

EuroValve

March 27 - 28, 2015

CONTROVERSY IN INFECTIVE ENDOCARDITIS

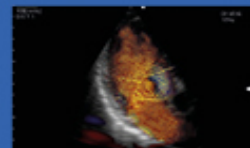
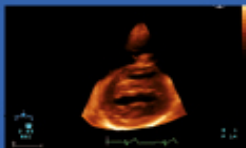
Prophylaxis is no longer needed

PRO

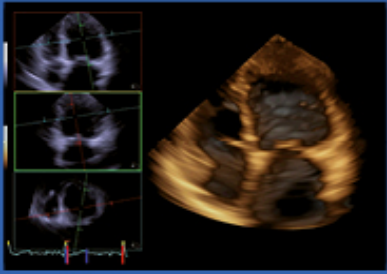
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www.eurovalvecongress.com



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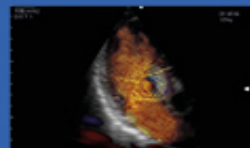
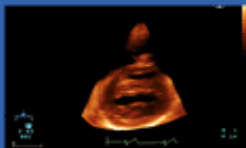
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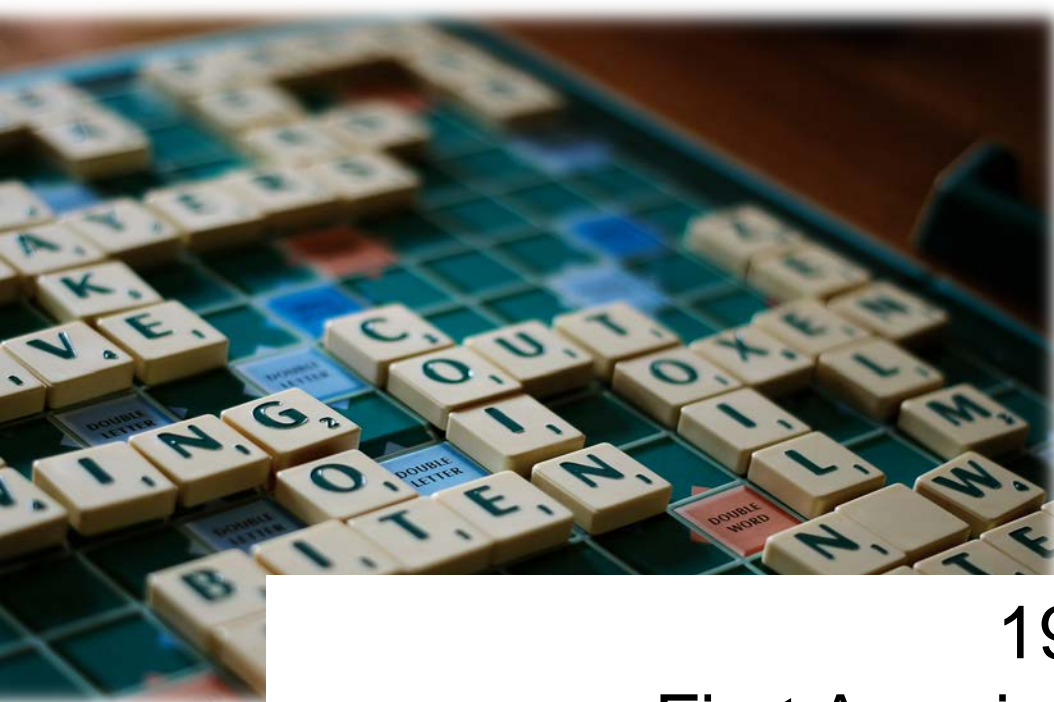
Faculty disclosure

Bernard Prendergast

I disclose the following financial relationships:

