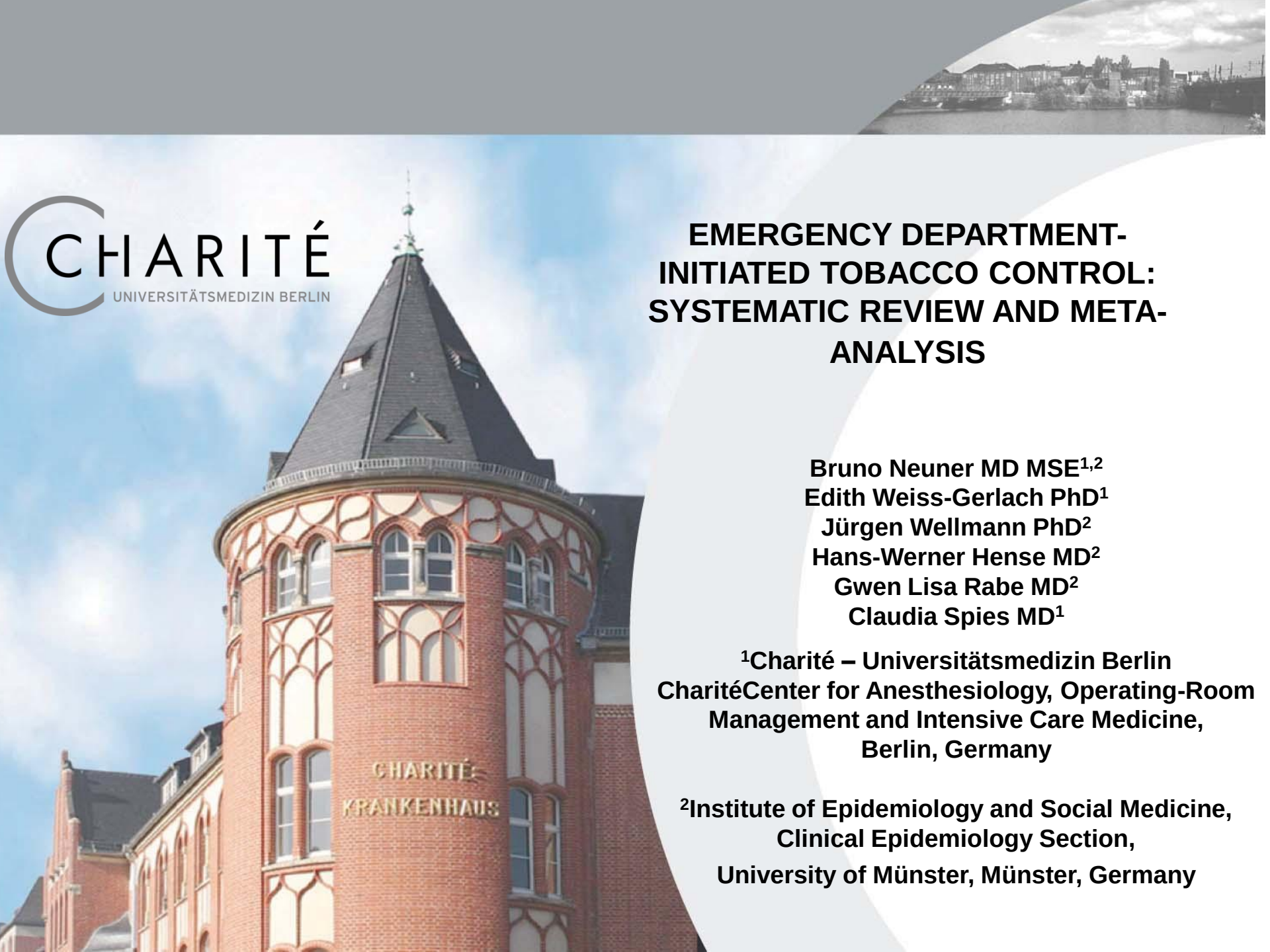

EMERGENCY DEPARTMENT-INITIATED TOBACCO CONTROL: SYSTEMATIC REVIEW AND META-ANALYSIS

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Tobacco Control Interventions in the Emergency Department: A Joint Statement of Emergency Medicine Organizations

