

# Zinc acetate lozenges for treating the common cold: an individual patient data meta-analysis

Supplementary File 2

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<http://www.mv.helsinki.fi/home/hemila/>

<http://www.mv.helsinki.fi/home/hemila/Zinc.htm> (zinc and the common cold)

This is additional material to a manuscript by Hemilä et al. (2016)

Statistical analyses of the studies are described in this file. Subgroup analysis of allergy for Table 3 is shown as an example of the mixed model calculations for the subgroup analyses.

**Table S1** shows the transformation of duration to the 100% scale

**Table S2** shows two-stage analysis of subgroup differences in zinc lozenge effects. The data set used in the study is printed at the end of this file.

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**Table S1. Normalization of the common cold duration to Placebo group = 100%**

The values on the right hand side are used in the calculation of the percentage effects of zinc acetate.

These values are calculated by dividing the figures on the left side by the mean common cold duration in the placebo group on the left side marked by yellow.  
Eg, Petrus (1998) zinc group:  
 $5.29/7.06 = 0.7493 = 74.9\%$

This transformation leads to percentage scale so that all the differences between Zn and placebo groups are percentage effects.

Trial [ref]	Duration of colds (days)				Duration of colds (% of the placebo level)			
	Zn		Placebo		Zn		Placebo	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
<b>Petrus 1998 [15]</b>	5.29	2.57	7.06	3.91	74.9	36.4	100	55.3
<b>Prasad 2000 [16]</b>	4.48	1.64	8.09	1.81	55.4	20.2	100	22.3
<b>Prasad 2008 [17]</b>	4.99	1.04	7.12	1.27	56.2	14.6	100	17.8

Above table shows the transformation of the mean duration in the three studies to the percentage scale.

In Table 2 of the paper, the calculation of zinc acetate lozenge effect is done using the absolute scale of days (left-hand side of the table) and the relative scale (% effect on duration; right-hand side of the above table).

On the absolute scale, the Petrus (1998) study found an 1.77 day reduction in common cold duration (= 5.29 – 7.06 days).

On the percentage scale, the Petrus (1998) study found an 25.1% reduction in common cold duration (= 74.9% – 100% = 5.29/7.06 -1).

The relative scale has the benefit of adjusting for baseline variations between the placebo groups. Nevertheless, the absolute duration of the colds was used in the IPD subgroup analyses.

**Table S2.** Difference in zinc acetate lozenge efficacy in subgroups: **Two-stage** meta-analysis

Subgroup	No. patients	Difference in the subgroup effects		
		Estimate * (days)	95% CI (days)	Test of interaction (P)
Age	199	-0.3	-0.7, +0.1	0.15
Allergy				
No	137	ref.		
Yes	62	-0.7	-2.0, +0.5	0.24
Sex				
Male	81	ref.		
Female	118	+0.3	-0.8, +1.4	0.6
Ethnic group **				
White	133	ref.		
Black	46	-0.04	-1.2, +1.1	0.9
Smoker				
No	71	ref.		
Yes	27	-0.2	-1.4, +1.0	0.7
Severity of the cold at the baseline				
Below median	102	ref.		
Above median	97	+0.3	-1.2, + 1.7	0.7

\* The minus sign in the estimate for the difference indicates that on average zinc lozenges have a greater effect in the second subgroup compared with the zinc lozenge effect in the reference group, or in older participants; however, the P-values indicate that all differences are due to chance variation. The modifying effect of age on the zinc lozenge effect is calculated for a 10 year interval.

\*\* Ethnic groups other than white or African Americans were excluded from this comparison.

## Table 2 analyses: **One-stage pooling**

### **Effect on common cold duration in days**

```
> All <- lmer(Duration ~ 0 + Study + Zinc + (Zinc-1|Study))
> summary(All)
Linear mixed model fit by REML ['lmerMod']
Formula: Duration ~ 0 + Study + Zinc + (Zinc - 1 | Study)

REML criterion at convergence: 939

Random effects:
  Groups   Name Variance Std.Dev.
  Study    Zinc  0.605    0.778
  Residual             6.577    2.564
Number of obs: 199, groups: Study, 3

Fixed effects:
              Estimate Std. Error t value
StudyPetrus    7.210      0.349   20.67
StudyP2000     7.870      0.486   16.19
StudyP2008     7.029      0.470   14.97
Zinc         -2.730      0.587   -4.65

Correlation of Fixed Effects:
              StdyPt SP2000 SP2008
StudyP2000  0.078
StudyP2008  0.076  0.087
Zinc        -0.261 -0.299 -0.291
> confint(All)
Computing profile confidence intervals ...
              2.5 % 97.5 %
.sig01       0.00  1.75
.sigma       2.33  2.83
StudyPetrus  6.84  8.09
StudyP2000   6.72  8.36
StudyP2008   6.04  7.63
Zinc       -3.27 -1.84
```

### **Effect on common cold duration in percentages**

```
> PctAll <- lmer(DurPerc ~ 0 + Study + Zinc + (Zinc-1|Study))
> summary(PctAll)
Linear mixed model fit by REML ['lmerMod']
Formula: DurPerc ~ 0 + Study + Zinc + (Zinc - 1 | Study)

REML criterion at convergence: 1967

Random effects:
  Groups   Name Variance Std.Dev.
  Study    Zinc    67      8.19
  Residual             1284   35.83
Number of obs: 199, groups: Study, 3

Fixed effects:
              Estimate Std. Error t value
StudyPetrus  102.45      4.78   21.44
StudyP2000   97.29      6.56   14.83
StudyP2008   97.68      6.35   15.37
Zinc       -36.15      7.05   -5.13

Correlation of Fixed Effects:
              StdyPt SP2000 SP2008
StudyP2000  0.113
StudyP2008  0.110  0.116
Zinc        -0.328 -0.344 -0.336
> confint(PctAll)
Computing profile confidence intervals ...
              2.5 % 97.5 %
.sig01       0.0  18.8
.sigma       32.4  39.4
StudyPetrus  96.2 113.5
StudyP2000   83.4 106.1
StudyP2008   84.2 106.4
Zinc       -44.5 -24.6
```

