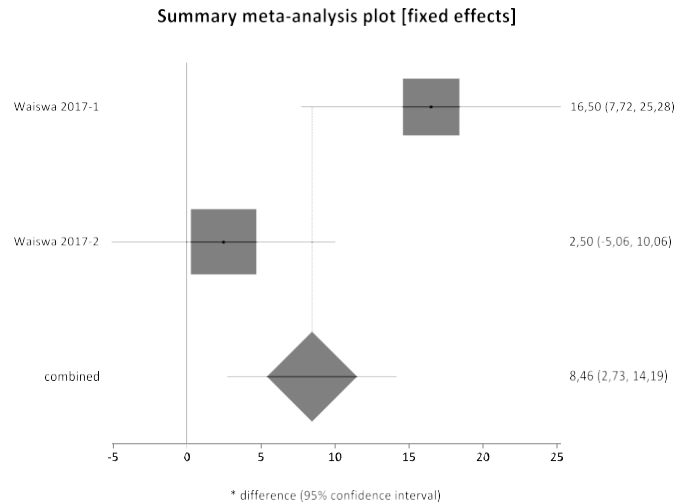
Pooled \* difference = 9,31487 (95% CI = -4,400078 to 23,029819)

Z (test \* Difference) = 1,331161 P = 0,1831

Bias indicators

Begg-Mazumdar: Kendall's <too few strata> \*

Egger: bias = <too few strata> (95% CI = \* to \*) P = \*



**3. Collaborative improvement + strengthening infrastructure + regulation & governance vs. control, outcome: 3.2 Patient behaviors not related to care-seeking (%).**

**Summary meta-analysis**

Study	* Difference	SE	Approximate 95% CI		
1	-1,5	6,42652	-14,095748	11,095748	Waiswa 2017-1
2	-4	5,329165	-14,444971	6,444971	Waiswa 2017-2

Stratum	Standardized Effect	Standard Error	% Weights (fixed, random)
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1	-1,5	6,42652	40,745958	40,745958	Waiswa 2017-1
2	-4	5,329165	59,254042	59,254042	Waiswa 2017-2

#### Fixed effects (inverse variance)

Pooled \* difference = -2,981351 (95% CI = -11,02154 to 5,058838)

Z (test test \* Difference differs from 0) = -0,726767 P = 0,4674

#### Non-combinability of studies

Cochran Q = 0,08967 (df = 1) P = 0,7646

Moment-based estimate of between studies variance = 0

I<sub>2</sub> (inconsistency) = 0% (95% CI = \*% to \*%)

#### Random effects (DerSimonian-Laird)

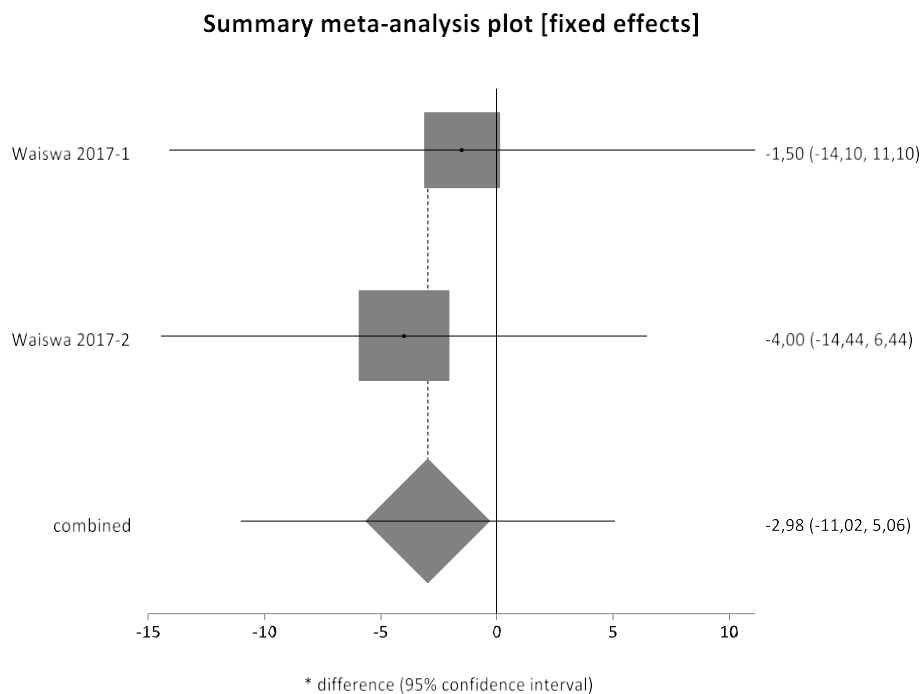
Pooled \* difference = -2,981351 (95% CI = -11,02154 to 5,058838)

Z (test \* Difference) = -0,726767 P = 0,4674

#### Bias indicators

Begg-Mazumdar: Kendall's <too few strata> \*

Egger: bias = <too few strata> (95% CI = \* to \*) P = \*





### Summary meta-analysis plot [random effects]