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Bernstein et al. (2006) Ann Emerg Med 2006; 48:e417-e426
Bernstein et al. (2006) J Emerg Nurs 2006, 32:370-81

- We call on emergency care provider to routinely assess patients' smoking status, offer brief advice to quit, and refer to the National Smokers' Quitline /…/

- Tobacco control fits within the traditions of other ED (Emergency Department)-based public health practices /.../
- ……

Bernstein et al. (2006) Ann Emerg Med 2006; 48:e417-e426
Bernstein et al. (2006) J Emerg Nurs 2006; 32:370-81

Emergency-department initiated tobacco control: State of evidence in 2006

Year / country	n	Follow-up	Intervention group Control group	Quit rates
2000 / USA[1]	42	6 month	IV: Transferal to an out-side smoking cessation program CG: brief intervention	IV 0 / 21 = 0% CG 1 / 21 = 4.8%
2000 / USA[2]	152	3 month	IV: Transferal to an out-side cessation program + brochure CG: brochure	IV 6 / 78 = 7.7% CG 5 / 74 = 6.8%

(1) Antonacci und Eyck (2000) Acad Emerg Med; 7:1166
(2) Richman PB et al. (2000) Acad Emerg Med; 7:348-53

IV = Intervention group
CG = Control group

Prevalence of smokers in emergency departments

Year	Author Setting	n	Smoking prevalence
1998	Lowenstein et al., Acad Emerg Med; 5:781-87 3 inner-city EDs, USA	923	48%
2003	Silverman et al., Chest; 123:1472–1479 64 EDs, USA and Canada	1847 „asthmatic patients“	35%
2006	Neumann et al., J Trauma; 61:805– 814 Inner-city ED, Berlin, Germany	3026 „minor trauma patients“	46% (60% in the subgroup with a positive AUDIT)

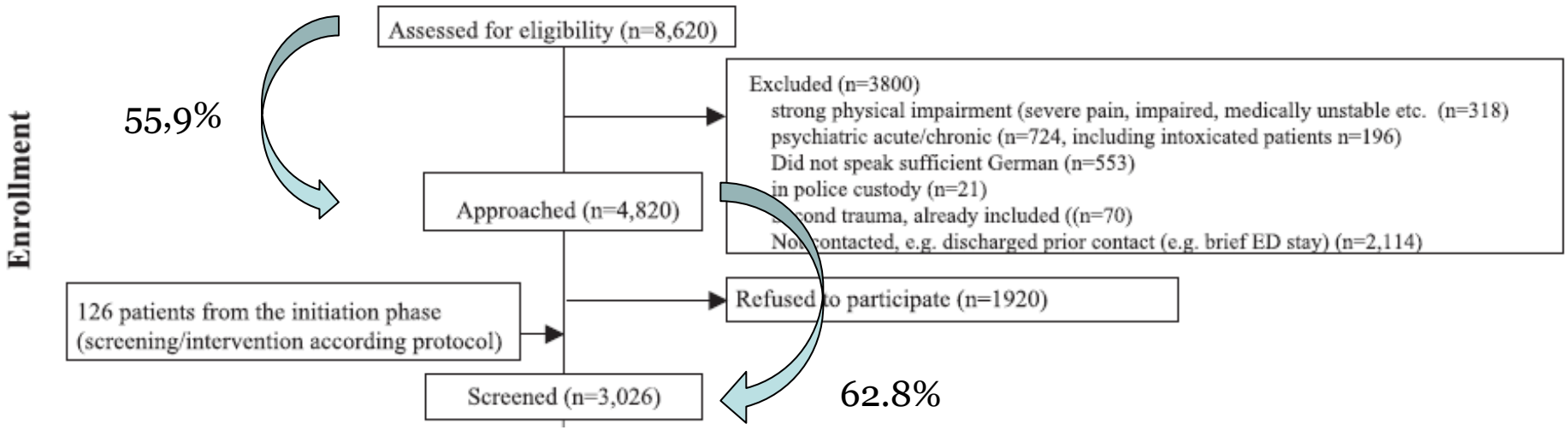
ED = emergency department
AUDIT = Alcohol Use Disorder Identification Test, Cut-off ≥ 5 points

Young age of smokers in emergency departments

	N = 1405 smokers in the Berlin ED-study[1]	N = 8490 smokers in 813 GP practises in Germany [2]
low dependent	31.6 years	42.0 years
high dependent	34.5 years	50.5 years

(1) Neumann et al. (2006) J Trauma; 61:805– 814
(2) Baum A. (2008) (dissertation). Medical Faculty of the Ludwig-Maximilians-University Munich,
GP = general practitioner
low dependent = 0-5 points in the FTND
high dependent = 5-10 points in the FTND

Are emergency department patients / smokers interested in health promotion?