**Table 2 analyses: Two-stage pooling: Effect on cold duration in days**

**Calculation of estimate and SD for the zinc lozenge effect:**

```
> Petrus.lm <- lm(Duration ~ Zinc, zincIPD[Study == "Petrus",])
> summary(Petrus.lm)
```

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	7.061	0.470	15.04	<2e-16 ***
Zinc	-1.773	0.654	-2.71	0.008 **

Residual standard error: 3.29 on 99 degrees of freedom  
 Multiple R-squared: 0.069, Adjusted R-squared: 0.0596  
 F-statistic: 7.34 on 1 and 99 DF, p-value: 0.00795

```
> P2000.lm <- lm(Duration ~ Zinc, zincIPD[Study == "P2000",])
> summary(P2000.lm)
```

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	8.087	0.359	22.55	< 2e-16 ***
Zinc	-3.607	0.497	-7.26	3.7e-09 ***

Residual standard error: 1.72 on 46 degrees of freedom  
 Multiple R-squared: 0.534, Adjusted R-squared: 0.524  
 F-statistic: 52.7 on 1 and 46 DF, p-value: 3.73e-09

```
> P2008.lm <- lm(Duration ~ Zinc, zincIPD[Study == "P2008",])
> summary(P2008.lm)
```

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	7.120	0.232	30.68	< 2e-16 ***
Zinc	-3.120	0.328	-9.51	1.3e-12 ***

Residual standard error: 1.16 on 48 degrees of freedom  
 Multiple R-squared: 0.653, Adjusted R-squared: 0.646  
 F-statistic: 90.4 on 1 and 48 DF, p-value: 1.3e-12

**Pooling of the estimates calculated above:**

```
> All.meta <- metagen(TE, seTE, studlab, data=subgroups[which(subgroups$Subgroup == "All"),], sm="MD")
> All.meta
```

	MD	95%-CI	%W(fixed)	%W(random)
Petrus 1998	-1.77	[-3.06; -0.49]	14.9	25.0
Prasad 2000	-3.61	[-4.58; -2.63]	25.9	32.6
Prasad 2008	-3.12	[-3.76; -2.48]	59.2	42.4

Number of studies combined: k=3

	MD	95%-CI	z	p-value
Fixed effect model	-3.05	[-3.54; -2.55]	-12.05	< 0.0001
Random effects model	-2.94	[-3.81; -2.07]	-6.64	< 0.0001

Quantifying heterogeneity:  
 tau^2 = 0.3546; H = 1.6 [1; 2.99]; I^2 = 60.9% [0%; 88.8%]

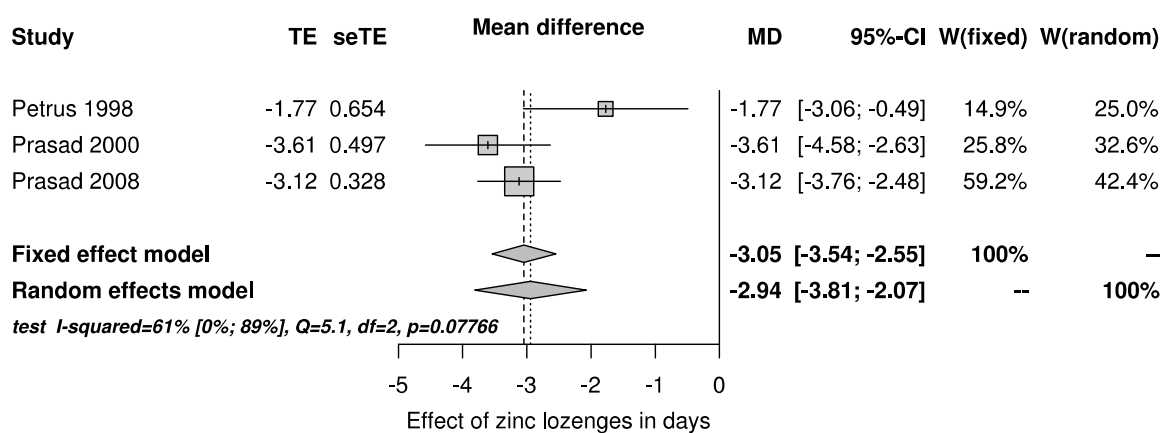
Test of heterogeneity:

Q	d.f.	p-value
5.11	2	0.0777

Details on meta-analytical method:  
 - Inverse variance method  
 - DerSimonian-Laird estimator for tau^2

**Table 2 analyses: two-stage pooling: Effect on cold duration in days**

Heterogeneity between the three studies is not statistically significant, with P = 0.08



**Table 2 analyses: Two-stage pooling: Effect on cold duration in percentages**

**Calculation of estimate and SD for the zinc lozenge effect:**

```
> PercPetrus <- lm(DurPerc ~ Zinc, zincIPD[Study == "Petrus",])
> summary(PercPetrus)
```

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	100.00	6.65	15.04	<2e-16 ***
Zinc	-25.11	9.27	-2.71	0.008 **

