

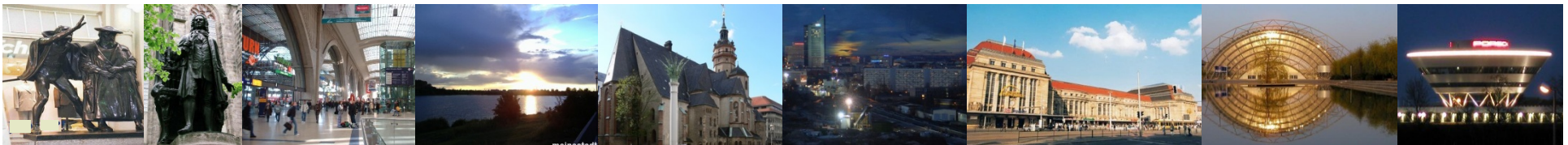
Gram-positive Erreger bei chronischen Dialysepatienten - aktueller Stand



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www.sanktgeorg.de/nephro.html

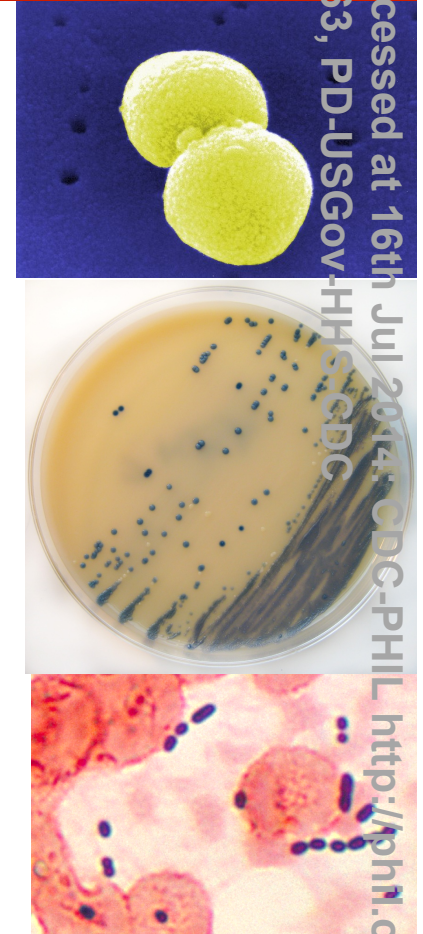


Agenda

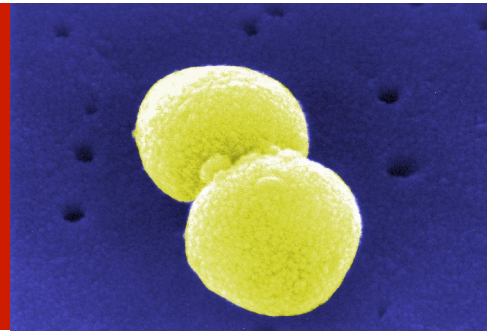
Pneumokokken/
Atemwegsinfektionen

MRSA und MSSA

Enterokokken – VRE

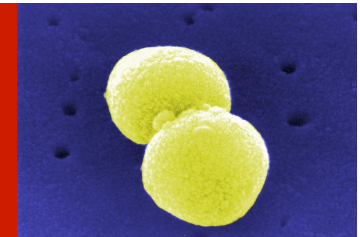


The association of pneumococcal vaccination with hospitalization and mortality in hemodialysis patients



- 118 533 prävalente Patienten, Dialysebeginn < 2003
- Identifizierung einer Pneumokokkenimpfung bis 2005
- *Follow-up* bis 2006 (6 Monate)

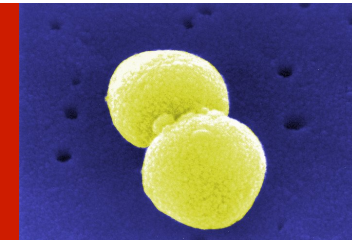
Pneumokokkenimpfung bei Dialysepatienten



Characteristics	All, n (%)	Pneumococcal vaccination		P
		Vaccinated, n (%)	Not vaccinated, n (%)	
All	118 533 (100)	25 091 (100)	93 442 (100)	
Age, years				<0.0001
18–64	69 743 (58.8)	14 228 (56.7)	55 515 (59.4)	
65–74	28 733 (24.2)	6418 (25.6)	22 315 (23.9)	
≥75	20 057 (16.9)	4445 (17.7)	15 612 (16.7)	
Sex				0.01
Men	62 779 (53.0)	13 113 (52.3)	49 666 (53.2)	
Women	55 754 (47.0)	11 978 (47.7)	43 776 (46.8)	
Race				<0.0001
White	59 168 (49.9)	13 469 (53.7)	45 699 (48.9)	
African-American	52 117 (44.0)	10 250 (40.9)	41 867 (44.8)	
Other	7248 (6.1)	1372 (5.5)	5876 (6.3)	
Primary cause of ESRD				<0.0001
Diabetes	47 093 (39.7)	10 474 (41.7)	36 619 (39.2)	
Hypertension	35 569 (30.0)	7273 (29.0)	28 296 (30.3)	
Glomerulonephritis	15 749 (13.3)	3122 (12.4)	12 627 (13.5)	
Other/missing/unknown	20 122 (17.0)	4222 (16.8)	15 900 (17.0)	