No conflict of interest to declare





1955
First American Guidelines
Recommending Antibiotic Prophylaxis



Medical dogma

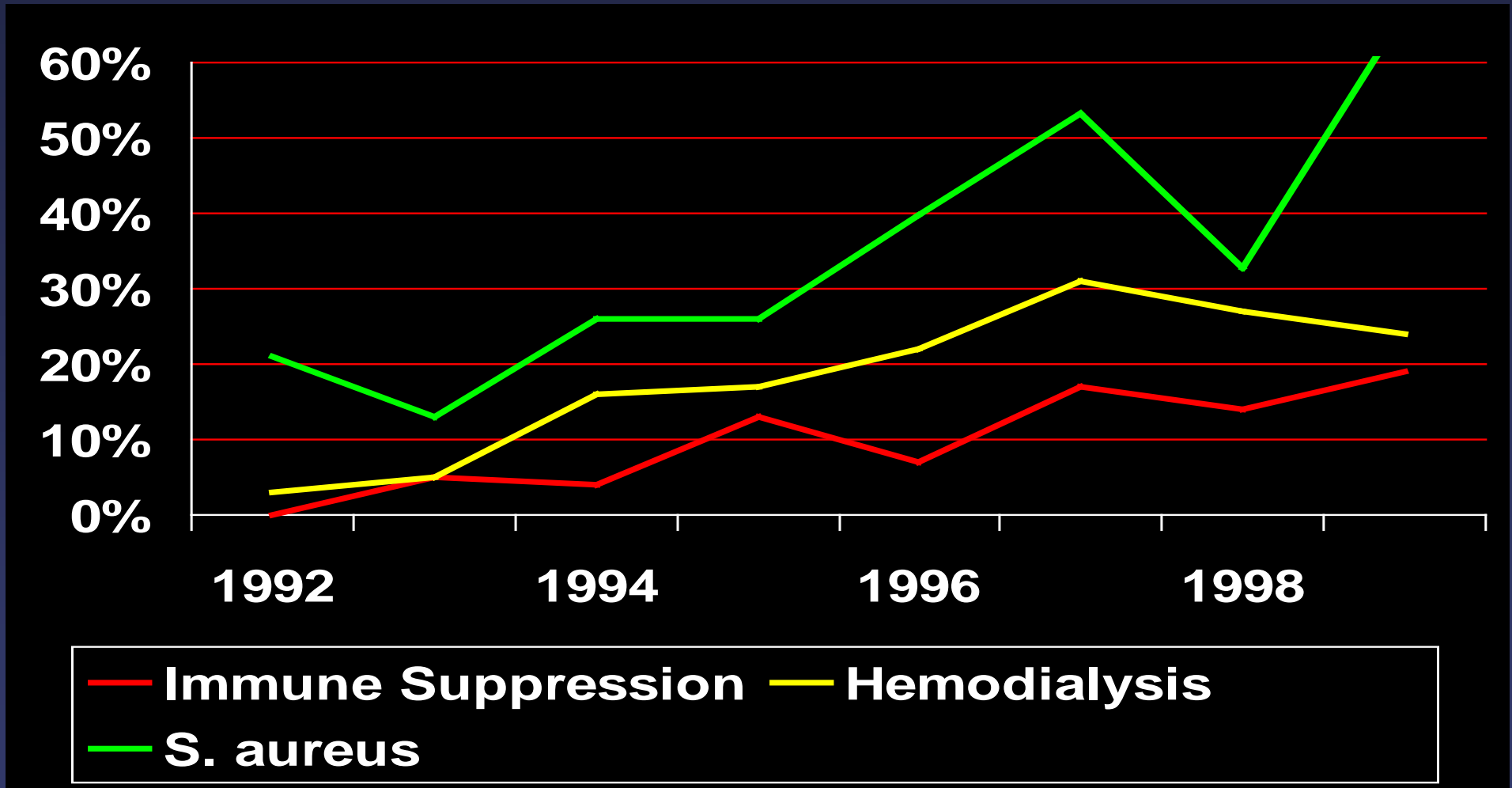


The Ten Commandments
Exodus 19: 1-20

IE Prophylaxis – Why the Debate?

- ♥ Cardiologists and physicians are naturally fearsome of the consequences of IE
- ♥ Poor quality evidence base to support routine prophylaxis
 - 5 case control studies with conflicting findings
 - No randomised controlled trial
- ♥ Even if effective, a huge number of prophylaxis doses are required to prevent a small number of cases of IE
- ♥ Simultaneous concerns regarding risk of anaphylaxis and widespread antibiotic resistance
- ♥ Change would violate long established practice patterns and deeply entrenched beliefs
- ♥ Ethical and medicolegal concerns

Major Changes in the Epidemiology of IE



Changing Profile of Infective Endocarditis Results of a One-Year Survey in France

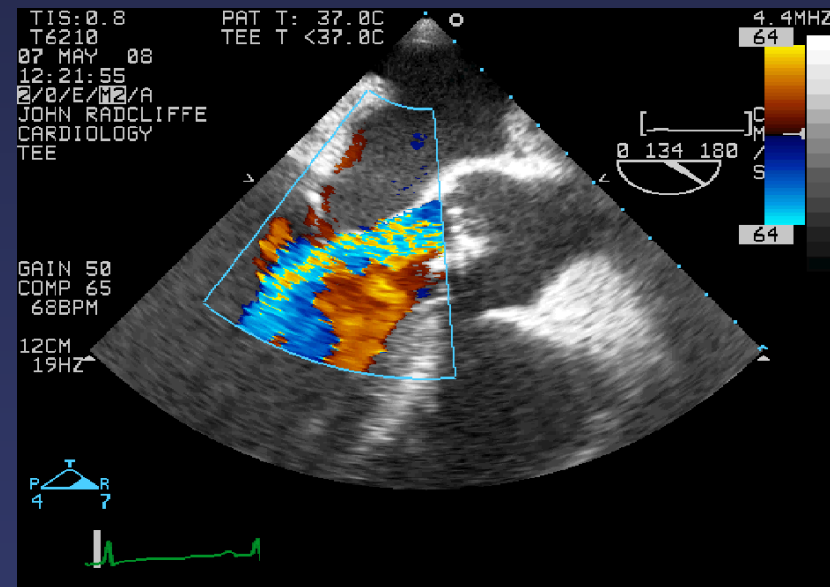
Native valve disease		119 (31%)
- left heart	112	
- right heart	6	
- both sides	1	
Prosthetic valve		63 (16%)
Congenital heart disease		4 (1%)
Unspecified "cardiac murmur"		19 (5%)
No previously known underlying heart disease		185 (47%)

Hoehn et al. JAMA 2002;288:75-81

Current Cases (1)

- Male 62 yrs
- Pancreatic-renal transplant: immunosuppressive therapy
- Chronic discharging uretero-cutaneous fistula
- Severe AS (bicuspid valve), single vessel CAD, awaiting AVR/CABG
- Enterococcal IE

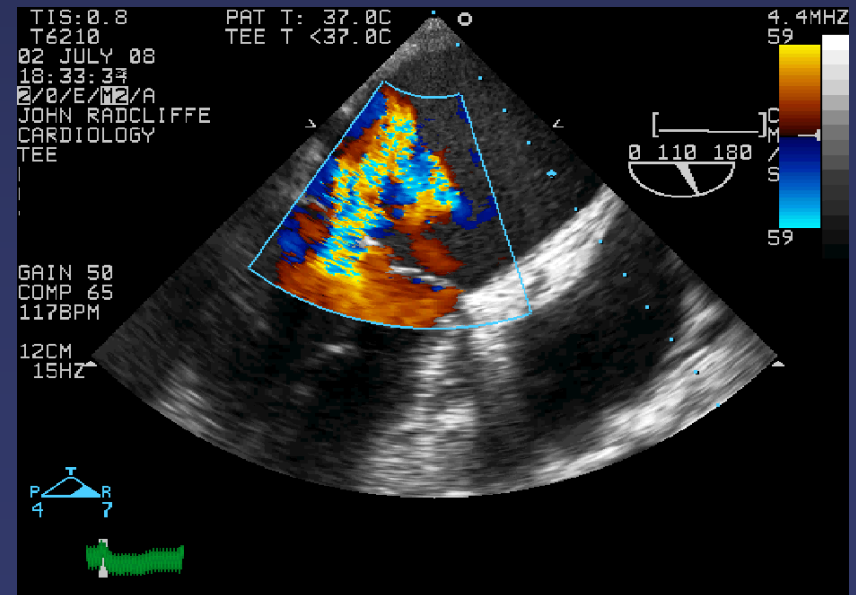
- Gross splenomegaly with abscess formation