Residual standard error: 46.5 on 99 degrees of freedom  
 Multiple R-squared: 0.069, Adjusted R-squared: 0.0596  
 F-statistic: 7.34 on 1 and 99 DF, p-value: 0.00795

```
> PercP2000 <- lm(DurPerc ~ Zinc, zincIPD[Study == "P2000",])
> summary(PercP2000)
```

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	100.00	4.43	22.55	< 2e-16 ***
Zinc	-44.60	6.14	-7.26	3.7e-09 ***

Residual standard error: 21.3 on 46 degrees of freedom  
 Multiple R-squared: 0.534, Adjusted R-squared: 0.524  
 F-statistic: 52.7 on 1 and 46 DF, p-value: 3.73e-09

```
> PercP2008 <- lm(DurPerc ~ Zinc, zincIPD[Study == "P2008",])
> summary(PercP2008)
```

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	100.00	3.26	30.68	< 2e-16 ***
Zinc	-43.82	4.61	-9.51	1.3e-12 ***

Residual standard error: 16.3 on 48 degrees of freedom  
 Multiple R-squared: 0.653, Adjusted R-squared: 0.646  
 F-statistic: 90.4 on 1 and 48 DF, p-value: 1.3e-12

**Pooling of the estimates calculated above:**

```
> AllPerc.meta <- metagen(TE, seTE, studlab,data=subgroups[which(subgroups$Subgroup ==
"AllPerc"),],sm="MD")
> AllPerc.meta
```

	MD	95%-CI	%W(fixed)	%W(random)
Petrus 1998	-25.1	[-43.3; -6.94]	13.7	20.5
Prasad 2000	-44.6	[-56.6; -32.56]	31.1	34.5
Prasad 2008	-43.8	[-52.9; -34.78]	55.2	45.0

Number of studies combined: k=3

	MD	95%-CI	z	p-value
Fixed effect model	-41.5	[-48.2; -34.8]	-12.11	< 0.0001
Random effects model	-40.2	[-49.9; -30.5]	-8.14	< 0.0001

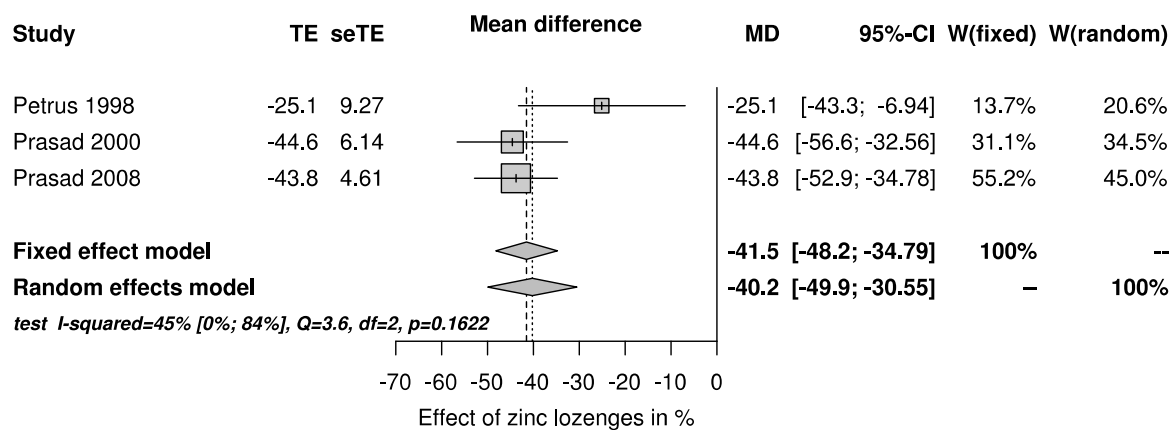
Quantifying heterogeneity:  
 tau^2 = 33.1767; H = 1.35 [1; 2.48]; I^2 = 45% [0%; 83.7%]

Test of heterogeneity:  
 Q d.f. p-value  
 3.64 2 0.1622

Details on meta-analytical method:  
 - Inverse variance method  
 - DerSimonian-Laird estimator for tau^2

**Table 2 analyses: two-stage pooling: Effect on cold duration in percentages**

Heterogeneity between the three studies is not statistically significant, with P = 0.16





**Table 3 analyses: One-stage pooling: Interaction between zinc lozenge effect and allergy status**

```
> AllerR2 <- lmer(Duration ~ Study + Study*Allergy + Zinc*Allergy + (Zinc-1|Study) +
  (Zinc:Allergy-1|Study) )
```

```
> summary(AllerR2)
```

Linear mixed model fit by REML ['lmerMod']

Formula: Duration ~ Study + Study \* Allergy + Zinc \* Allergy + (Zinc - 1 | Study) + (Zinc:Allergy - 1 | Study)

REML criterion at convergence: 930

Random effects:

Groups	Name	Variance	Std.Dev.
Study	Zinc	9.14e-01	9.56e-01
Study.1	Zinc:Allergy	5.24e-14	2.29e-07
Residual		6.59e+00	2.57e+00

Number of obs: 199, groups: Study, 3

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	6.737	0.464	14.52
StudyP2000	0.942	0.672	1.40
StudyP2008	0.165	0.654	0.25
Allergy	0.968	0.664	1.46
Zinc	-2.488	0.707	-3.52
StudyP2000:Allergy	0.339	1.246	0.27
StudyP2008:Allergy	-0.158	1.047	-0.15
<b>Allergy:Zinc</b>	<b>-0.892</b>	0.825	-1.08

Correlation of Fixed Effects:

	(Intr)	StP2000	StP2008	Allrgy	Zinc	SP2000: SP2008:
StudyP2000	-0.609					
StudyP2008	-0.627	0.428				
Allergy	-0.646	0.371	0.373			
Zinc	-0.283	-0.039	-0.011	0.206		
StdyP2000:A	0.242	-0.401	-0.167	-0.377	0.009	
StdyP2008:A	0.240	-0.164	-0.382	-0.348	-0.017	0.196
Allergy:Znc	0.389	-0.152	-0.143	-0.635	-0.315	0.093 -0.048

```
> confint(AllerR2)
```

Computing profile confidence intervals ...

