

Chlamydia antibodies as markers of late complications in cost-effectiveness models

Jolande A. Land

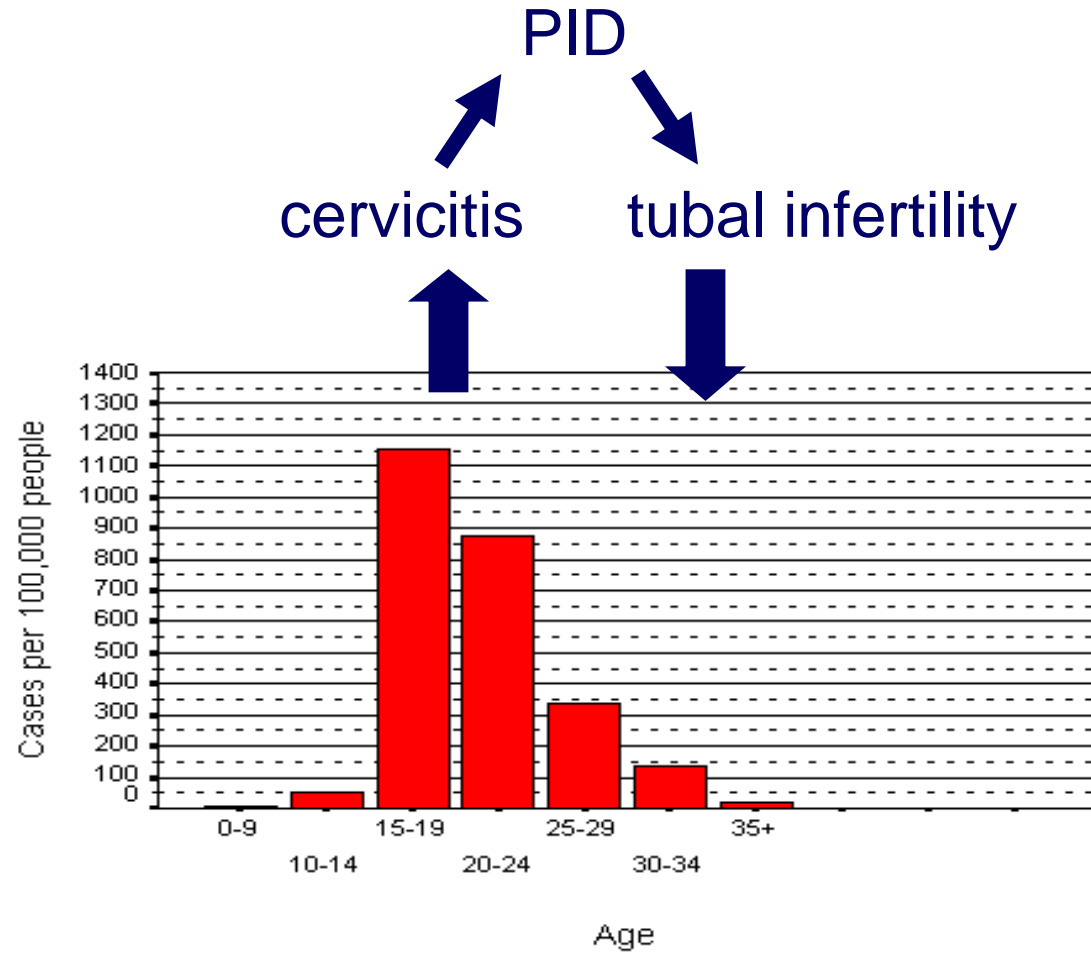
Dept Obstetrics & Gynaecology
University Medical Center Groningen
Groningen
The Netherlands