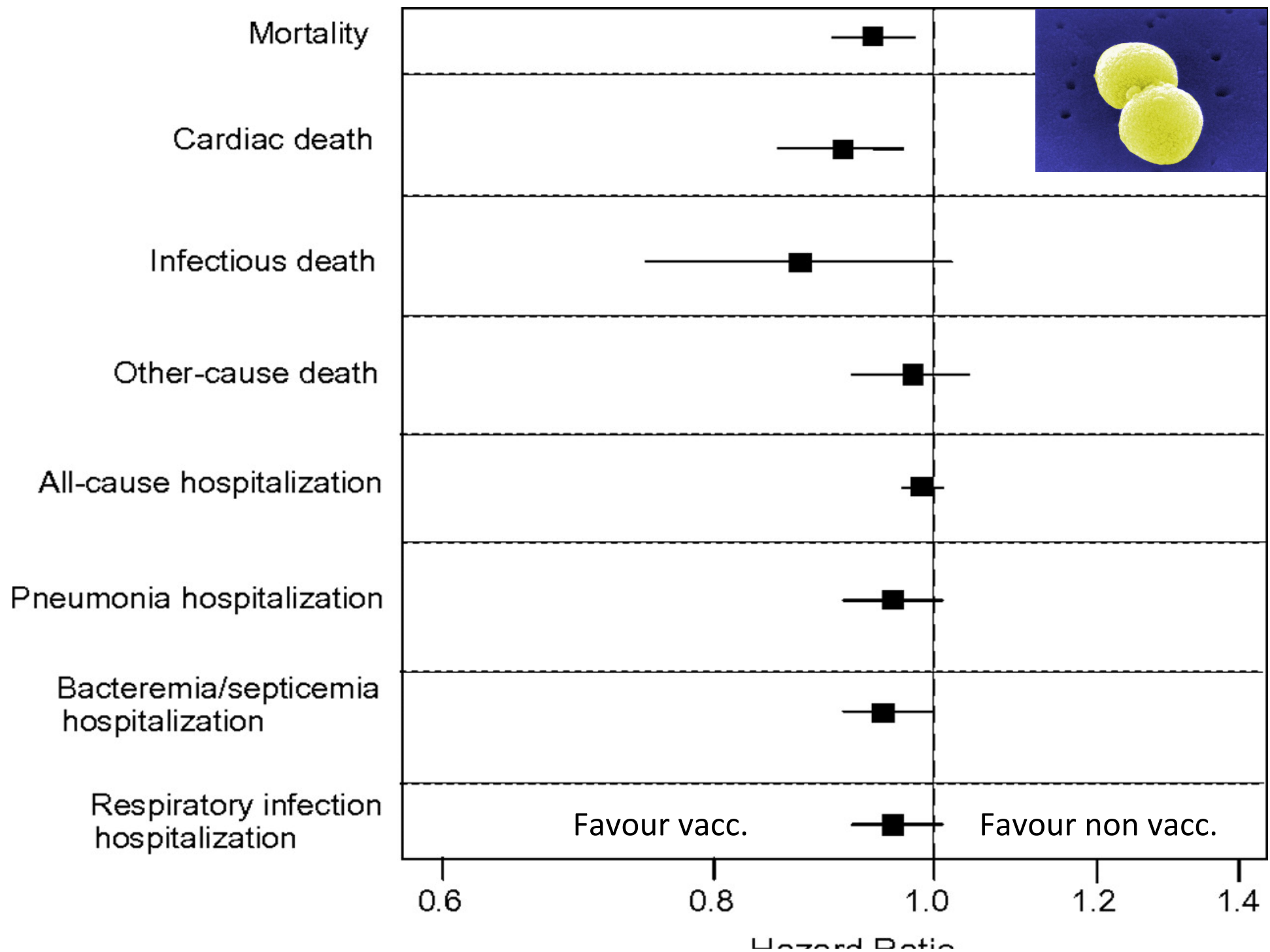
Gilbertson et al.: Nephrol. Dial. Transplant. (2011) 26 (9): 2934-2939.

Pneumokokkenimpfung bei Dialysepatienten

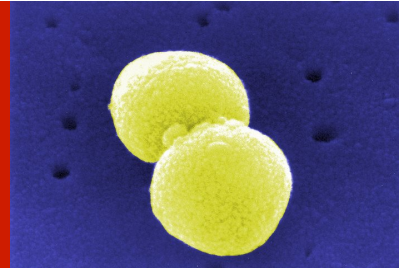


Characteristics	All, <i>n</i> (%)	Vaccinated, <i>n</i> (%)	Not vaccinated, <i>n</i> (%)	P
Comorbid conditions				
ASHD	60 441 (51.0)	13 265 (52.9)	47 176 (50.5)	<0.0001
CHF	59 404 (50.1)	12 833 (51.1)	46 571 (49.8)	0.0002
CVA/TIA	27 554 (23.2)	6086 (24.3)	21 468 (23.0)	<0.0001
PVD	56 897 (48.0)	12 375 (49.3)	44 522 (47.6)	<0.0001
Other cardiac	57 693 (48.7)	12 504 (49.8)	45 189 (48.4)	<0.0001
COPD	28 995 (24.5)	6521 (26.0)	22 474 (24.1)	<0.0001
GI bleeding	20 433 (17.2)	4409 (17.6)	16 024 (17.1)	0.1
Liver disease	15 503 (13.1)	3103 (12.4)	12 400 (13.3)	0.0002
Dysrhythmia	43 097 (36.4)	9437 (37.6)	33 660 (36.0)	<0.0001
Cancer	11 414 (9.6)	2513 (10.0)	8901 (9.5)	0.02
Diabetes	71 081 (60.0)	15 590 (62.1)	55 491 (59.4)	<0.0001
Influenza vaccination				<0.0001
None	29 758 (25.1)	2620 (10.4)	27 138 (29.0)	
First season only	17 614 (14.9)	3483 (13.9)	14 131 (15.1)	
Second season only	31 187 (26.3)	8172 (32.6)	23 015 (24.6)	
Both seasons	39 974 (33.7)	10 816 (43.1)	29 158 (31.2)	

Gilbertson et al.: Nephrol. Dial. Transplant. (2011) 26 (9): 2934-2939.