- Severe AR and pulmonary oedema

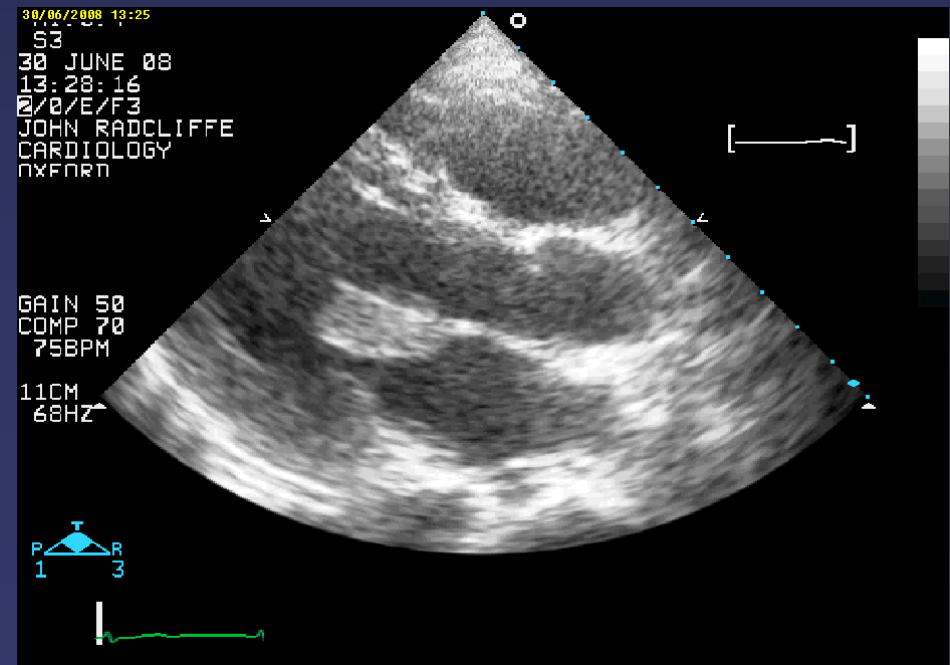
Current Cases (2)

- Female 76 yrs
- No known cardiac disease
- Previous TIA, normal renal function
- Treated for assumed pneumonia
- Blood cultures: *Staph. aureus*
- Echo: large vegetation, moderate MR
- IV flucloxacillin & gentamicin
- Total dose gentamicin 1.2g
- Inadequate monitoring of renal function/gentamicin
- ARF on ITU



Current Cases (3)

- Female 29 yrs
- Prostitute/drug addict
- Hepatitis C, HIV -ve
- No known cardiac disease
- Admitted in coma
- CT head: large posterior fossa infarct with mass effect
- *Staph. aureus* IE
- Large mobile MV vegetations
- 4/52 ventilation with slow neurological recovery
- Severe MR/pulmonary oedema



IE Prophylaxis: Reasons to Reconsider

- ♥ IE is much more likely to result from frequent exposure to random bacteraemia associated with daily activities than that caused by a dental, GI, or GU tract procedure
- ♥ Prophylaxis may prevent an exceedingly small number of cases (if any) of IE in individuals undergoing dental, GI, or GU procedures
- ♥ The risk of antibiotic-associated adverse events exceeds the benefit (if any) of prophylactic antibiotic therapy
- ♥ Maintenance of optimal oral and cutaneous hygiene reduces the incidence of bacteremia from daily activities and is probably more important than prophylactic antibiotics to reduce the risk of IE

“Fog in the
channel.....

.....
Europe cut
off!!!”

Daily  **Mail**



*Technology Appraisal Guidance –
Guidance on antibiotic prophylaxis
against infective endocarditis*

NHS

National Institute for Clinical Excellence

“The proof of principle philosophy”

Mission statement:

“To help healthcare professionals and patients make the right decisions about healthcare in specific clinical circumstances”

At risk groups

- ♥ Acquired valve disease with stenosis or regurgitation
- ♥ Prosthetic valve
- ♥ Structural congenital heart disease (including surgical correction/palliation)
- ♥ Previous IE
- ♥ Hypertrophic obstructive cardiomyopathy

*National Institute
For Health and
Clinical Excellence*

General measures: reduce exposure

- ♥ General oral, dental and skin hygiene measures (education)
- ♥ Systematic twice yearly dental appointment
- ♥ Identify and inform at risk patients: IE prophylaxis cards

Antibiotic prophylaxis

- ♥ Only recommended in at risk groups undergoing GI/GU procedures with suspected pre-existent infection

Incidence of infective endocarditis in England, 2000–13: a secular trend, interrupted time-series analysis



Mark J Dayer, Simon Jones, Bernard Prendergast, Larry M Baddour, Peter B Lockhart, Martin H Thornhill

Summary

Background Antibiotic prophylaxis given before invasive dental procedures in patients at risk of developing infective endocarditis has historically been the focus of infective endocarditis prevention. Recent changes in antibiotic prophylaxis guidelines in the USA and Europe have substantially reduced the number of patients for whom antibiotic prophylaxis is recommended. In the UK, guidelines from the National Institute for Health and Clinical Excellence (NICE) recommended complete cessation of antibiotic prophylaxis for prevention of infective endocarditis in March, 2008. We aimed to investigate changes in the prescribing of antibiotic prophylaxis and the incidence of infective endocarditis since the introduction of these guidelines.

Methods We did a retrospective secular trend study, analysed as an interrupted time series, to investigate the effect of antibiotic prophylaxis versus no prophylaxis on the incidence of infective endocarditis in England. We analysed data for the prescription of antibiotic prophylaxis from Jan 1, 2004, to March 31, 2013, and hospital discharge episode statistics for patients with a primary diagnosis of infective endocarditis from Jan 1, 2000, to March 31, 2013. We compared the incidence of infective endocarditis before and after the introduction of the NICE guidelines using segmented regression analysis of the interrupted time series.

Findings Prescriptions of antibiotic prophylaxis for the prevention of infective endocarditis fell substantially after introduction of the NICE guidance (mean 10 900 prescriptions per month [Jan 1, 2004, to March 31, 2008] vs 2236 prescriptions per month [April 1, 2008, to March 31, 2013], $p < 0.0001$). Starting in March, 2008, the number of cases of infective endocarditis increased significantly above the projected historical trend, by 0.11 cases per 10 million people per month (95% CI 0.05–0.16, $p < 0.0001$). By March, 2013, 35 more cases per month were reported than would have been expected had the previous trend continued. This increase in the incidence of infective endocarditis was significant for both individuals at high risk of infective endocarditis and those at lower risk.

Interpretation Although our data do not establish a causal association, prescriptions of antibiotic prophylaxis have fallen substantially and the incidence of infective endocarditis has increased significantly in England since introduction of the 2008 NICE guidelines.