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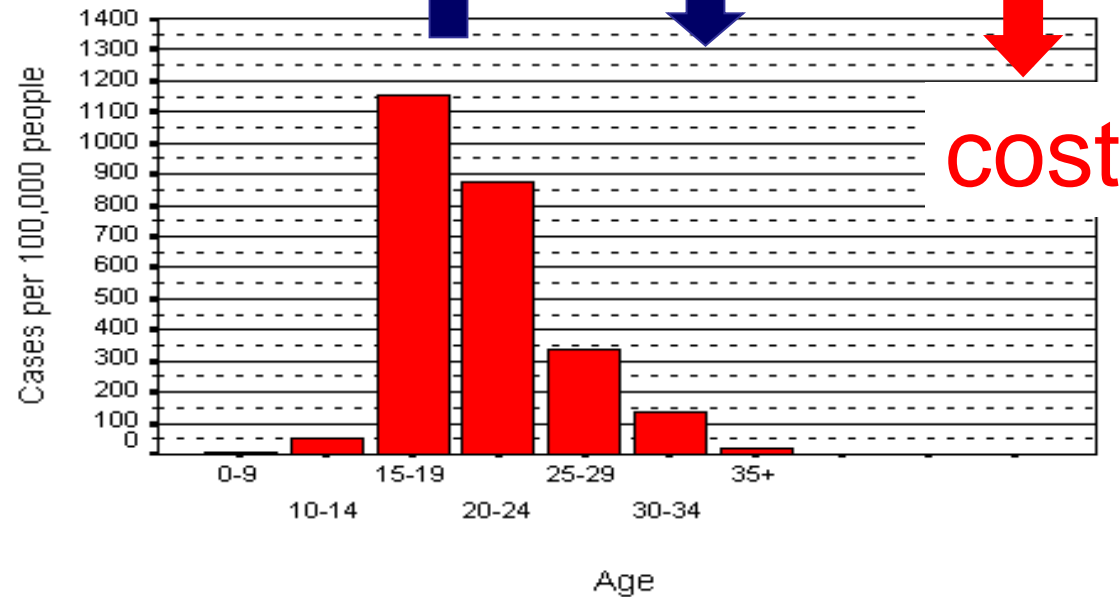
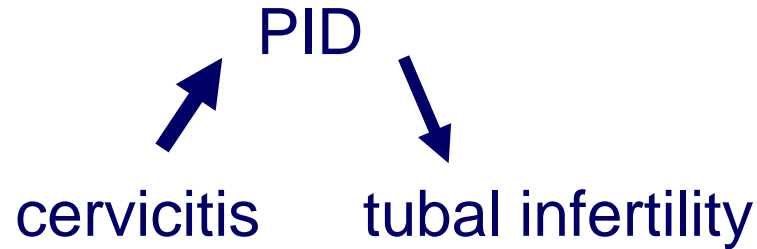
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Chlamydia



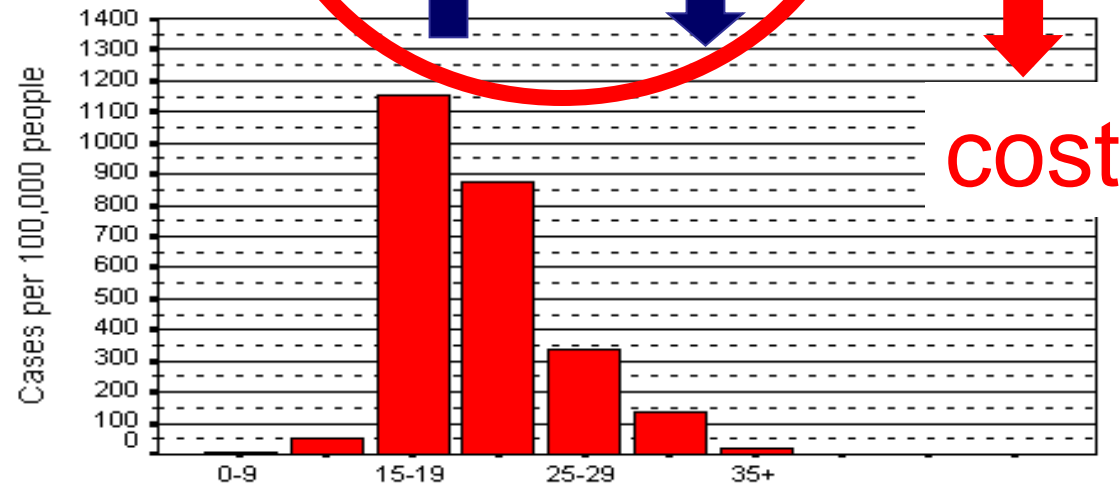
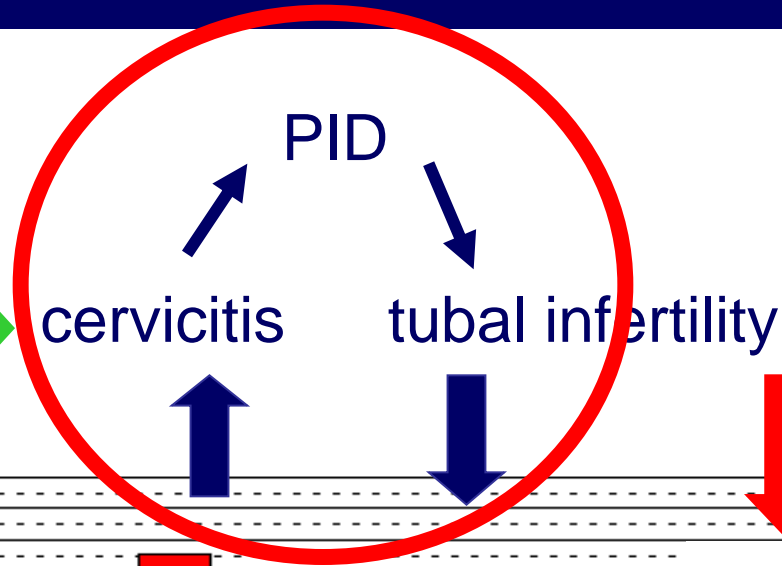
Chlamydia