(1) Neumann T et al. (2006) J Trauma; 61:805-14

Motivation to stop smoking in n = 1012 emergency department smokers

	Unmotivated smokers	Ambivalent smokers	Motivated smokers
n	557 (55.0%)	327 (32.3%)	128 (12.6%)
Age#	29 (18 – 78)	30 (18 – 73)	30.5 (19 – 78)

„When do you wish to stop smoking?“ (unmotivated smoker = ‚not within the next 6 month‘ / ambivalent smoker = ‚within the next 6 month but not within the next 4 weeks / motivated smoker = within the next 4 weeks)

= median (range)

Neuner B et al. (2009) Tobacco Control;18:283–293

AIM: Systematic review and meta-analysis of RCTs evaluating ED-initiated tobacco control

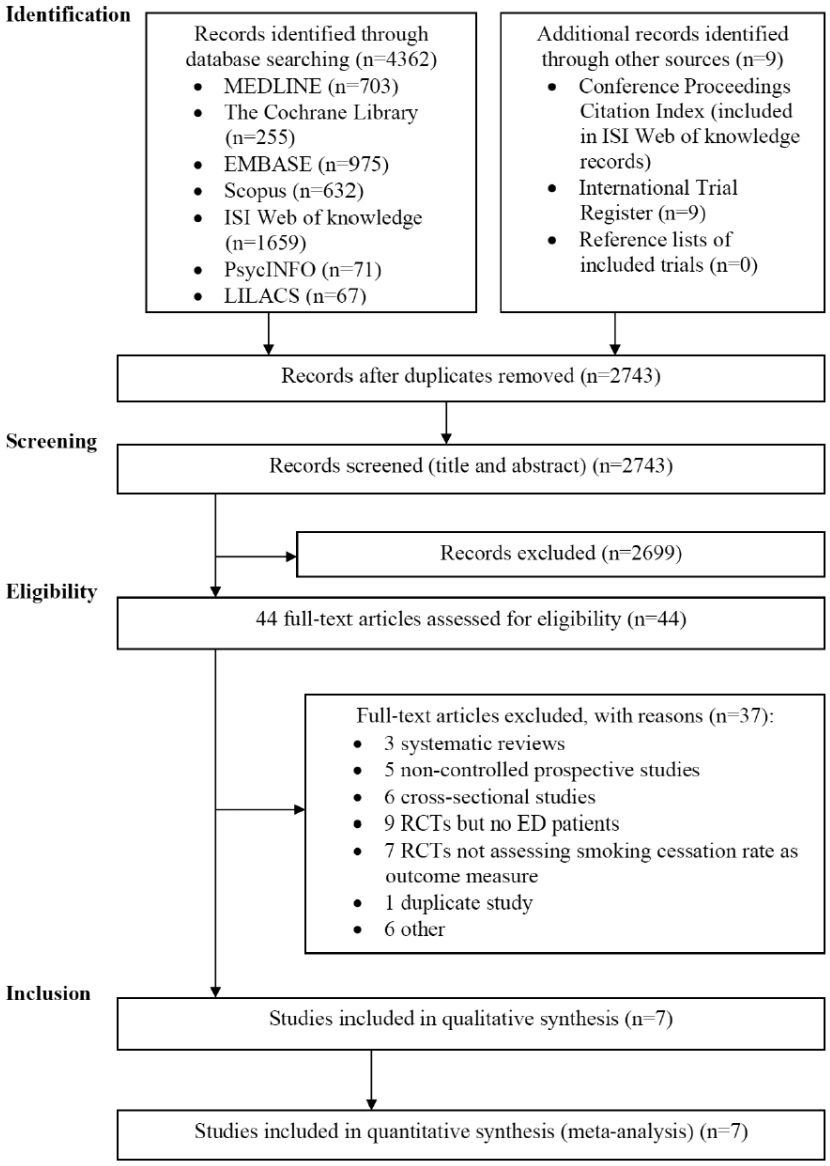
- Randomized controlled trials in
- an emergency department setting addressing
- patients who are actual smokers and
- who received a smoking cessation intervention on site, and who‘s
- smoking status was evaluated at least once during follow-up