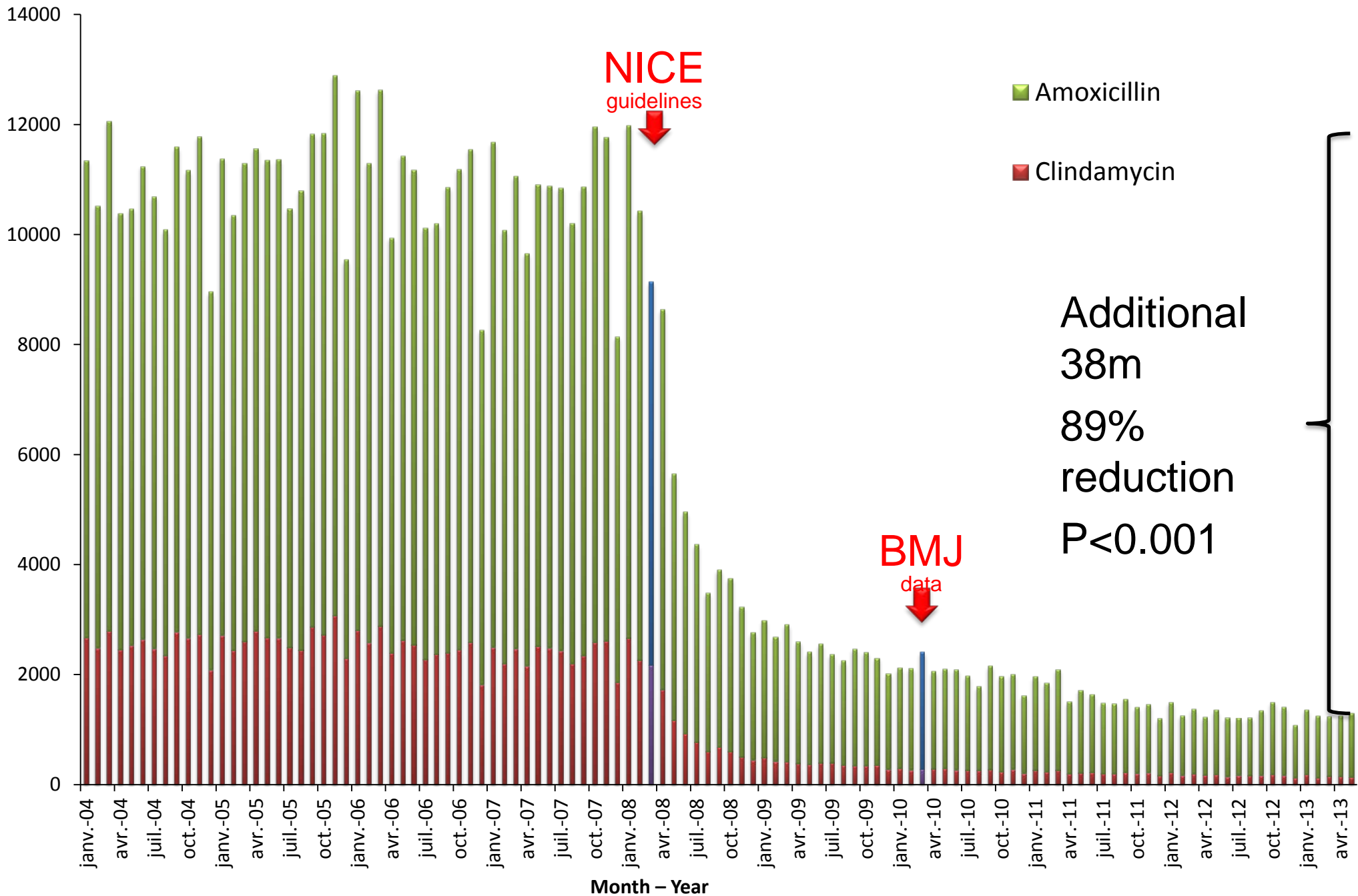
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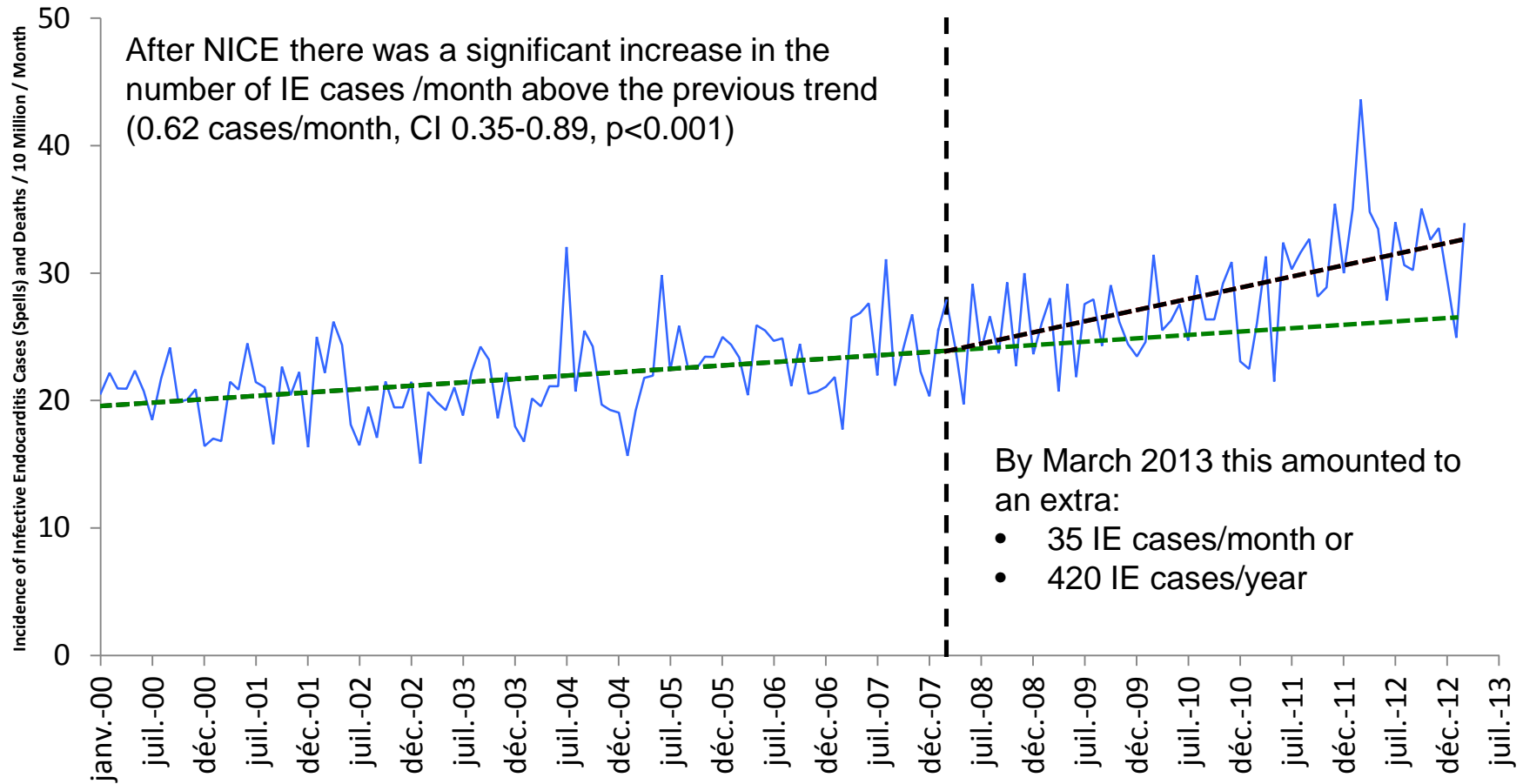
See Online/Comment
[http://dx.doi.org/10.1016/S0140-6736\(14\)62121-8](http://dx.doi.org/10.1016/S0140-6736(14)62121-8)