screening



Chlamydia

screening



cost

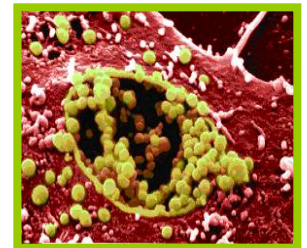
prevalence

Chlamydia

Cervicitis → PID → tubal infertility

Assumptions and estimates

- no prospective controlled studies
- retrospective cohort and case-control studies
- cervicitis to PID, or PID to tubal infertility



Cervicitis → PID

Authors	Year	PID %
Van Valkegoed <i>ea</i>	2004	0.4
Rahm <i>ea</i>	1986	1.8
Scholes <i>ea</i>	1996	5
Rees	1980	7.5
Paavonen <i>ea</i>	1980	20
Stamm <i>ea</i>	1984	30
Ostergaard <i>ea</i>	2000	31

PID → tubal infertility

Authors	Year	Tubal infertility %
Weström <i>ea</i>	1992	11
Marrazzo <i>ea</i>	1997	10-20
Howell <i>ea</i>	1998	12
Paavonen <i>ea</i>	1998	20

Cervicitis → PID → tubal infertility

Summary estimate literature

0.1-6%

Challenges

- Asymptomatic infections
- Effect of early treatment
- Long delay to infertility
- Other causes of infertility
- Laparoscopy for diagnosing tubal infertility

Cervicitis → PID → tubal infertility

Early marker of late complications

- Natural course of disease
- Screening intervention studies
- Vaccine trials
- Risk assessment and individualised strategies

Chlamydia IgG antibody testing

Wang SP and Grayston JT

Immunologic relationship between TRIC, LGV, and related organisms in a new microtiter indirect immunofluorescence test.

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Fertility clinics: CAT for risk assessment of tubal pathology