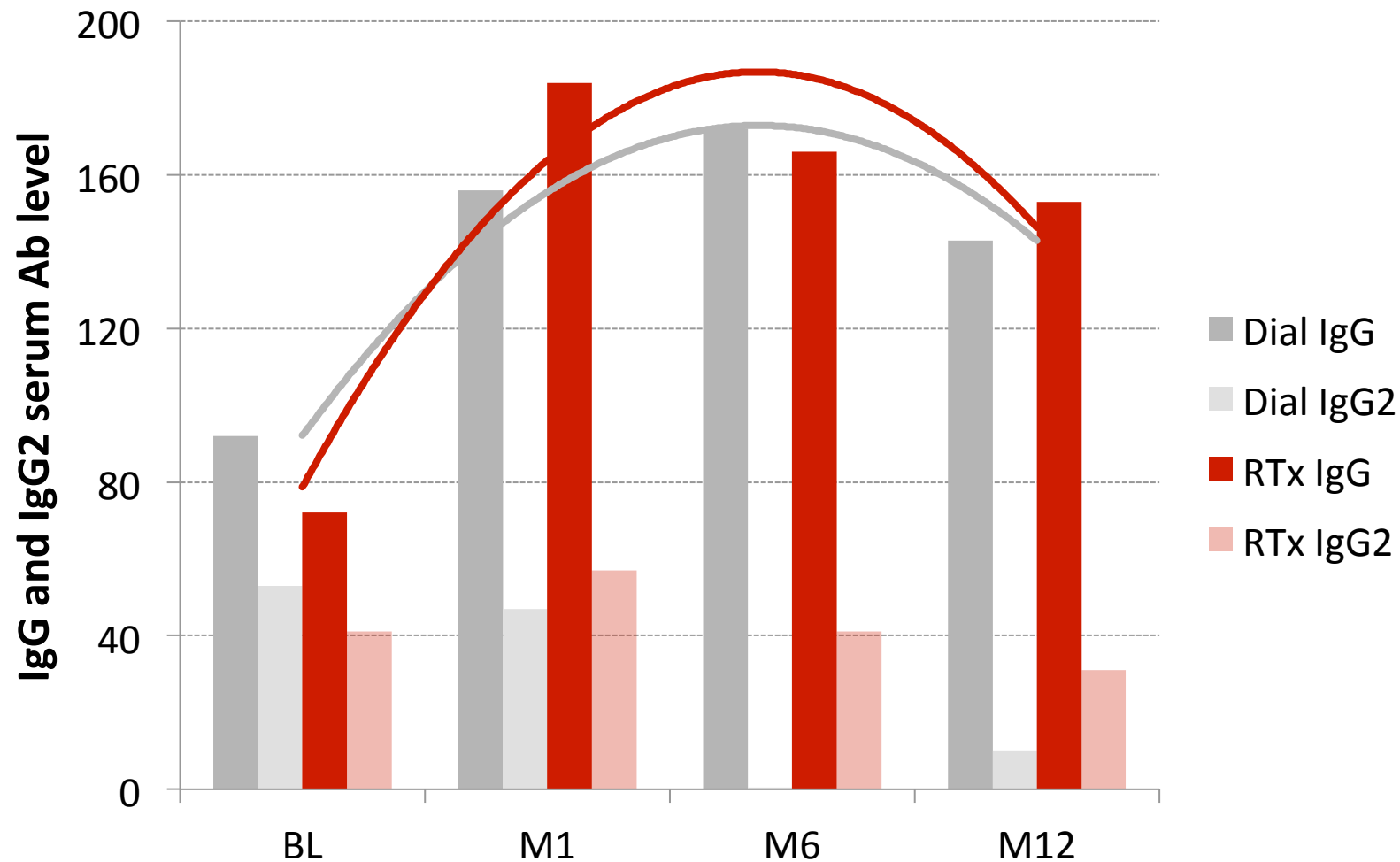
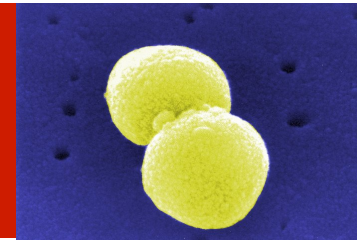


Pneumokokkenimpfung bei Tx und Hämodialyse



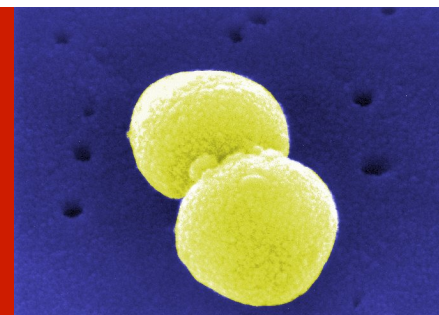
- 14 Dialyse und 37 NTx Patienten
- 23-valentes Pneumovax™
- *Outcome:* delta anti-Pneum.-IgG Spiegel
vs baseline