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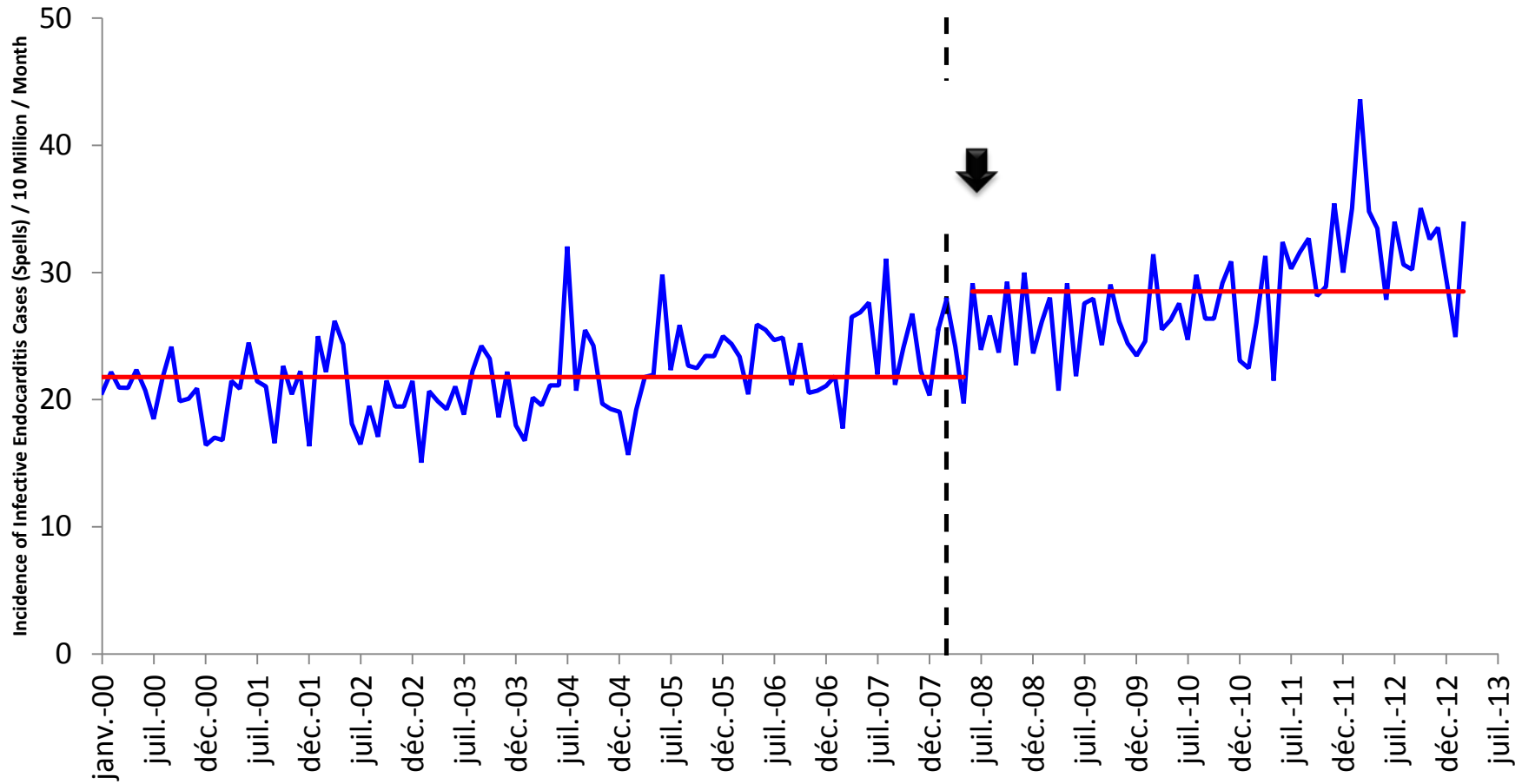
Correspondence to:
Prof Martin H Thornhill, Unit of