10-2010 (original search)

06-2012 (update >>> publication)

07-2013 (2nd update >>> APACT-2013)

Flow-chart 10-2010



Characteristics of included studies

Publication year, author	Country	n	ED-setting	Patient load
2000, Antonnaci et al.	USA	42	?	30,000
2000, Richman et al.	USA	152	sub-urban	47,000
2007, Horn et al.	USA	75	sub-urban	?
2007, Schiebel et al.	USA	39	inner-city	70,000
2008, Bock et al.	USA	543	inner-city	100,000
2008, Boudreaux et al.	USA	90	inner-city	47,000
2009, Neuner et al.	D	1044	inner-city	40,000

ED-initiated tobacco control up to 2000

Publication year, author	Treatment in the intervention group	Treatment in the control group
2000, Antonnaci et al.	Transferal to an out-side smoking cessation program	brief intervention
2000, Richman et al.	Transferal to an out-side smoking cessation program + brochure	brochure

“Interventions for smoking cessation in hospitalised patients”

„Interventions with less than a month follow-up”
Peto Odds Ratio 1.09 (95%-KI (0.91 - 1.31)), 7 studies

„Longer interventions delivered only during the hospital stay”
Peto Odds Ratio 1.07 (95%-KI (0.79 - 1.44)), 3 studies

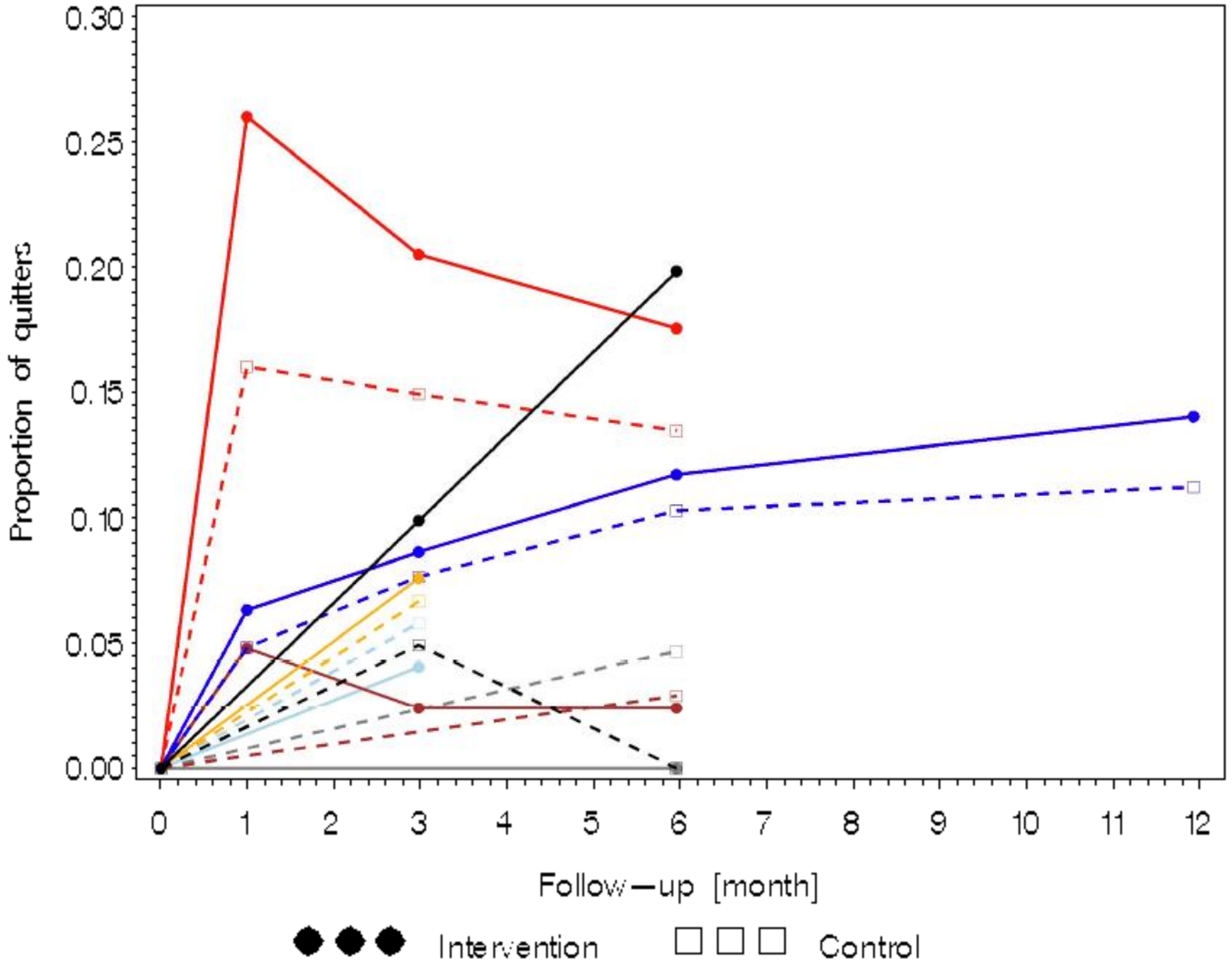
„Inpatient contact **plus follow-up for at least one month**”
Peto Odds Ratio 1.82 (95%-KI (1.49 - 2.22)), 6 studies
Peto Odds Ratio 1.65 (95%-KI (1.44 – 1.90)), 17 studies (2008)