Serum Pneumokokken - Antikörper nach 23valent Pneum. - Vakzinierung

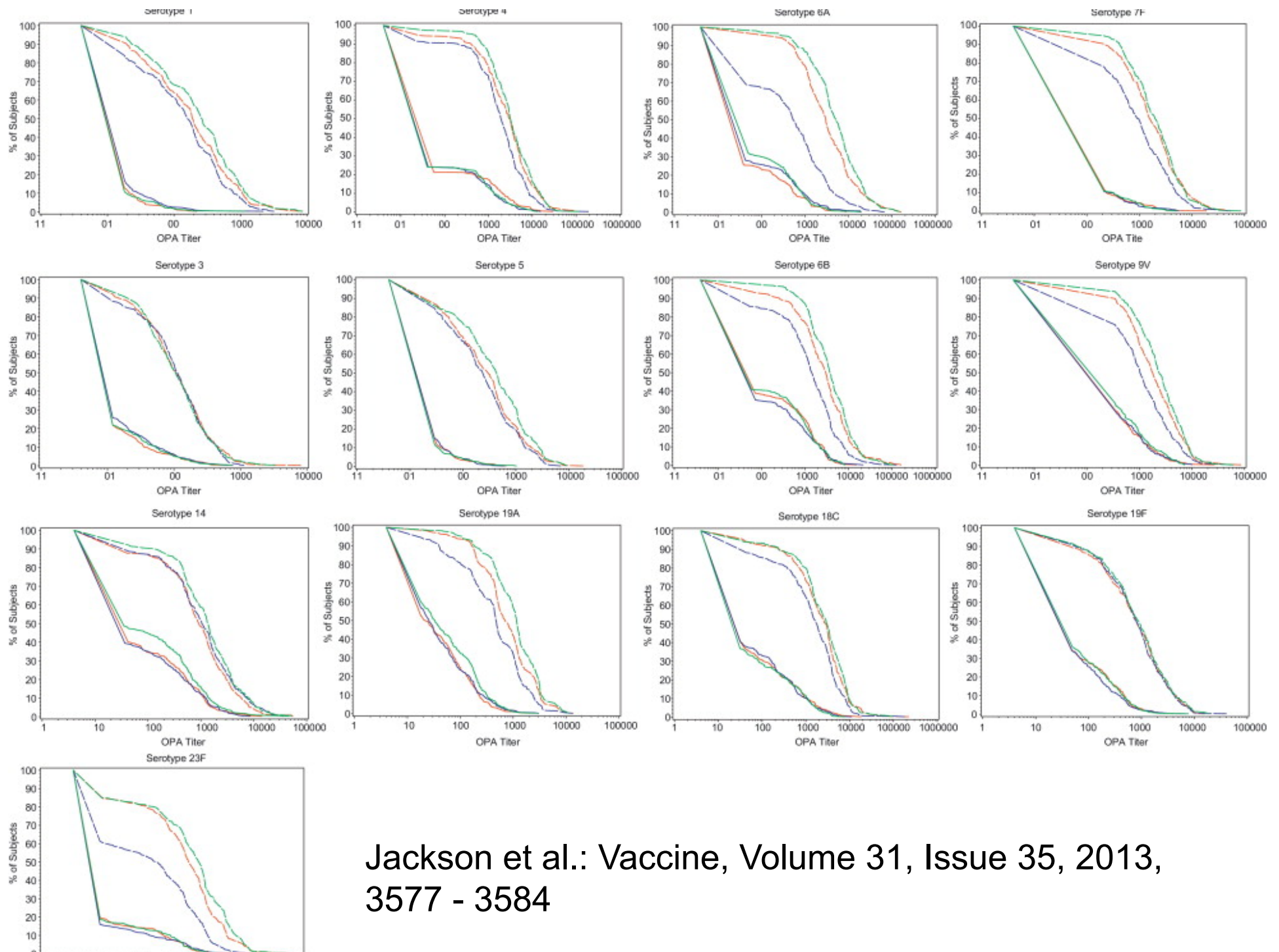


Pourfaziani V et al.: Ann Transplant, 2008; 13(3): 43-47

Immunogenicity of a 13-valent vaccine compared to 23-valent in pneum.-naive adults 50-65 y



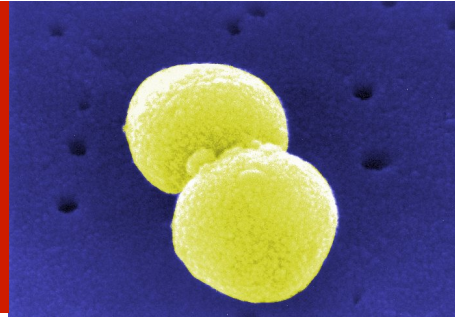
	60–64 Year		50–59 Year
	PCV13 <i>N</i> = 417	PPSV23 <i>N</i> = 414	PCV13 <i>N</i> = 403
Female, %	53.5	60.9	61.8
White	96.4	94.2	95.0
Underlying disease, %	20		17
Age, yr	61.8 (1.4)	61.7 (1.4)	54.4 (2.9)



Jackson et al.: Vaccine, Volume 31, Issue 35, 2013,
3577 - 3584

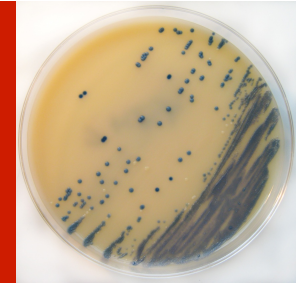
Pneumokokkenimpfung

– “take home”



- **Effektiv (20% weniger Todesfälle)**
- Unterschiedliche Immunogenität der Vakzinen beachten
- Antikörperschutz wahrscheinlich kürzer als bisher angenommen
- Untersuchungen zur Kosteneffektivität nötig

Staphylococcus colonization, mortality and morbidity in hemodialysis patients: 10 years of observation