Incidence of IE

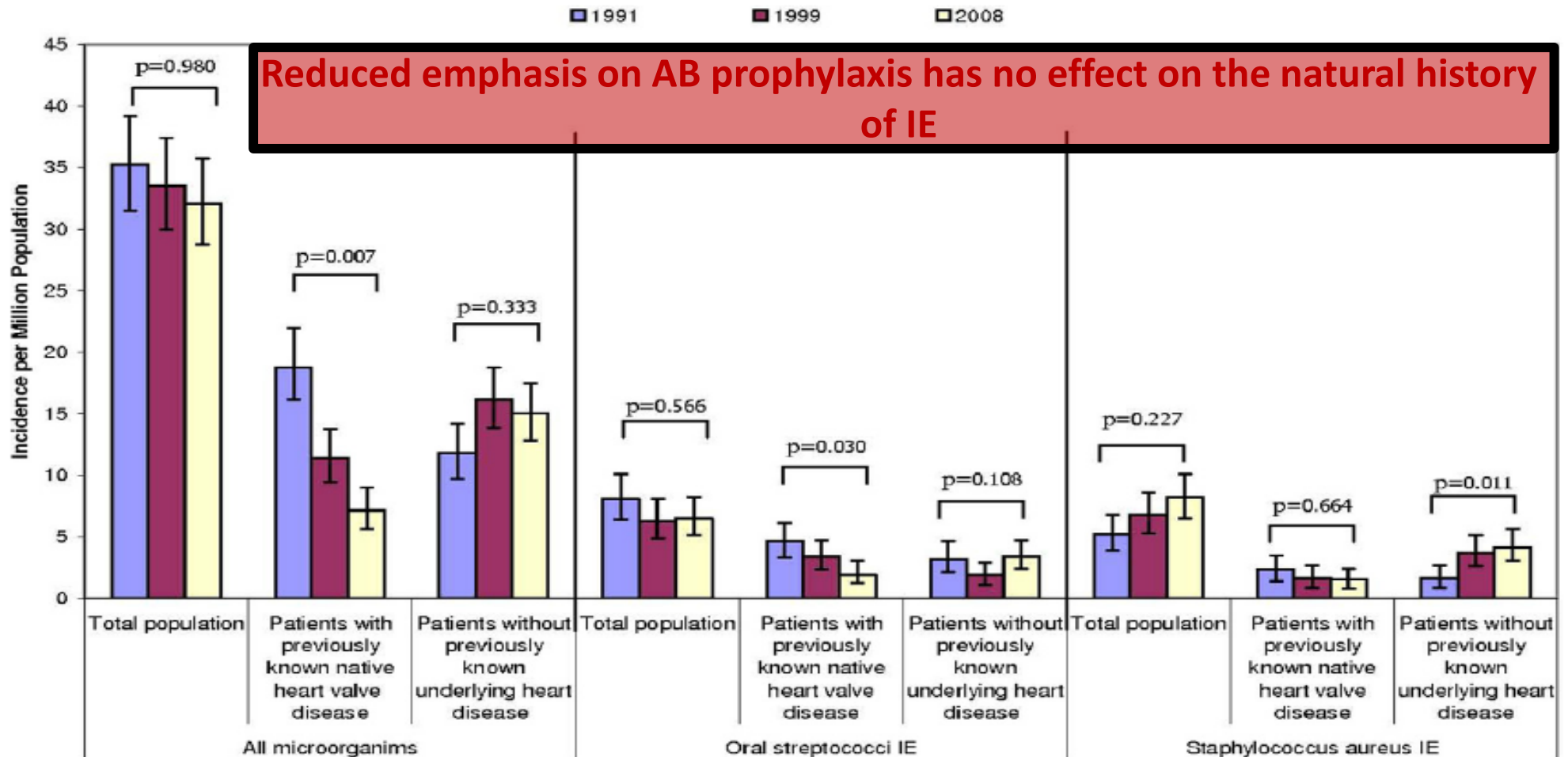


Change Point Analysis



Temporal Trends in Infective Endocarditis in the Context of Prophylaxis Guideline Modifications

Three Successive Population-Based Surveys Duval X et al. J Am Coll Cardiol 2012;59:1968-76

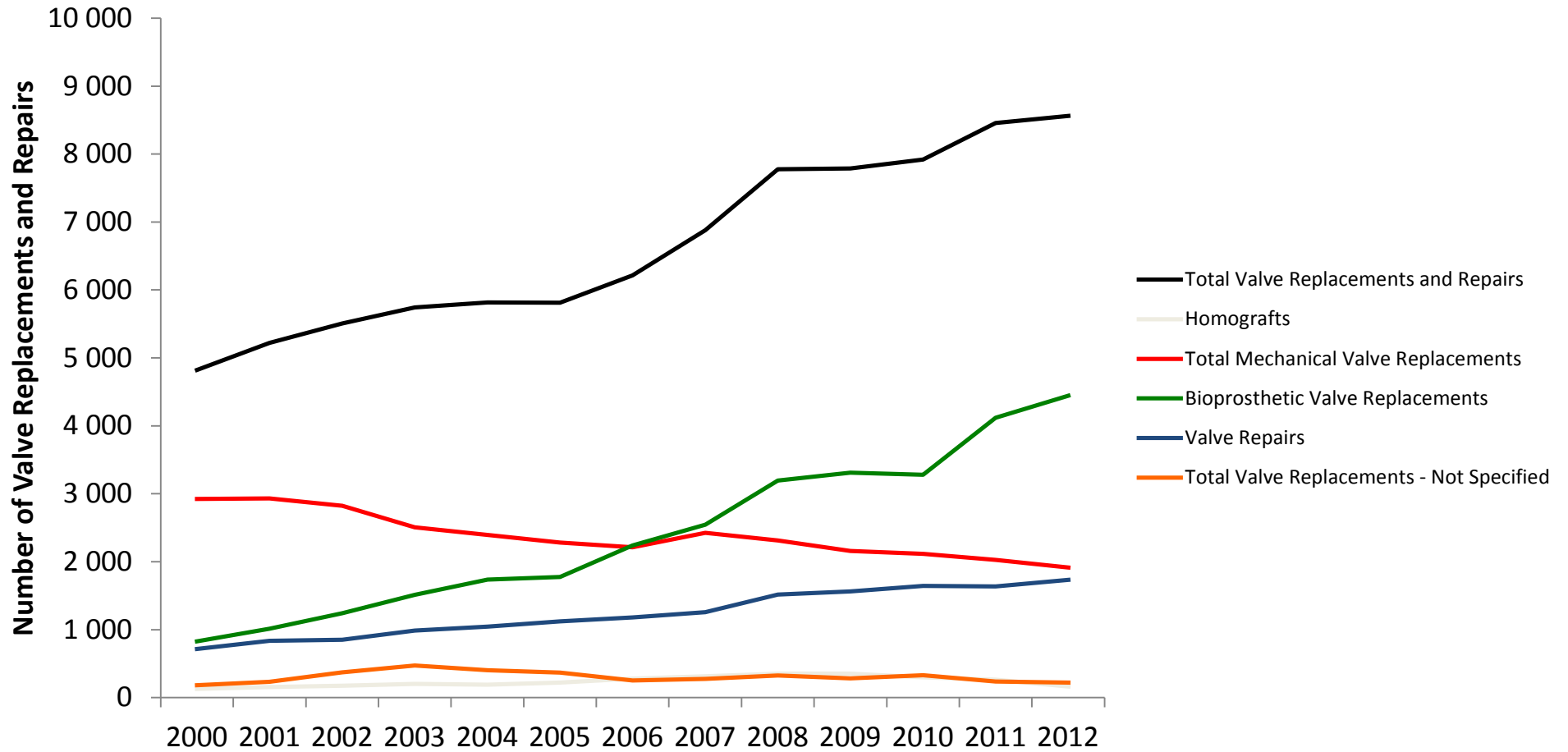


Notwithstanding the current paucity of evidence, it is clear that the efficiency of current practice is restricted owing to the exorbitant number needed to treat to prevent a single case of IE, with potential for overall harm. A shift of the fundamental question from “Who is at risk?” to “Who might benefit?” therefore seems appropriate. National or international registries may provide useful information and ironically, previous ethical concerns obstructing the required randomised controlled trial have now been removed. Whether there will be sufficient political imperative and enthusiasm to undertake such a major endeavour remains to be seen. In the immediate term, unanimous interpretation and direction from the relevant professional societies (representing cardiologists, cardiothoracic surgeons, microbiologists and dental practitioners) and an open-minded attitude of individual clinicians are required to stem further confusion and debate.