Rigotti NA et al. Cochrane Database Syst Rev. 2001;(2):CD001837.
Rigotti NA et al. Cochrane Database Syst Rev. 2008;(1):CD001837.

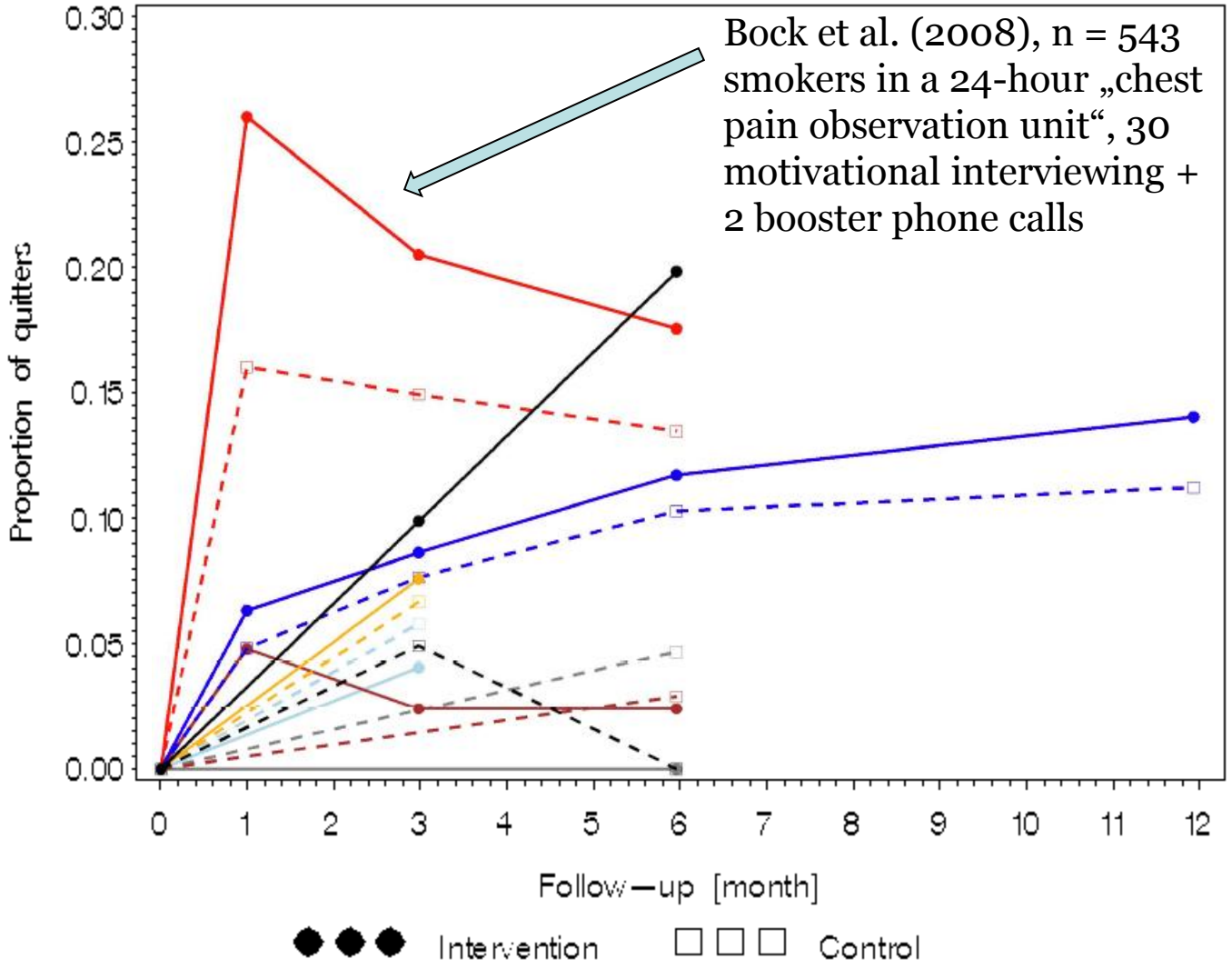
ED-initiated tobacco control after 2001/2003