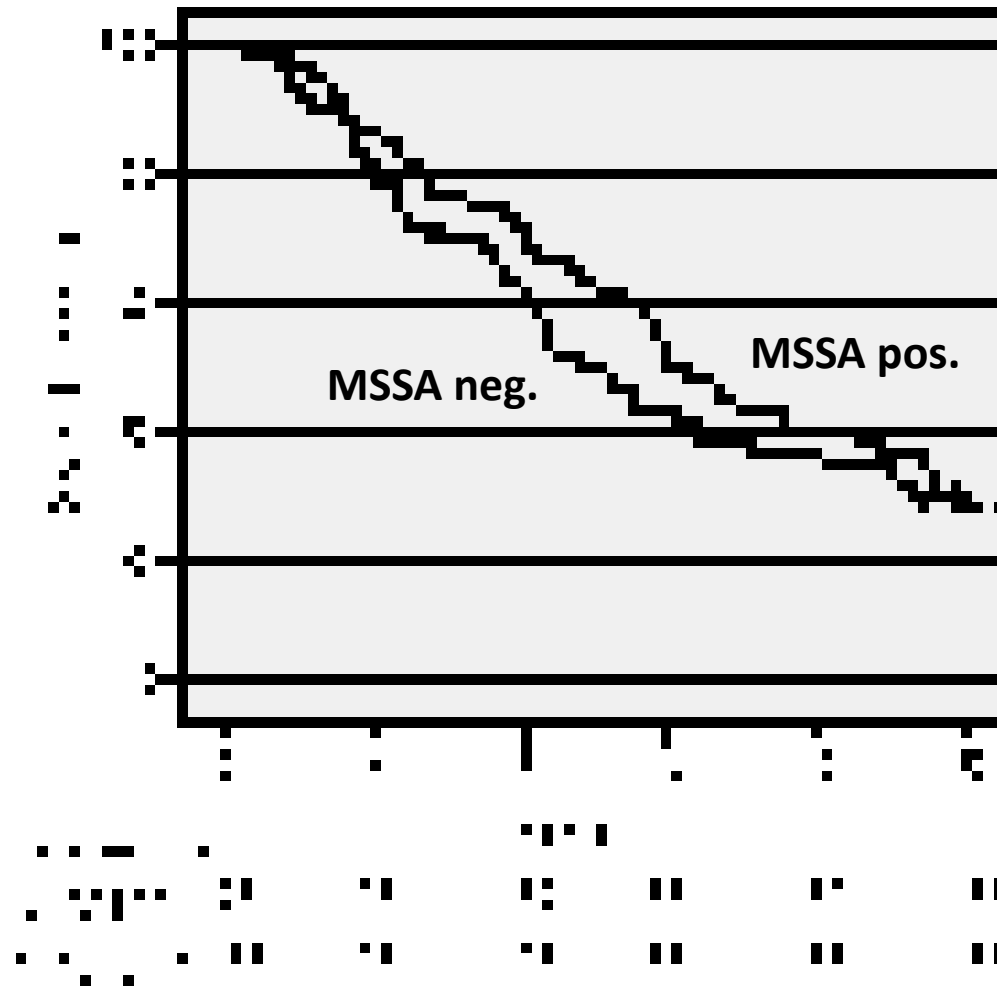
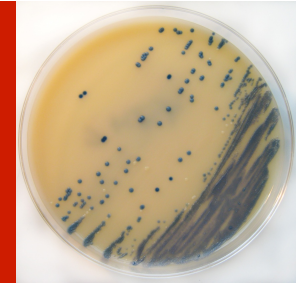


	MSSA all negative N = 68	MSSA at least 1 pos N = 88
Age (Years)	66.3 ± 13.1	63.9 ± 15.7
Time on HD at time of first screening – Vintage (Years)	1.30 ± 0.28	1.17 ± 0.20
Proportion of males (%)	47	56 ⁺
Proportions of diabetics (%)	34	47*
Proportion of nursing home inhabitants (%)	16	15
Proportion of orthotopic fistulas at event time (%)	75	66

Authohtone MRSA Kolonisierung n=1; 4 weitere aus stat. Umfeld

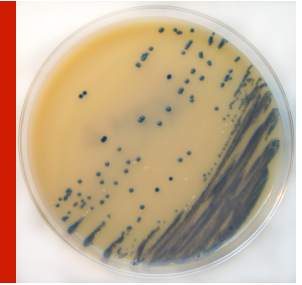
Beige J et al.: Int J Hyg Environ Health. 2013 Nov;216(6):751-4

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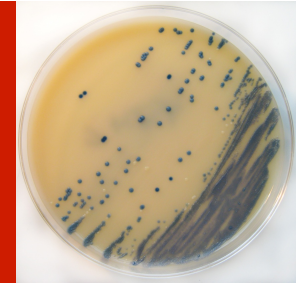
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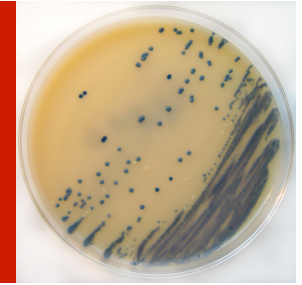
	MSSA all negative N = 68 (%)	MSSA at least 1 pos N = 88 (%)
Infectious [n (%)]	7 (10)	6 (6.8)
Cardiovascular [n (%)]	13 (19)	18 (20.5)
Tumor [n (%)]	5 (7.4)	7 (8.0)
Other [n (%)]	4 (5.9)	6 (6.8)
Unknown [n (%)]	16 (23.5)	21 (23.9)
All	45 (66.2)	58 (65.9)

Staphylococcus colonization, mortality and morbidity in hemodialysis patients: 10 years of observation