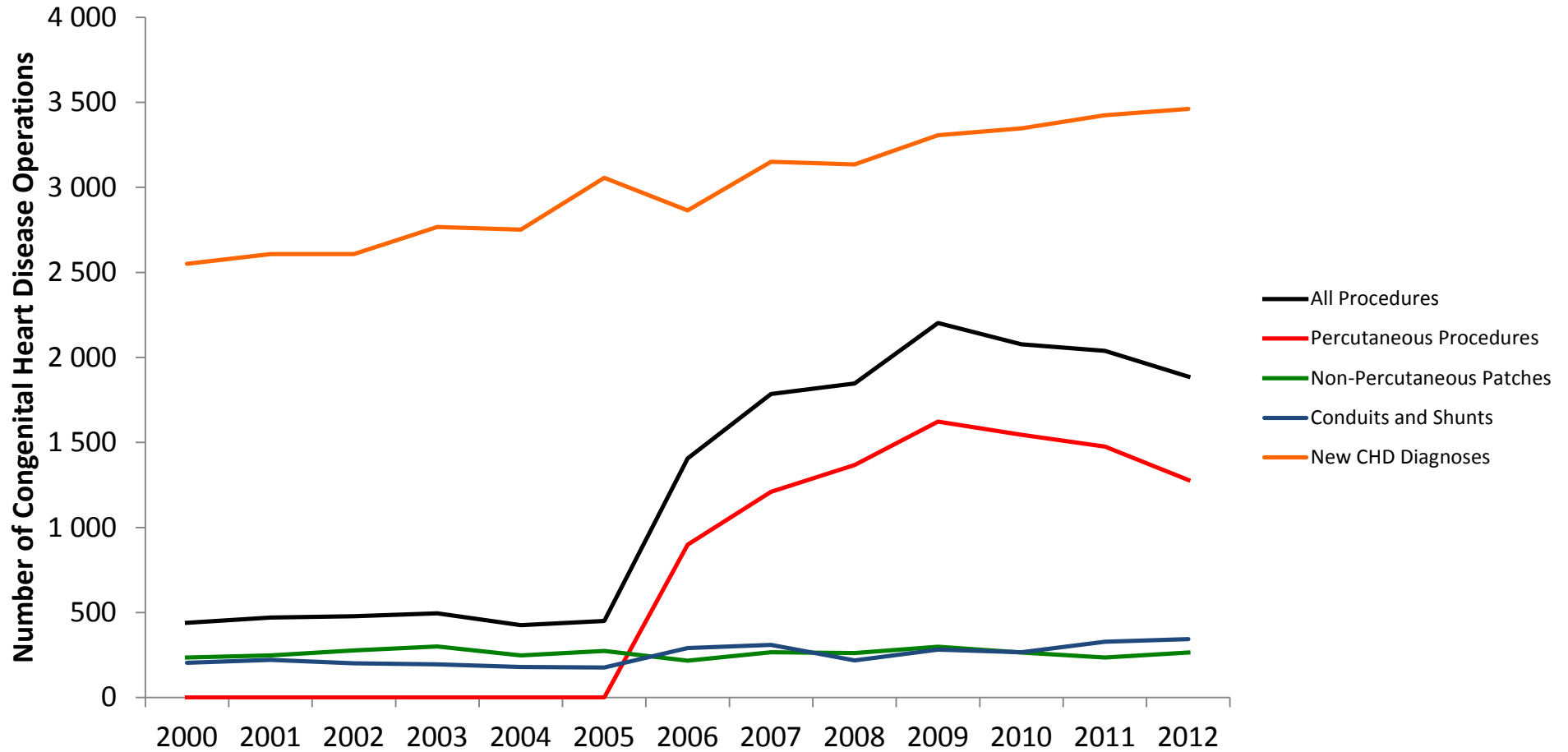
Comments

- ♥ Infective endocarditis is a rapidly evolving disease - streptococcal disease of dental origin is increasingly rare
- ♥ New guidelines in 2008/2009 were a major departure from previous practice
- ♥ The recommendations were supported by scientific considerations and made with major forethought
- ♥ European data (limited) are reassuring whilst UK data provide cause for some concern
- ♥ The debate distracts from the real issues - there is a major need for:
 - Improved awareness of IE in non-specialist arenas
 - Better patient education and empowerment
 - Specialist teams to coordinate diagnosis and management
 - Comprehensive national and international registries