Fertility clinics

Infertility in 10% of couples

Causes of infertility

- Anovulation 20%
- Semen deficit 30%
- Tubal pathology 20%
- Unexplained 30%

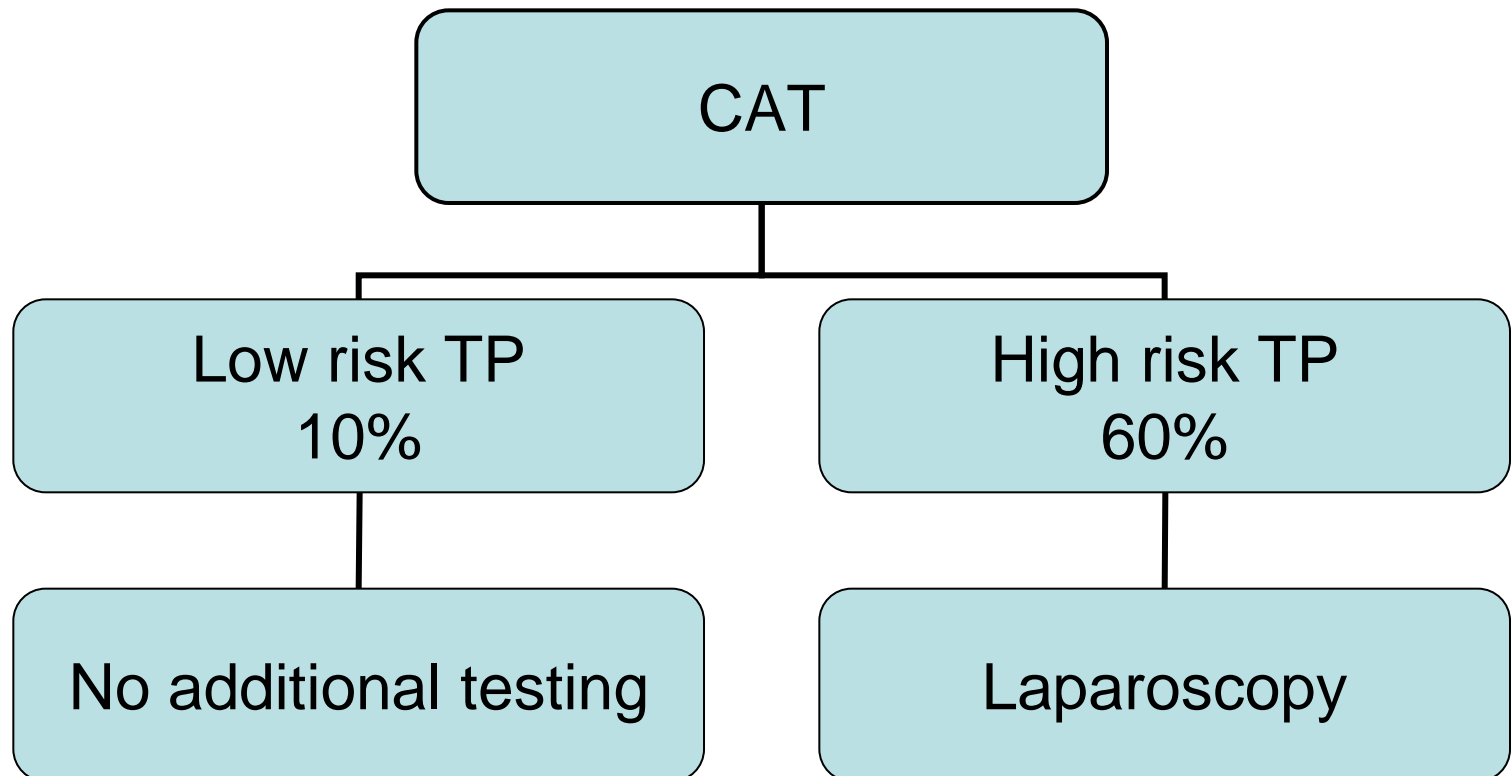
Predictive value CAT

	Sens %	Spec %	PPV %	NPV %	OR
MIF Labsystems	59	92	58	92	15.7
pELISA Medac	55	87	45	91	8.2

Predictive value CAT

Test	Risk tubal pathology
No test	20%
CAT-	10%
CAT+	60%

Fertility work-up



Predictive value CAT

False positivity rate 40%

- Invisible tubal pathology?
- Cross reaction with *C. pneumoniae*
- Host genetic factors