	2.5 %	97.5 %
.sig01	0.000	2.21
.sig02	0.000	1.66
.sigma	2.299	2.81
(Intercept)	6.345	7.97
StudyP2000	-0.863	2.13
StudyP2008	-1.479	0.60
Allergy	-0.561	1.97
Zinc	-3.253	-1.54
StudyP2000:Allergy	-1.821	2.99
StudyP2008:Allergy	-2.265	1.80
<b>Allergy:Zinc</b>	<b>-1.955</b>	<b>1.13</b>

```
> AllerR1 <- lmer(Duration ~ Study + Study*Allergy + Zinc+Allergy + (Zinc-1|Study) +
  (Zinc:Allergy-1|Study) )
```

```
> lrtest(AllerR1,AllerR2)
```

Likelihood ratio test

Model 1: Duration ~ Study + Study \* Allergy + Zinc + Allergy + (Zinc - 1 | Study) + (Zinc:Allergy - 1 | Study)

Model 2: Duration ~ Study + Study \* Allergy + Zinc \* Allergy + (Zinc - 1 | Study) + (Zinc:Allergy - 1 | Study)

#Df LogLik Df Chisq Pr(>Chisq)

1	10	-466			
2	11	-465	1	2.53	<b>0.11</b>

**Table S2 analyses: Two-stage pooling: Interaction between zinc and allergy: interaction estimates in the three studies**

```
> AllPe <- lm(Duration ~ Zinc*Allergy, zincIPD[Study == "Petrus",])  
> summary(AllPe)
```

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	6.462	0.645	10.02	<2e-16 ***
Zinc	-1.082	0.888	-1.22	0.23
Allergy	1.278	0.941	1.36	0.18
Zinc:Allergy	-1.483	1.315	-1.13	0.26

Residual standard error: 3.29 on 97 degrees of freedom  
Multiple R-squared: 0.0868, Adjusted R-squared: 0.0586  
F-statistic: 3.07 on 3 and 97 DF, p-value: 0.0313

```
> AllP2000 <- lm(Duration ~ Zinc*Allergy, zincIPD[Study == "P2000",])  
> summary(AllP2000)
```

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	7.947	0.397	20.03	<2e-16 ***
Zinc	-3.556	0.536	-6.63	4e-08 ***
Allergy	0.803	0.952	0.84	0.40
Zinc:Allergy	0.306	1.591	0.19	0.85

Residual standard error: 1.73 on 44 degrees of freedom  
Multiple R-squared: 0.549, Adjusted R-squared: 0.518  
F-statistic: 17.8 on 3 and 44 DF, p-value: 1e-07

```
> AllP2008 <- lm(Duration ~ Zinc*Allergy, zincIPD[Study == "P2008",])  
> summary(AllP2008)
```

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	7.000	0.255	27.47	<2e-16 ***
Zinc	-3.000	0.370	-8.11	2e-10 ***
Allergy	0.750	0.637	1.18	0.25
Zinc:Allergy	-0.750	0.840	-0.89	0.38

Residual standard error: 1.17 on 46 degrees of freedom  
Multiple R-squared: 0.663, Adjusted R-squared: 0.641  
F-statistic: 30.2 on 3 and 46 DF, p-value: 6.09e-11

Table S2 analyses: **Two-stage pooling: pooling of the interaction estimates: allergy**

**Zinc effect and allergy**

No interaction between zinc effect and allergy ( P = 0.24)  
and no evidence of heterogeneity between studies (P = 0.7)

```
> ali <- metagen(TE, seTE, studlab,data=interactions[which(interactions$Subgroup == "Allergy"),],sm="MD")
> ali
```

	MD	95%-CI	%W(fixed)	%W(random)
Petrus 1998	-1.483	[-4.06; 1.094]	24.2	24.2
Prasad 2000	0.306	[-2.81; 3.425]	16.5	16.5
Prasad 2008	-0.750	[-2.40; 0.896]	59.3	59.3

Number of studies combined: k=3

	MD	95%-CI	z	p-value
Fixed effect model	-0.753	[-2.02; 0.515]	-1.16	0.2443
Random effects model	-0.753	[-2.02; 0.515]	-1.16	0.2443

Quantifying heterogeneity:  
tau<sup>2</sup> = 0; H = 1 [1; 1.9]; **I<sup>2</sup> = 0%** [0%; 72.3%]

Test of heterogeneity:

Q	d.f.	p-value
0.75	2	<b>0.6869</b>

Details on meta-analytical method:  
- Inverse variance method  
- DerSimonian-Laird estimator for tau<sup>2</sup>

```
>
```

**Table S2 analyses: Two-stage pooling: pooling of the interaction estimates**

**Zinc effect and age**

No interaction between zinc effect and age ( P = 0.15)  
and no evidence of heterogeneity between studies (P = 0.7)

```
> agi <- metagen(TE, seTE, studlab,data=interactions[which(interactions$Subgroup == "Age10"),],sm="MD")
> agi
```

	MD	95%-CI	%W(fixed)	%W(random)
Petrus 1998	-0.243	[-1.719; 1.233]	7.4	7.4
Prasad 2000	-0.575	[-1.410; 0.260]	23.1	23.1
Prasad 2008	-0.204	[-0.686; 0.278]	69.5	69.5