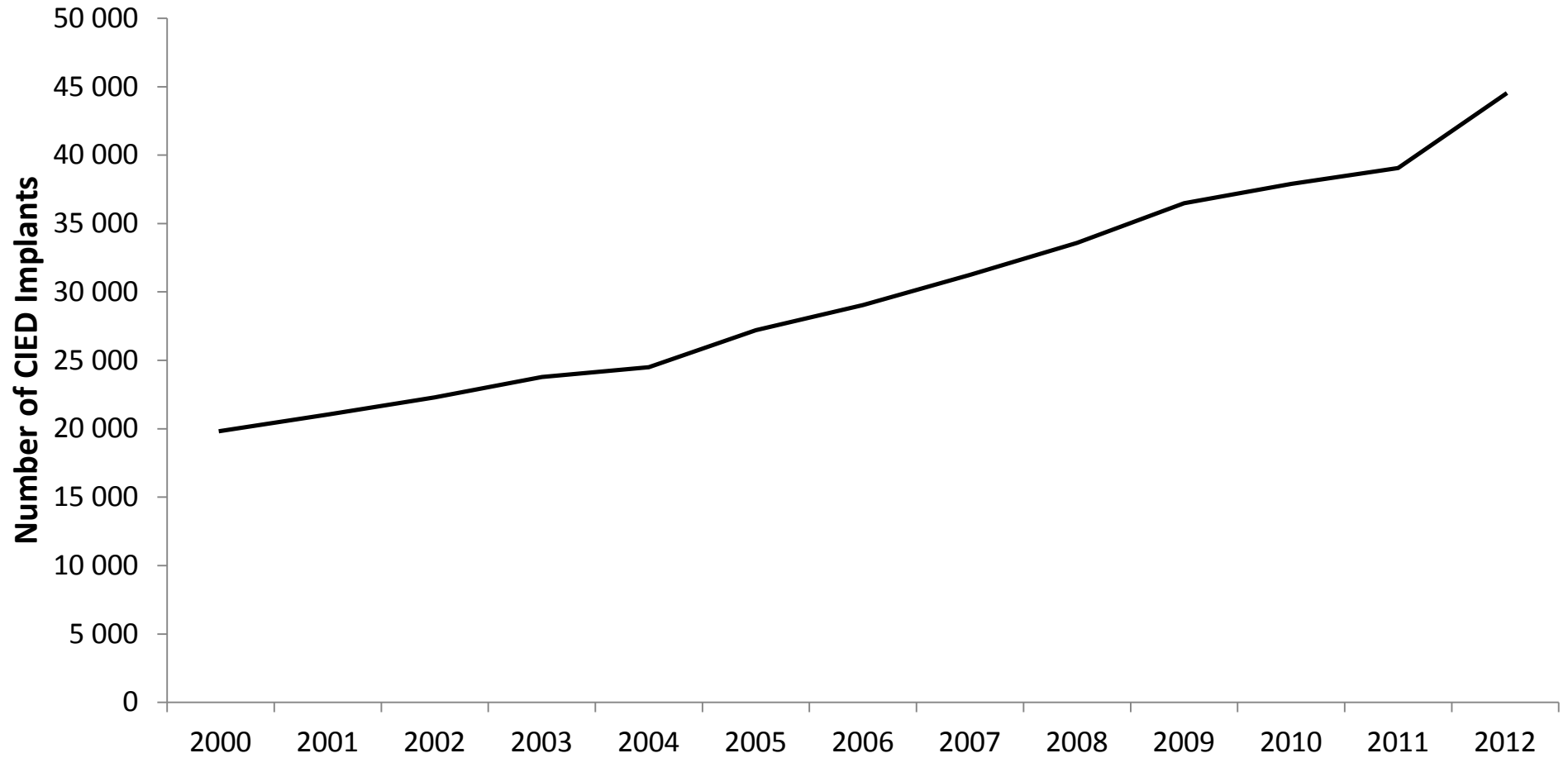
Valve Procedures



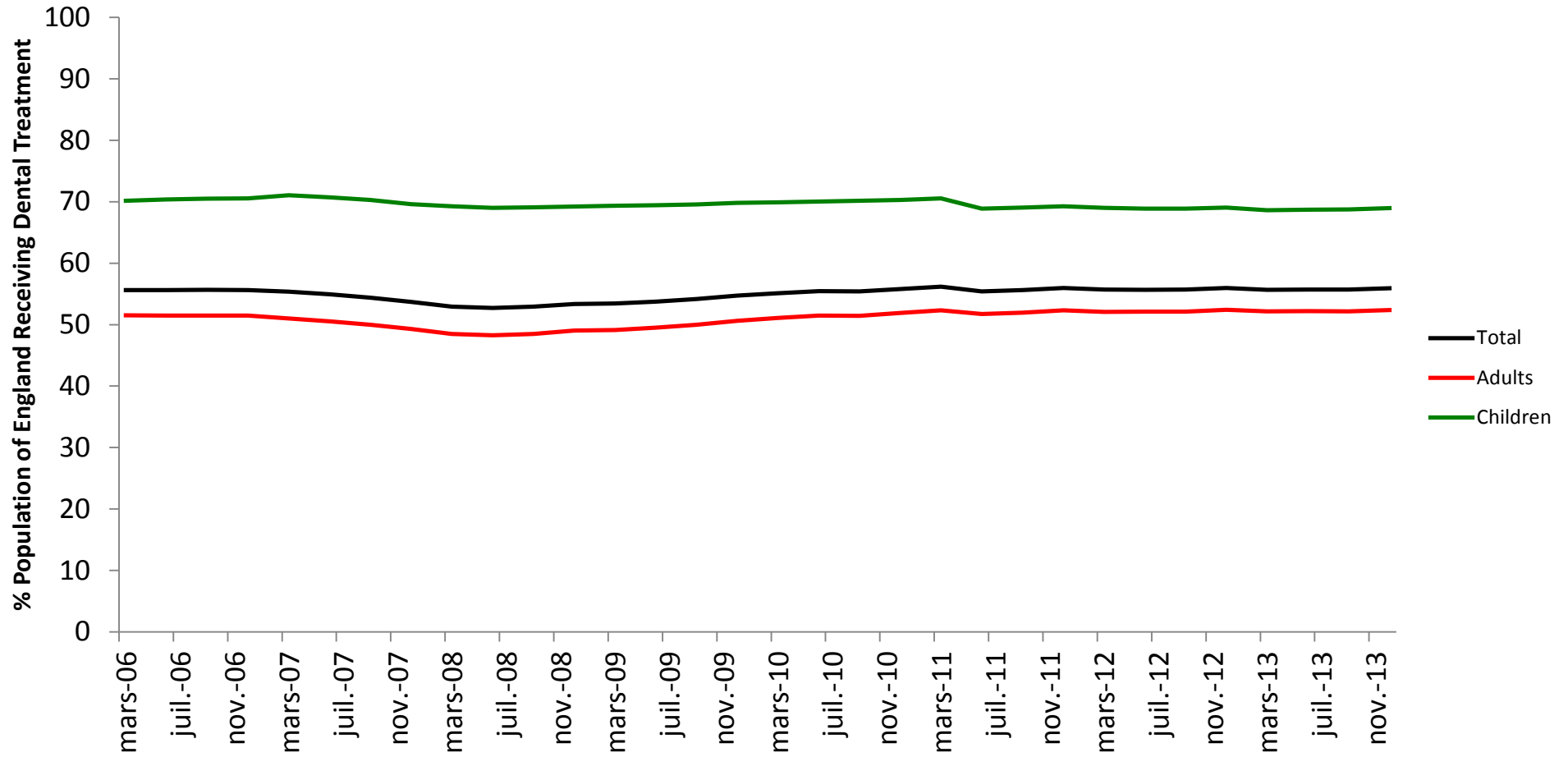
Congenital Heart Disease



CIED Implants



Dental Treatment



Numerous Unknown Variables

The observation may be real BUT

- Microbiological data unreliable
- Number of valve procedures (surgical and percutaneous) is rising
- Number of implanted cardiac devices is rising
- The number of dental procedures is unchanged
- There may be more awareness of IE as a healthcare concern
- Hospital coding is more accurate