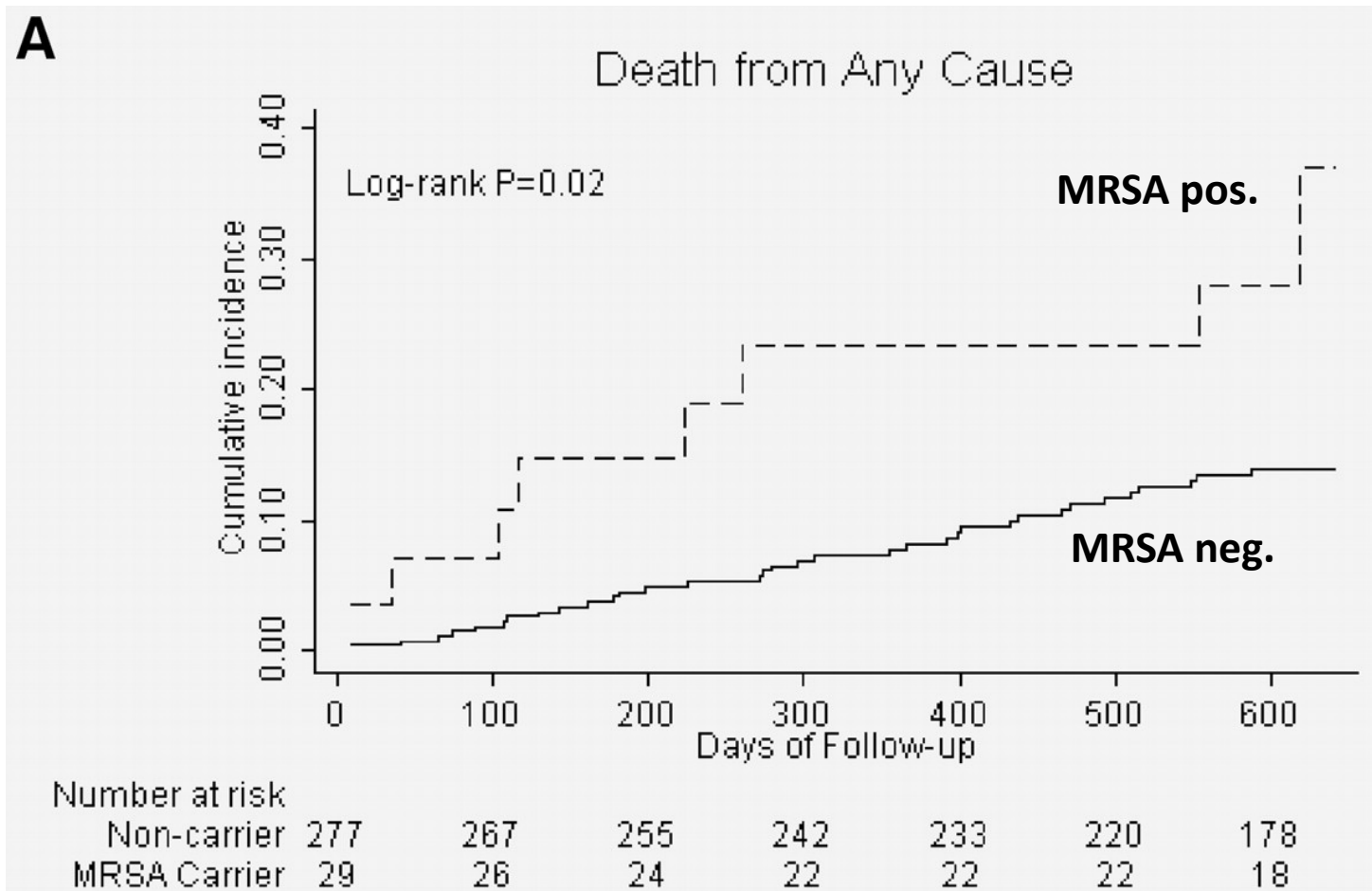
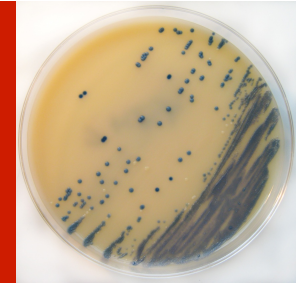
	MSSA all negative N = 68	MSSA at least 1 pos N = 88
Local [n (%)]	23 (34)	38 (43)
Bacteremia, no sepsis [n (%)]	3 (4.4)	3 (3.4)
Sepsis [n (%)]	9 (13)	14 (16)
Not gradable [n (%)]	26 (38)	28 (32)
All [n (%)]	61 (90)	83 (94)

Nasal Carriage of MRSA Is Associated with Higher All-Cause Mortality in Hemodialysis Patients