Autoimmune response

Tissue damage and progression of disease

Chlamydia infection



Clearance

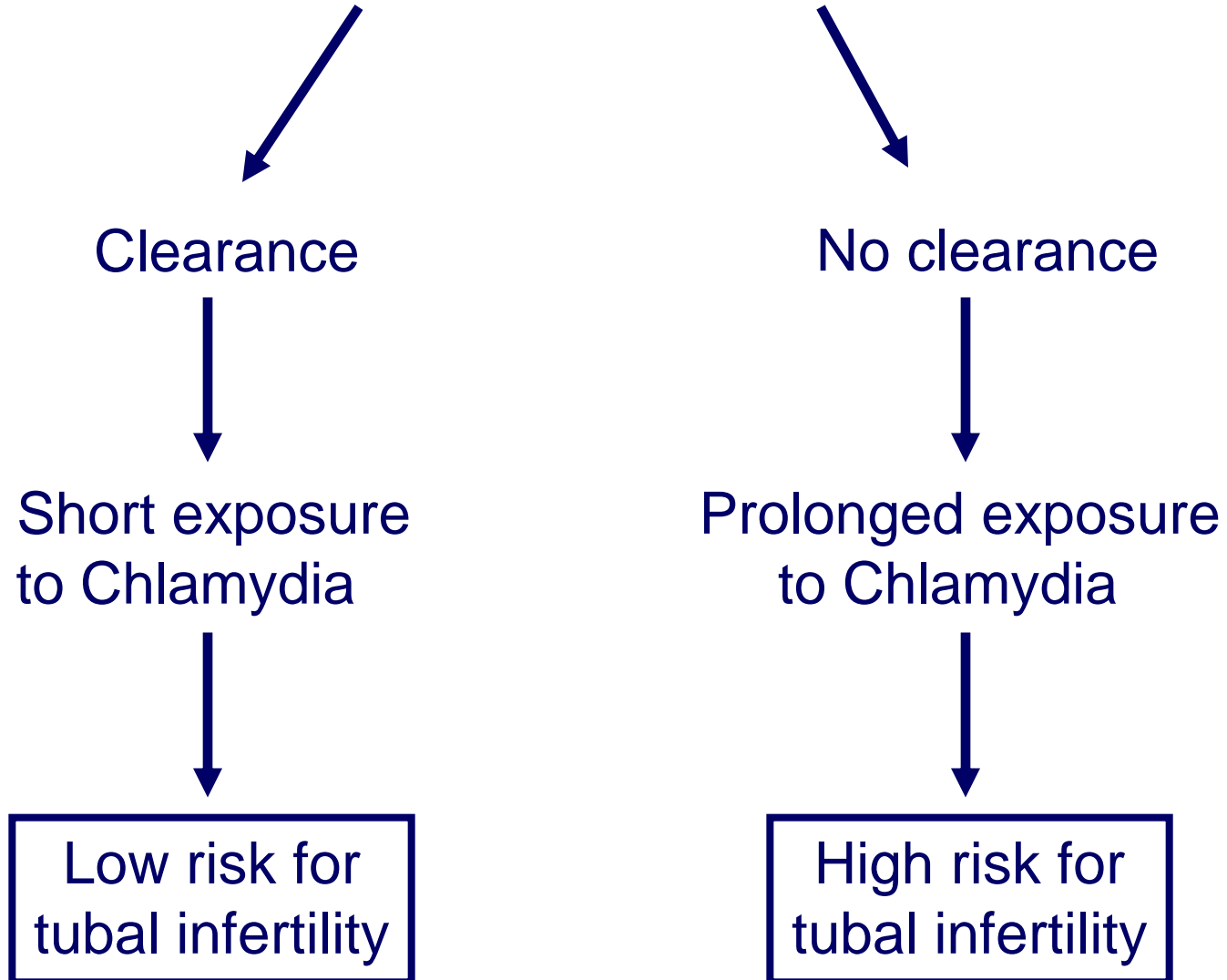


Short exposure
to Chlamydia

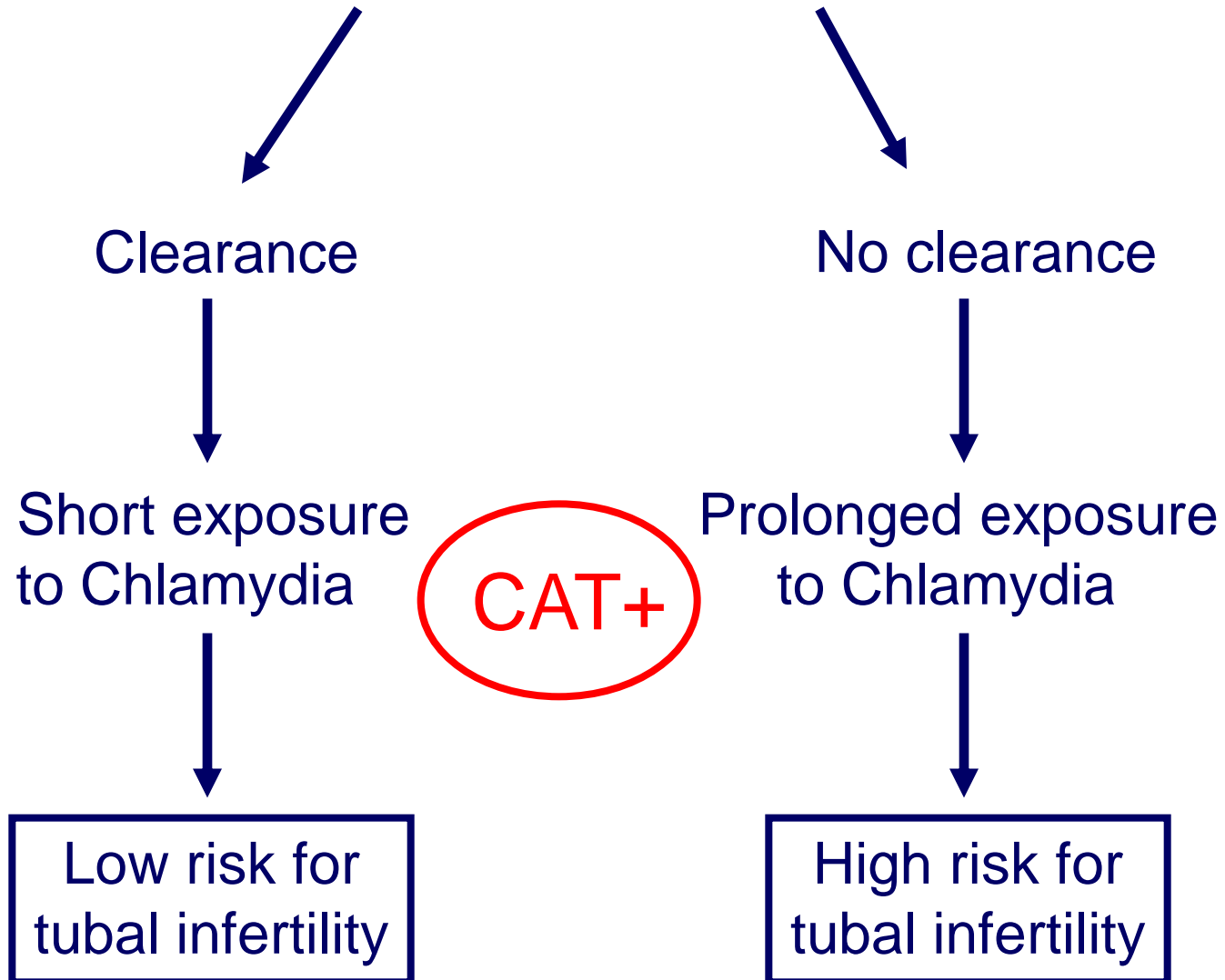


Low risk for
tubal infertility