Number of studies combined: k=3

	MD	95%-CI	z	p-value
Fixed effect model	-0.293	[-0.694; 0.109]	-1.43	0.1532
Random effects model	-0.293	[-0.694; 0.109]	-1.43	0.1532

Quantifying heterogeneity:  
tau^2 = 0; H = 1 [1; 1.66]; I^2 = 0% [0%; 63.8%]

Test of heterogeneity:  
Q d.f. p-value  
0.57 2 0.7502

>  
**Zinc effect and sex**

No interaction between zinc effect and allergy ( P = 0.6)  
and no evidence of heterogeneity between studies (P = 0.6)

```
> sei <- metagen(TE, seTE, studlab,data=interactions[which(interactions$Subgroup == "Sex"),],sm="MD")
> sei
```

	MD	95%-CI	%W(fixed)	%W(random)
Petrus 1998	1.374	[-1.21; 3.95]	17.0	17.0
Prasad 2000	-0.119	[-2.22; 1.98]	25.5	25.5
Prasad 2008	0.165	[-1.24; 1.57]	57.5	57.5

Number of studies combined: k=3

	MD	95%-CI	z	p-value
Fixed effect model	0.298	[-0.765; 1.36]	0.549	0.5831
Random effects model	0.298	[-0.765; 1.36]	0.549	0.5831

Quantifying heterogeneity:  
tau^2 = 0; H = 1 [1; 2.03]; I^2 = 0% [0%; 75.6%]

Test of heterogeneity:  
Q d.f. p-value  
0.85 2 0.6525

>

## Table S2 analyses: Two-stage pooling: pooling of the interaction estimates

### Zinc effect and ethnic origin

No interaction between zinc effect and ethnic origin ( P = 0.9)  
and no evidence of heterogeneity between studies (P = 1.0)

```
> bli <- metagen(TE, seTE, studlab,data=interactions[which(interactions$Subgroup == "Black"),],sm="MD")
> bli
```

	MD	95%-CI	%W(fixed)	%W(random)
Petrus 1998	0.2620	[-3.52; 4.04]	9.26	9.26
Prasad 2000	-0.0960	[-2.39; 2.20]	25.12	25.12
Prasad 2008	-0.0583	[-1.48; 1.36]	65.62	65.62

Number of studies combined: k=3

	MD	95%-CI	z	p-value
Fixed effect model	-0.0381	[-1.19; 1.11]	-0.065	0.9482
Random effects model	-0.0381	[-1.19; 1.11]	-0.065	0.9482

Quantifying heterogeneity:  
tau<sup>2</sup> = 0; H = 1 [1; 1]; I<sup>2</sup> = 0% [0%; 0%]

Test of heterogeneity:

Q	d.f.	p-value
0.03	2	0.9864

>

### Zinc effect and smoking

No interaction between zinc effect and smoking ( P = 0.7)  
and no evidence of heterogeneity between studies (P = 0.7)

```
> smi <- metagen(TE, seTE, studlab,data=interactions[which(interactions$Subgroup == "Smoker"),],sm="MD")
> smi
```

	MD	95%-CI	%W(fixed)	%W(random)
Prasad 2000	-0.4833	[-2.76; 1.79]	28.6	28.6
Prasad 2008	-0.0775	[-1.52; 1.36]	71.4	71.4

Number of studies combined: k=2

	MD	95%-CI	z	p-value
Fixed effect model	-0.194	[-1.41; 1.02]	-0.312	0.7549
Random effects model	-0.194	[-1.41; 1.02]	-0.312	0.7549

Quantifying heterogeneity:  
tau<sup>2</sup> = 0; H = 1; I<sup>2</sup> = 0%

Test of heterogeneity:

Q	d.f.	p-value
0.09	1	0.7674

>

## Table S2 analyses: Two-stage pooling: pooling of the interaction estimates

### Zinc effect and baseline common cold severity

No interaction between zinc effect and common cold severity ( P = 0.7)  
and no evidence of heterogeneity between studies (P = 0.2)

```
> sevi <- metagen(TE, seTE, studlab,data=interactions[which(interactions$Subgroup ==  
"SeveBin"),],sm="MD")
```

```
> sevi
```

	MD	95%-CI	%W(fixed)	%W(random)
Petrus 1998	2.196 [-0.372; 4.76]		15.5	22.4
Prasad 2000	-0.906 [-2.906; 1.09]		25.6	31.0
Prasad 2008	0.103 [-1.216; 1.42]		58.9	46.6

Number of studies combined: k=3

	MD	95%-CI	z	p-value
Fixed effect model	0.170 [-0.842; 1.18]		0.329	0.7423
Random effects model	0.259 [-1.187; 1.70]		0.351	0.7257

Quantifying heterogeneity:

tau<sup>2</sup> = 0.7149; H = 1.33 [1; 2.42]; I<sup>2</sup> = 43.1% [0%; 82.9%]

Test of heterogeneity:

Q	d.f.	p-value
3.51	2	0.1727

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**The following three pages show the data set that was analyzed in the study**

Most of the variables are evident.

The definition of severity is described in Additional file 1 and the continuous scale was transformed to binary outcome “SeveBin” at the medians of the three studies.

Duration indicates the duration of common cold episodes

“DurPerc” is a transformed variable of duration so that:

all Petrus (1998) study duration values were divided by 7.0612 which is the placebo group mean common cold duration of that study,

all Prasad (2000) study duration values were divided by 8.0869 which is the placebo group mean common cold duration of that study,

all Prasad (2008) study duration values were divided by 7.12000 which is the placebo group mean common cold duration of that study,

“Study” variable indicates the studies, so that **Petrus** indicates the Petrus (1998) study [15], **P2000** indicates the Prasad (2000) study [16], and **P2008** indicates the Prasad (2008) study [17].