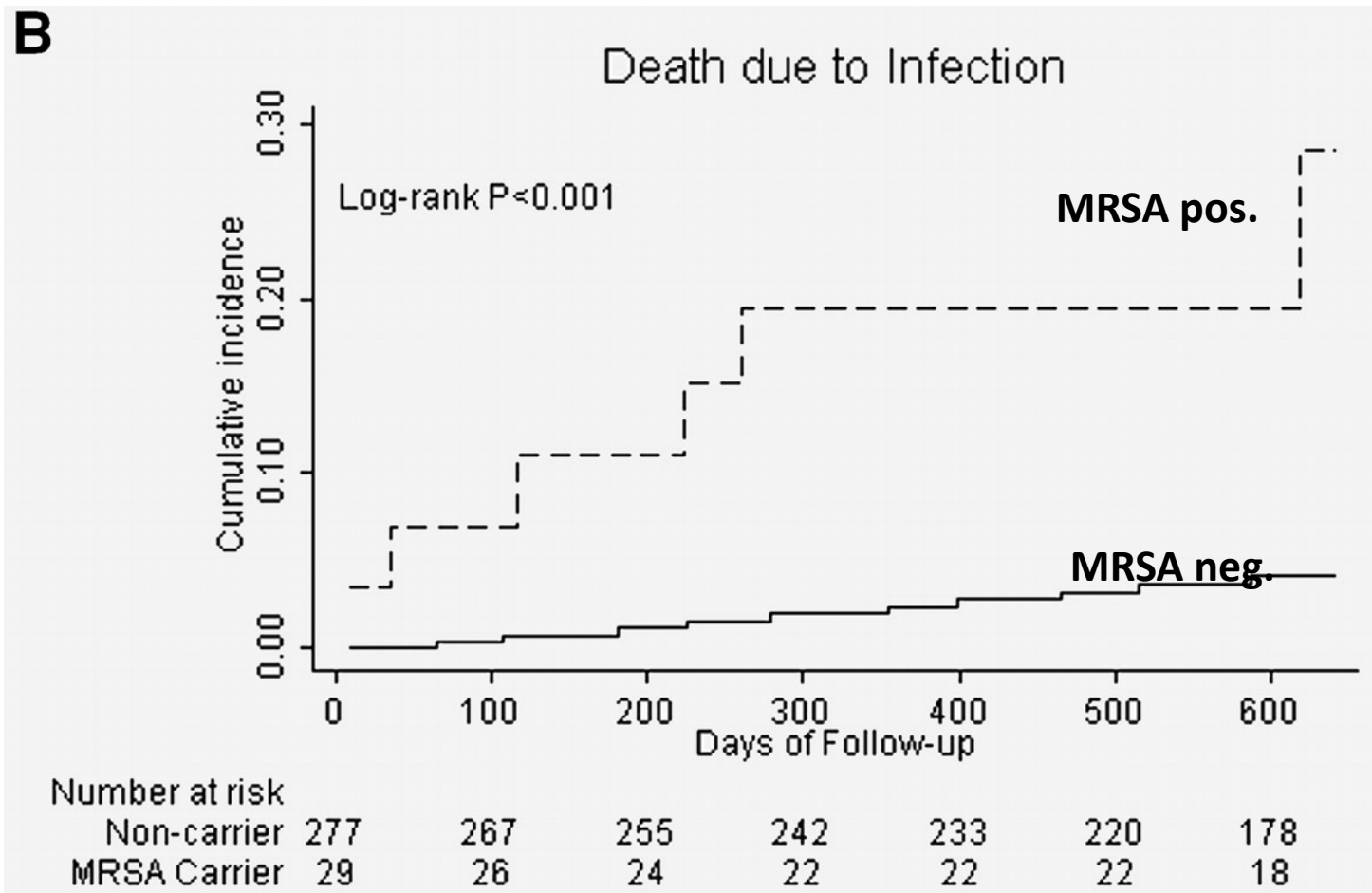
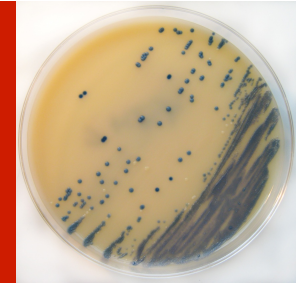
	MRSA all negative N = 277	MRSA at least 1 pos N = 29
Age (Years)	60.1 ± 11.1	61 ± 14.5
Time on HD at time of first screening – Vintage (Years)	11 ± 10	11.7 ± 12,3
Proportion of males (%)	47	58
Single (%)	11	17
Diabetes (%)	43	31
Proportion of orthotopic fistulas at event time (%)	69	69

Nasal Carriage of MRSA Is Associated with Higher All-Cause Mortality in Hemodialysis Patients



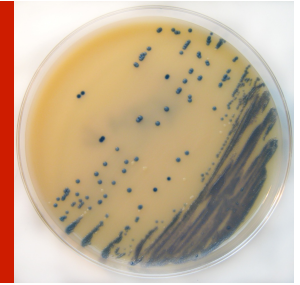
Lai C et al. CJASN 2011;6:167-174

Nasal Carriage of MRSA Is Associated with Higher All-Cause Mortality in Hemodialysis Patients



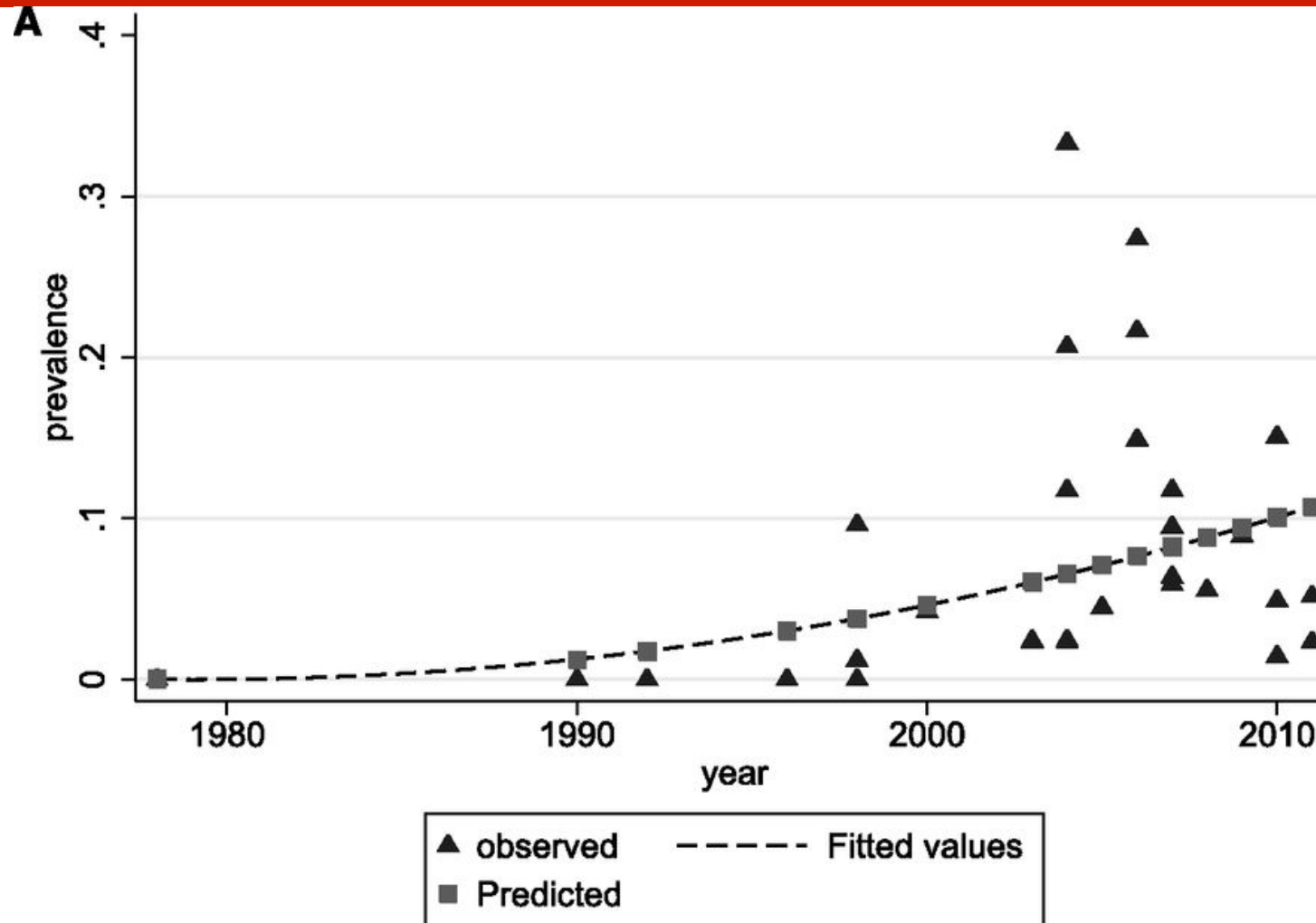
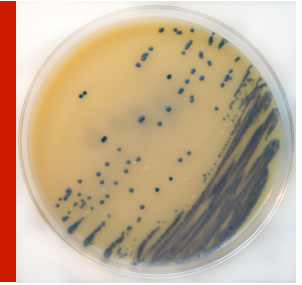
Lai C et al. CJASN 2011;6:167-174