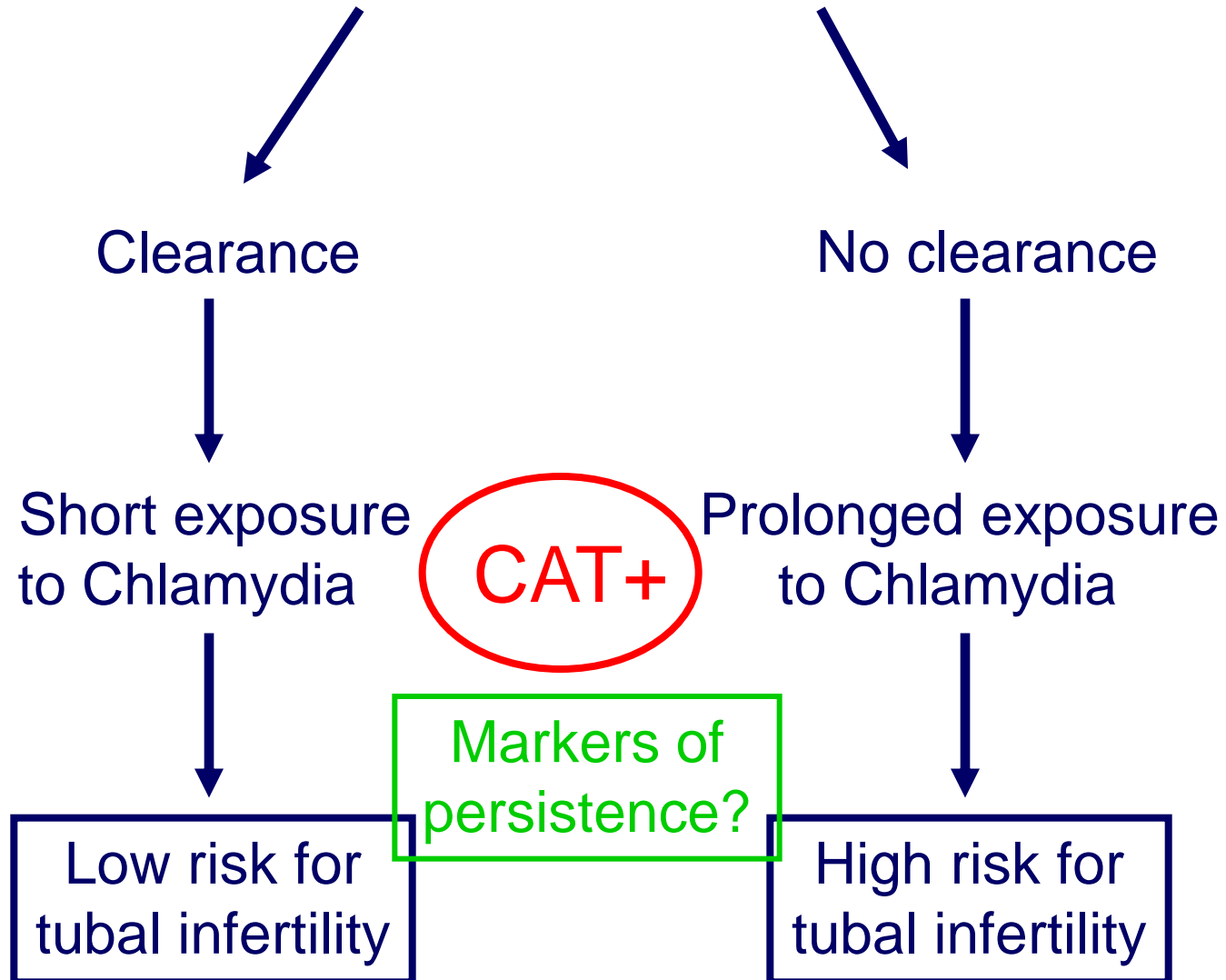
Chlamydia infection



Chlamydia infection



Chlamydia infection



Markers of persistence

- IgA
- hs-CRP (1-10 mg/L)
- cHSP60 IgG

Atherosclerosis (Cp): Roivainen ea, Circulation 2000