“NA” indicates not available.

zincIPD[,c(1:13)]

	ID	Age	Black	Sex	Allergy	Smoker	Severity	SeveBin	Zinc	Duration	DurPerc	Cured	Study
1	103	21	NA	0	0	NA	10	1	1	8	113.295	1	Petrus
2	105	18	0	0	1	NA	2	0	1	3	42.486	1	Petrus
3	106	40	1	1	0	NA	7	0	1	4	56.647	1	Petrus
4	107	37	0	0	1	NA	7	0	1	7	99.133	1	Petrus
5	109	42	0	1	0	NA	4	0	1	6	84.971	1	Petrus
6	111	21	0	1	0	NA	7	0	1	4	56.647	1	Petrus
7	115	22	0	0	1	NA	7	0	1	7	99.133	1	Petrus
8	119	21	0	1	0	NA	6	0	1	5	70.809	1	Petrus
9	121	22	0	0	1	NA	12	1	1	7	99.133	1	Petrus
10	122	20	0	1	1	NA	8	1	1	6	84.971	1	Petrus
11	123	30	0	1	0	NA	2	0	1	2	28.324	1	Petrus
12	125	22	0	1	0	NA	7	0	1	8	113.295	1	Petrus
13	127	22	0	0	1	NA	5	0	1	12	169.942	1	Petrus
14	128	20	0	0	1	NA	14	1	1	4	56.647	1	Petrus
15	129	22	0	0	1	NA	12	1	1	7	99.133	1	Petrus
16	132	25	1	1	0	NA	5	0	1	4	56.647	1	Petrus
17	133	20	0	0	0	NA	4	0	1	2	28.324	1	Petrus
18	137	24	0	0	1	NA	8	1	1	5	70.809	1	Petrus
19	139	24	1	1	0	NA	10	1	1	5	70.809	1	Petrus
20	141	23	1	1	0	NA	5	0	1	4	56.647	1	Petrus
21	142	19	NA	0	0	NA	2	0	1	7	99.133	1	Petrus
22	144	47	0	1	0	NA	4	0	1	11	155.780	1	Petrus
23	145	35	1	1	1	NA	14	1	1	3	42.486	1	Petrus
24	146	20	0	0	1	NA	7	0	1	6	84.971	1	Petrus
25	147	20	0	0	1	NA	5	0	1	3	42.486	1	Petrus
26	148	22	0	1	0	NA	6	0	1	4	56.647	1	Petrus
27	151	43	NA	1	0	NA	2	0	1	4	56.647	1	Petrus
28	153	22	0	0	1	NA	3	0	1	7	99.133	1	Petrus
29	155	21	0	0	1	NA	8	1	1	2	28.324	1	Petrus
30	158	20	0	0	0	NA	6	0	1	3	42.486	1	Petrus
31	159	50	1	1	0	NA	12	1	1	6	84.971	1	Petrus
32	161	21	0	1	0	NA	8	1	1	8	113.295	1	Petrus
33	163	41	1	1	0	NA	9	1	1	6	84.971	1	Petrus
34	165	31	1	1	0	NA	12	1	1	6	84.971	1	Petrus
35	166	24	0	1	1	NA	7	0	1	3	42.486	1	Petrus
36	167	21	1	0	0	NA	6	0	1	3	42.486	1	Petrus
37	168	28	NA	0	1	NA	9	1	1	8	113.295	1	Petrus
38	170	19	NA	0	0	NA	9	1	1	3	42.486	1	Petrus
39	171	36	0	1	0	NA	12	1	1	9	127.457	1	Petrus
40	174	41	NA	1	1	NA	4	0	1	3	42.486	1	Petrus
41	178	21	0	0	1	NA	3	0	1	4	56.647	1	Petrus
42	180	39	0	0	0	NA	7	0	1	2	28.324	1	Petrus
43	181	20	0	1	0	NA	6	0	1	4	56.647	1	Petrus
44	184	20	0	1	0	NA	5	0	1	2	28.324	1	Petrus
45	185	29	0	1	1	NA	7	0	1	3	42.486	1	Petrus
46	191	23	0	0	1	NA	8	1	1	8	113.295	1	Petrus
47	192	20	0	1	0	NA	10	1	1	10	141.618	1	Petrus
48	194	23	0	1	0	NA	11	1	1	5	70.809	1	Petrus
49	196	21	0	1	0	NA	8	1	1	11	155.780	1	Petrus
50	198	22	0	0	1	NA	9	1	1	6	84.971	1	Petrus
51	199	21	0	0	1	NA	5	0	1	3	42.486	1	Petrus
52	201	50	0	0	1	NA	5	0	1	2	28.324	1	Petrus
53	101	23	1	1	1	NA	20	1	0	2	28.324	1	Petrus
54	102	54	0	0	1	NA	10	1	0	2	28.324	1	Petrus
55	104	18	0	0	0	NA	14	1	0	7	99.133	1	Petrus
56	108	18	NA	1	1	NA	6	0	0	7	99.133	1	Petrus
57	110	21	0	0	1	NA	6	0	0	14	198.266	1	Petrus
58	112	21	0	1	0	NA	15	1	0	5	70.809	1	Petrus
59	113	21	0	0	0	NA	5	0	0	4	56.647	1	Petrus
60	114	28	0	1	1	NA	10	1	0	11	155.780	1	Petrus
61	116	42	0	1	0	NA	7	0	0	8	113.295	1	Petrus
62	117	21	0	1	1	NA	10	1	0	3	42.486	1	Petrus
63	118	22	0	1	0	NA	9	1	0	7	99.133	1	Petrus
64	120	29	0	1	0	NA	9	1	0	4	56.647	1	Petrus
65	124	22	0	1	0	NA	4	0	0	4	56.647	1	Petrus
66	126	52	0	0	0	NA	10	1	0	13	184.104	1	Petrus
67	130	22	NA	0	0	NA	10	1	0	4	56.647	1	Petrus
68	131	24	0	0	0	NA	9	1	0	6	84.971	1	Petrus
69	134	21	1	1	1	NA	7	0	0	13	184.104	1	Petrus
70	135	36	1	0	1	NA	5	0	0	5	70.809	1	Petrus
71	136	50	0	1	0	NA	6	0	0	5	70.809	1	Petrus
72	138	23	0	0	1	NA	4	0	0	7	99.133	1	Petrus
73	140	30	0	1	1	NA	13	1	0	15	212.428	1	Petrus
74	143	37	NA	1	0	NA	4	0	0	15	212.428	1	Petrus
75	149	24	1	0	1	NA	7	0	0	8	113.295	1	Petrus
76	150	24	0	1	0	NA	12	1	0	11	155.780	1	Petrus
77	152	29	1	0	1	NA	3	0	0	4	56.647	1	Petrus
78	154	34	NA	1	0	NA	13	1	0	5	70.809	1	Petrus
79	156	24	0	0	0	NA	7	0	0	6	84.971	1	Petrus
80	157	25	0	1	0	NA	10	1	0	3	42.486	1	Petrus