Publication year, author	Treatment in the intervention group	Treatment in the control group
2007, Horn et al.	30-min MI on site + Audio-Workbook + hand-written postcard 3 days after discharge + **up to 3 booster phone calls**	Brief advice
2007, Schiebel et al.	45-min MI by phone within 7 days after discharge + **up to 4 booster phone calls**	Self-help brochure
2008, Bock et al.	30-min MI on site + **up to 2 booster phone calls**	Written advice
2008, Boudreaux et al.	30-min MI on site + **up to 3 booster phone calls**	Written advice
2009, Neuner et al.	15-30-min MI on site + **up to 4 booster phone calls**	Written advice

Quit rates in the intervention groups vs. control groups



Quit rates in the intervention groups vs. control groups



Method of the meta-analysis

1. **Stratified by follow-up**
    1. Mantel-Haenszel relative risks
2. **Combined estimate at all follow-up times**
    1. Generalized linear mixed models (GLMM)

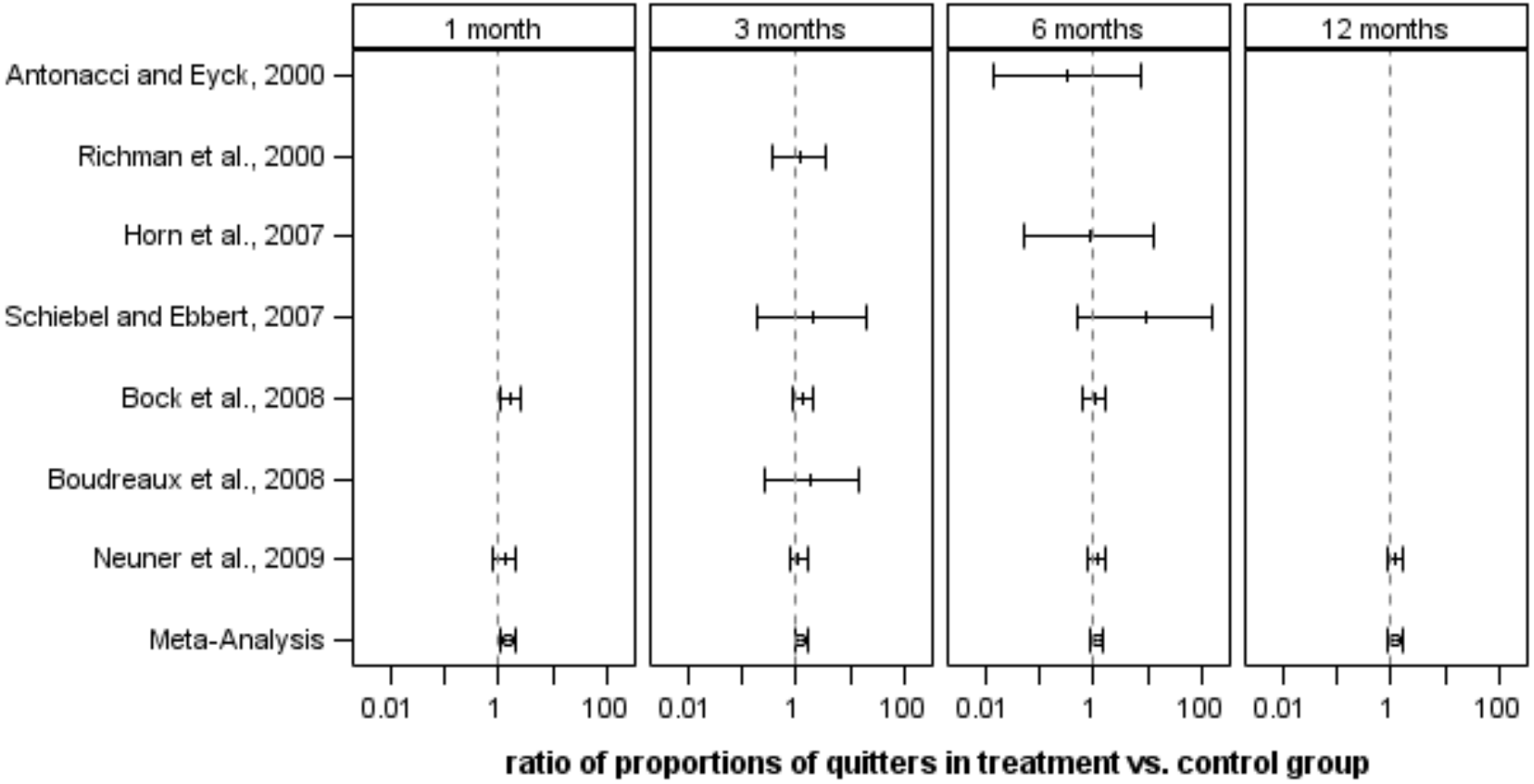
        Level 1: intercept (readiness to quit smoking) + treatment effect