Falck ea, Chest 2002

Tubal pathology (Ct): Claman ea, Fertil Steril 1997

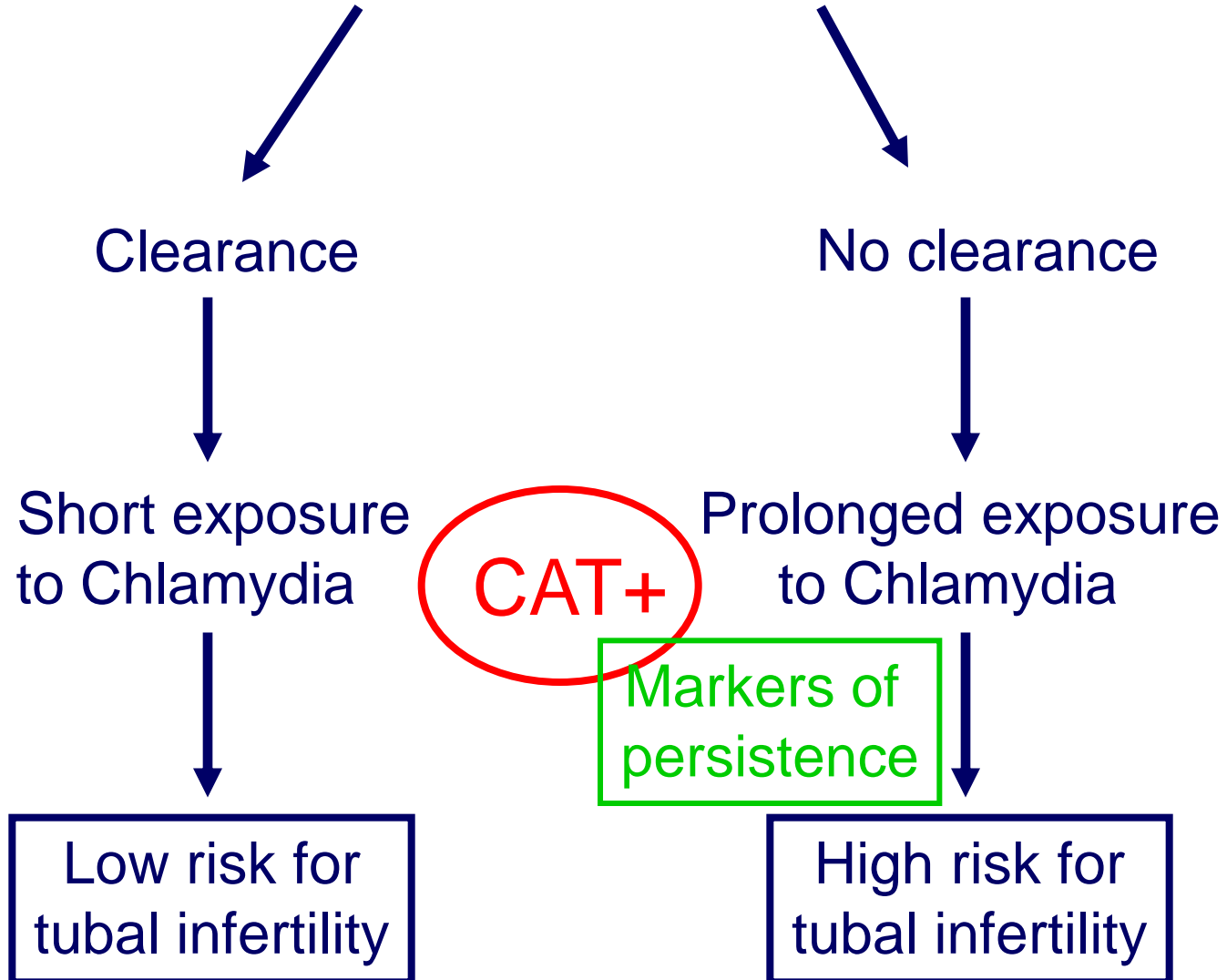
Predictive value tubal pathology

Test+	PPV %	NPV %	OR
CAT (IgG)	62	90	13.9
IgA	50	86	6.1
cHSP60	44	88	5.9
hs-CRP	25	85	2.0