81	160	20	0	1	1	NA	14	1	0	4	56.647	1	Petrus
82	162	36	NA	1	1	NA	6	0	0	10	141.618	1	Petrus
83	164	23	1	1	1	NA	6	0	0	4	56.647	1	Petrus
84	169	19	0	1	0	NA	6	0	0	7	99.133	1	Petrus
85	172	27	0	0	1	NA	11	1	0	12	169.942	1	Petrus
86	173	31	0	1	1	NA	16	1	0	8	113.295	1	Petrus
87	175	18	0	0	1	NA	7	0	0	14	198.266	1	Petrus
88	176	22	0	0	0	NA	7	0	0	6	84.971	1	Petrus
89	177	27	0	0	0	NA	7	0	0	2	28.324	1	Petrus
90	179	32	0	0	0	NA	3	0	0	7	99.133	1	Petrus
91	182	21	0	1	1	NA	4	0	0	5	70.809	1	Petrus
92	183	21	NA	0	0	NA	4	0	0	6	84.971	1	Petrus
93	186	18	0	1	0	NA	5	0	0	3	42.486	1	Petrus
94	187	18	0	1	1	NA	2	0	0	4	56.647	1	Petrus
95	188	26	0	1	0	NA	18	1	0	4	56.647	1	Petrus
96	189	18	0	1	0	NA	17	1	0	5	70.809	1	Petrus
97	190	20	0	0	0	NA	5	0	0	15	212.428	1	Petrus
98	195	20	0	0	0	NA	7	0	0	6	84.971	1	Petrus
99	197	21	0	0	1	NA	23	1	0	15	212.428	1	Petrus
100	200	28	0	1	1	NA	13	1	0	5	70.809	1	Petrus
101	202	28	NA	0	1	NA	8	1	0	6	84.971	1	Petrus
102	801	22	0	1	0	0	9	1	1	6	84.270	1	P2008
103	802	32	1	1	0	1	12	1	1	4	56.180	1	P2008
104	803	49	1	0	0	1	8	1	1	2	28.090	1	P2008
105	804	37	1	1	0	1	14	1	1	3	42.135	1	P2008
106	805	49	1	0	1	1	17	1	1	5	70.225	1	P2008
107	806	29	0	1	0	0	20	1	1	4	56.180	1	P2008
108	807	26	NA	1	0	0	4	0	1	5	70.225	1	P2008
109	808	22	0	1	0	0	7	0	1	4	56.180	1	P2008
110	809	19	0	1	0	0	6	0	1	3	42.135	1	P2008
111	810	38	0	0	0	0	9	1	1	3	42.135	1	P2008
112	811	19	0	1	0	0	8	1	1	5	70.225	1	P2008
113	812	18	0	1	0	0	6	0	1	4	56.180	1	P2008
114	813	20	0	1	0	1	9	1	1	3	42.135	1	P2008
115	814	25	1	1	0	0	11	1	1	4	56.180	1	P2008
116	815	56	0	1	1	0	9	1	1	4	56.180	1	P2008
117	816	59	1	1	1	0	4	0	1	2	28.090	1	P2008
118	817	26	0	0	0	0	7	0	1	5	70.225	1	P2008
119	818	23	1	1	1	0	4	0	1	5	70.225	1	P2008
120	819	39	NA	0	0	0	11	1	1	4	56.180	1	P2008
121	820	18	0	1	0	0	14	1	1	5	70.225	1	P2008
122	821	50	1	1	0	0	5	0	1	4	56.180	1	P2008
123	822	46	0	1	1	0	2	0	1	3	42.135	1	P2008
124	823	50	0	1	1	0	10	1	1	5	70.225	1	P2008
125	824	31	0	0	0	0	5	0	1	3	42.135	1	P2008
126	825	60	0	0	0	1	8	1	1	5	70.225	1	P2008
127	826	27	0	1	1	0	8	1	0	7	98.315	1	P2008
128	827	29	NA	1	1	0	11	1	0	9	126.404	1	P2008
129	828	50	0	0	0	1	3	0	0	7	98.315	1	P2008
130	829	45	1	1	1	1	15	1	0	7	98.315	1	P2008
131	830	23	0	0	0	0	19	1	0	6	84.270	1	P2008
132	831	42	1	0	1	1	8	1	0	8	112.360	1	P2008
133	832	48	1	0	0	1	7	0	0	6	84.270	1	P2008
134	833	19	0	1	0	0	13	1	0	7	98.315	1	P2008
135	834	56	1	1	0	0	8	1	0	8	112.360	1	P2008
136	835	23	0	1	0	0	6	0	0	6	84.270	1	P2008
137	836	21	0	1	0	1	6	0	0	8	112.360	1	P2008
138	837	20	0	0	0	0	8	1	0	10	140.449	1	P2008
139	838	40	0	1	0	0	6	0	0	7	98.315	1	P2008
140	839	45	1	1	0	1	4	0	0	4	56.180	1	P2008
141	840	53	1	0	0	1	6	0	0	8	112.360	1	P2008
142	841	47	0	1	0	0	5	0	0	9	126.404	1	P2008
143	842	39	NA	0	0	0	8	1	0	7	98.315	1	P2008
144	843	50	0	1	0	0	4	0	0	7	98.315	1	P2008
145	844	19	0	0	0	0	9	1	0	5	70.225	1	P2008
146	845	51	1	0	0	0	4	0	0	7	98.315	1	P2008
147	846	46	0	1	0	1	14	1	0	7	98.315	1	P2008
148	847	17	0	1	0	0	3	0	0	8	112.360	1	P2008
149	848	20	0	1	0	0	5	0	0	7	98.315	1	P2008
150	849	22	1	1	0	0	9	1	0	6	84.270	1	P2008
151	850	45	0	0	0	1	8	1	0	7	98.315	1	P2008
152	301	42	0	1	0	0	5	0	1	4	49.462	1	P2000
153	302	27	0	1	1	1	13	1	1	3	37.097	1	P2000
154	303	59	0	1	0	0	7	0	1	3	37.097	1	P2000
155	304	43	1	1	0	1	14	1	1	7	86.559	1	P2000
156	305	23	0	1	0	0	9	0	1	5	61.828	1	P2000
157	306	40	1	0	0	1	13	1	1	5	61.828	1	P2000
158	307	61	0	1	0	0	14	1	1	6	74.194	1	P2000
159	308	25	1	1	0	0	12	1	1	3	37.097	1	P2000
160	309	41	0	1	0	0	3	0	1	3	37.097	1	P2000