Meta-Analysis of MRSA Colonization and Risk of Infection in Dialysis Patients



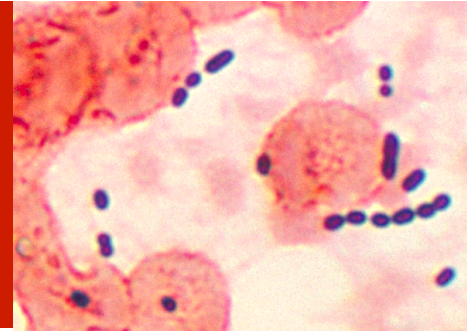
- 5.596 Patienten aus 38 Studien 2003 - 2013
- Prävalenz Kolonisierung 6,2%
 - 7,2% HD vs 1,3% PD
 - 14,2% stat vs 5,4% amb
 - 7,4 USA vs 4,0 EU
- Infektionsrisiko 19% vs 2% nicht-kolonisiert
OR 11,5 [4,7...28.0], (4 Studien)

Zeitverlauf MRSA Kolonisierung



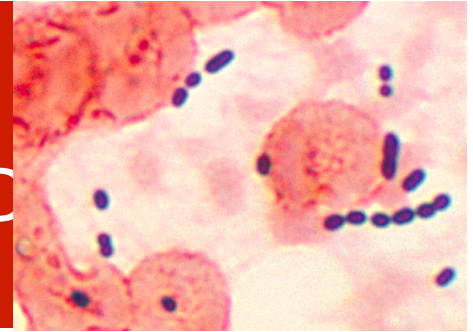
Zacharioudakis et al.: J Am Soc Nephrol. 2014 Mar 20.

MRSA, MSSA “take home”



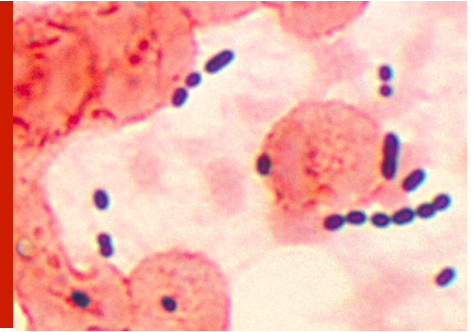
- MSSA Kolonisierung (50%) nicht mit Mortalität assoziiert
- MRSA Kolonisierung 0-10 %
- Infektion nach MRSA Kolonisierung 10% / Jahr, Mortalität verdreifacht
- **Vancomycin vermeiden (eigene Erfahrung)**

Vancomycin-Resistant Enterococci colon. does not increase mortality in ESRD



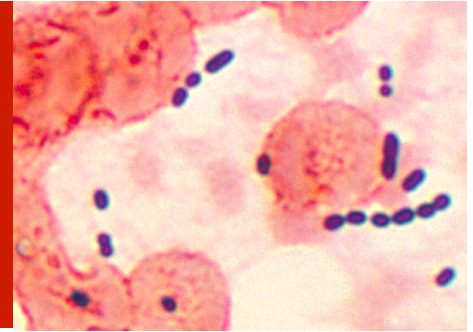
- Kolonisierung 4% *Hadley et al.: Am J Nephrol. 2007;27(4):352-9*
- Keine Assoziation mit Mortalität
 1. N = 5/168, retrospective; OR 1.1; 421 days follow-up.
Roghman et al.: Am J Kidney Dis. 1998 Aug;32(2):254-7
 2. N=136 vs 137, case control; 10 years follow-up.
Garner SE: J Hosp Infect. 2013 Dec;85(4):289-96)
- **Kreuz - Resistenzen auf MSSA bzw. MRSA**
- VRE → Ablehnung elektive Transplantation

VRE Therapie



- Penicillin - Resistenz: Kombination mit Sulbactam oder Ceftriaxon
- Gentamycin
- Daptomycin, Quinoprustin, Linezolid
- Biofilm: Rifampicin
- Blutstrom-gebundene Katheterinfektionen
FLU/RIFA (n=25) vs. LIN (n=7) vs. VAN (n=5)
Alle Behandlungen waren effektiv

VRE – “take home”



- Kolonisierung nicht mit Mortalität assoziiert
- Substanzresistenzen durch Spezies-übergreifende Kreuzresistenzen
- **Vancomycin vermeiden**