        Level 2: random intercepts may differ over time within each study but they are correlated

        random treatment effects are constant over time but differ between studies

Bagos PG et al. (2009) Int J Biostatistics; 5(1)Article 21

Meta-analysis stratified by follow-up



Meta-Analyses:	**1.47 (1.06-2.06)**	**1.24 (0.93-1.65)**	**1.13 (0.86-1.49)**	**1.25 (0.91-1.72)**

Meta-Analysis, combined estimate at all follow-up times

	10-2010
All studies (n = 7)	1.33 (0.96–1.83), p = 0.08
MI + booster phone calls (n = 5)	1.33 (0.92–1.92), p = 0.10

Meta-Analysis, combined estimate at all follow-up times

	10-2010	07-2013
All studies	1.33 (0.96–1.83), p = 0.08, n = 7 studies	1.26 (0.95–1.66), p = 0.10, n = 10 studies
MI + booster phone calls	1.33 (0.92–1.92), p = 0.10, n = 5 studies	1.31 (0.94–1.84), p = 0.09, n = 6 studies

3 additional studies: n = 338 / 221 / 33

According to the ClinicalTrials.gov database there are at least 5 registered / recruiting / completed studies (University of British Columbia / University of Iowa / Yale University / Vanderbilt University / The Miriam Hospital /

Discussion

- Good Public Health rationale (age / high reach / teachable moment / good feasibility / specific patient group)
- Recommendations from medical societies (at least for the US)

- Tradition of health promoting strategies in EDs

- EDiTC seems less effective then tobacco control in clinical settings

  1.31 (0.94–1.84) versus 1.65 (1.44–1.90)
- but…. current evidence too sparce to draw final conclusions

Thank you very much for your attention

To-do-list

- „more research is needed“
    - address multiple substance use?
    - address more accurately nicotine dependency?
    - involve family members / proxies of pediatric ED patients?
    - combination of on-site counseling with quit lines / out-side cessation programs?
    - involve GPs (if available)?

data analysis. In the formal smoking cessation group, none completed the class. Of

Antonacci und Eyck (2000) Acad Emerg Med; 7:1166

moderate or severe nicotine addiction. None of the patients (0%) in the intervention group contacted or attended the smoking cessation program during the study period (95% CI = 0–4%). The percentages of

Richman PB et al. (2000) Acad Emerg Med; 7:348-53