161	310	19	0	1	0	1	6	0	1	3	37.097	1	P2000
162	311	42	0	1	0	0	12	1	1	2	24.731	1	P2000
163	312	59	1	1	0	0	18	1	1	7	86.559	1	P2000
164	313	28	0	0	0	0	5	0	1	6	74.194	1	P2000
165	314	38	0	1	0	0	10	0	1	6	74.194	1	P2000
166	315	24	0	0	0	0	6	0	1	4	49.462	1	P2000
167	316	36	0	1	1	0	13	1	1	8	98.925	1	P2000
168	317	32	0	0	0	0	2	0	1	5	61.828	1	P2000
169	318	33	0	1	0	0	26	1	1	2	24.731	1	P2000
170	319	34	0	0	0	0	11	1	1	4	49.462	1	P2000
171	320	31	NA	1	0	1	14	1	1	5	61.828	1	P2000
172	321	35	1	1	0	0	12	1	1	3	37.097	1	P2000
173	322	25	NA	0	0	0	13	1	1	5	61.828	1	P2000
174	323	38	0	1	0	0	11	1	1	6	74.194	1	P2000
175	324	33	0	1	0	0	11	1	1	4	49.462	1	P2000
176	325	43	0	0	0	0	11	1	1	3	37.097	1	P2000
177	326	42	0	1	1	0	6	0	0	10	123.656	1	P2000
178	327	29	0	0	1	1	6	0	0	8	98.925	1	P2000
179	328	40	1	0	0	1	11	1	0	9	111.290	1	P2000
180	329	32	0	1	0	0	11	1	0	9	111.290	1	P2000
181	330	42	1	0	0	1	6	0	0	7	86.559	1	P2000
182	331	54	1	1	0	0	11	1	0	12	148.387	1	P2000
183	332	22	1	1	0	0	14	1	0	9	111.290	1	P2000
184	333	37	1	0	0	1	10	0	0	7	86.559	1	P2000
185	334	29	0	1	0	0	6	0	0	5	61.828	1	P2000
186	335	52	1	0	0	1	11	1	0	12	148.387	1	P2000
187	336	24	0	0	0	0	15	1	0	6	74.194	1	P2000
188	337	56	1	1	1	1	11	1	0	9	111.290	1	P2000
189	338	43	1	0	0	0	6	0	0	7	86.559	1	P2000
190	339	54	1	0	0	1	9	0	0	8	98.925	1	P2000
191	340	18	0	0	1	0	6	0	0	8	98.925	1	P2000
192	341	38	0	1	0	0	6	0	0	8	98.925	1	P2000
193	342	42	0	0	0	0	8	0	0	9	111.290	1	P2000
194	343	33	1	1	0	0	11	1	0	6	74.194	1	P2000
195	344	40	1	0	0	1	7	0	0	8	98.925	1	P2000
196	345	52	0	1	0	0	3	0	0	8	98.925	1	P2000
197	346	31	NA	1	0	0	15	1	0	7	86.559	1	P2000
198	347	23	0	1	0	0	6	0	0	5	61.828	1	P2000
199	348	37	0	1	0	0	7	0	0	9	111.290	1	P2000

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