Predictive value tubal pathology

Test+	PPV %	NPV %	OR
CAT	62	90	13.9
CAT + IgA	63	85	9.9
CAT + cHSP60	68	89	16.7
CAT + hs-CRP	86	86	39.7

Chlamydia infection



Cervicitis → PID → tubal infertility

Summary estimate literature 0.1-6%

Models including CAT

Models including CAT (1)

Infertility	10%
Tubal pathology	10-30%
CAT+	60-70%
Tubal infertility due to chlamydia	0.6-2.1%

Models including CAT (2)

PCR+ adolescents	1.7-10%
Seroconversion in PCR+	20-70%
Tubal pathology in CAT+	30-65%
Tubal infertility due to chlamydia	0.1-4.6%

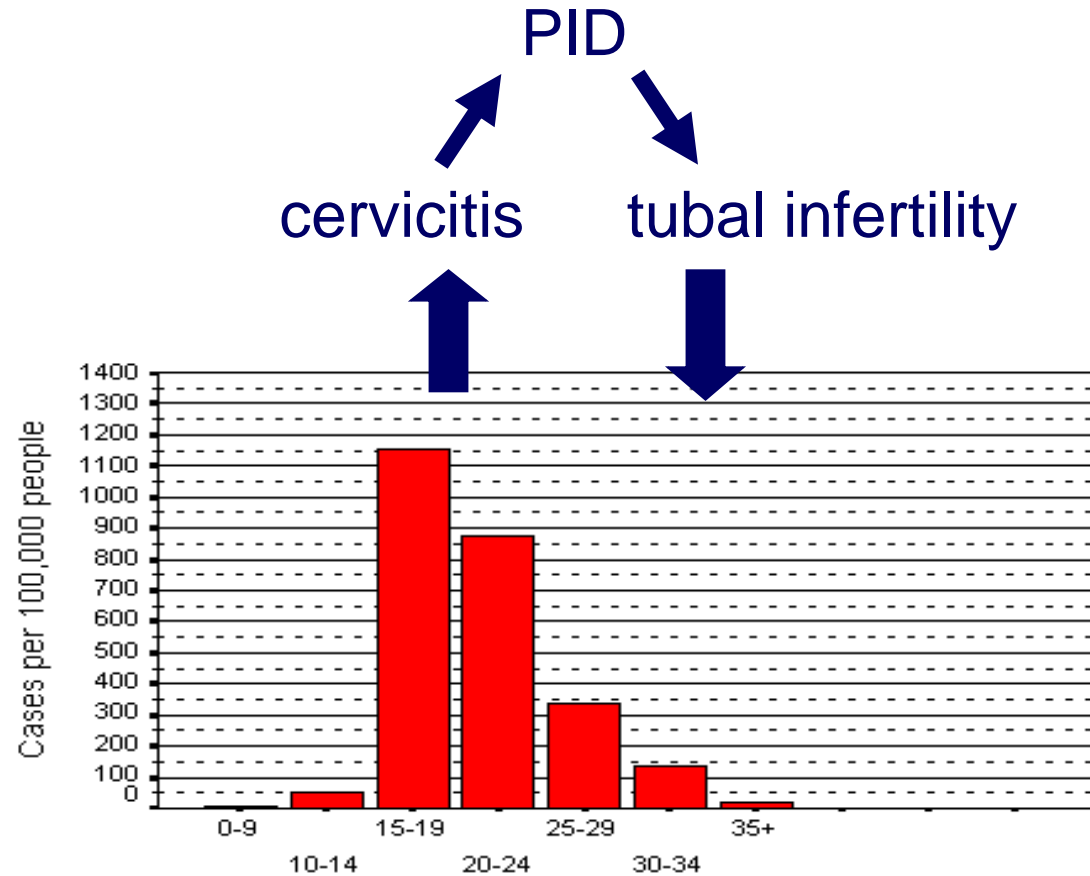
Cervicitis → PID → tubal infertility

Summary estimate literature	0.1-6%
Models including CAT	0.6-2.1%
	0.1-4.6%

Conclusions

- Risk for developing tubal infertility after chlamydia infection appears low (0.1-6%)
- Longitudinal studies needed to prove effectiveness of chlamydia screening (= decrease in late complications)
- Infertility is not a feasible endpoint in clinical studies
- Explore early markers of late complications
- More studies needed on CAT

Chlamydia



PCR and marker





MJ Postma

Unit of PharmacoEpidemiology and
PharmacoEconomics, University of
Groningen, Groningen

SA Morr 

Laboratory of Immunogenetics,
VU University Medical Center,
Amsterdam

JEAM van Bergen

STI AIDS Netherlands and Center
for Infectious Disease Control,
Bilthoven