UNIVERSITÀ DEGLI STUDI DI MILANO
FACOLTÀ DI MEDICINA E CHIRURGIA

La malattia meningococcica invasiva Introduzione

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Who is at risk of IMD ?

• Children, particularly those aged < 2 years	*High, strong*
• Household contact of a case of IMD	*High, strong*
• Inherited terminal complement deficiency	*High, strong*
• Adolescents and young adults (15-24 years)	*Moderate, low*
• HIV infection	*Moderate, low*
• Travelers to areas with high endemic rates or epid.	*Moderate, low*
• Men who have sex with men	*Moderate, low*
• Hypogammaglobulinemia	*Weak, low*
• Acquired complement disorders	*Weak, low*
• Functional and anatomical asplenia	*Weak, low*

Epidemiol. Infect. (2003), **130**, 413–418. © 2003 Cambridge University Press
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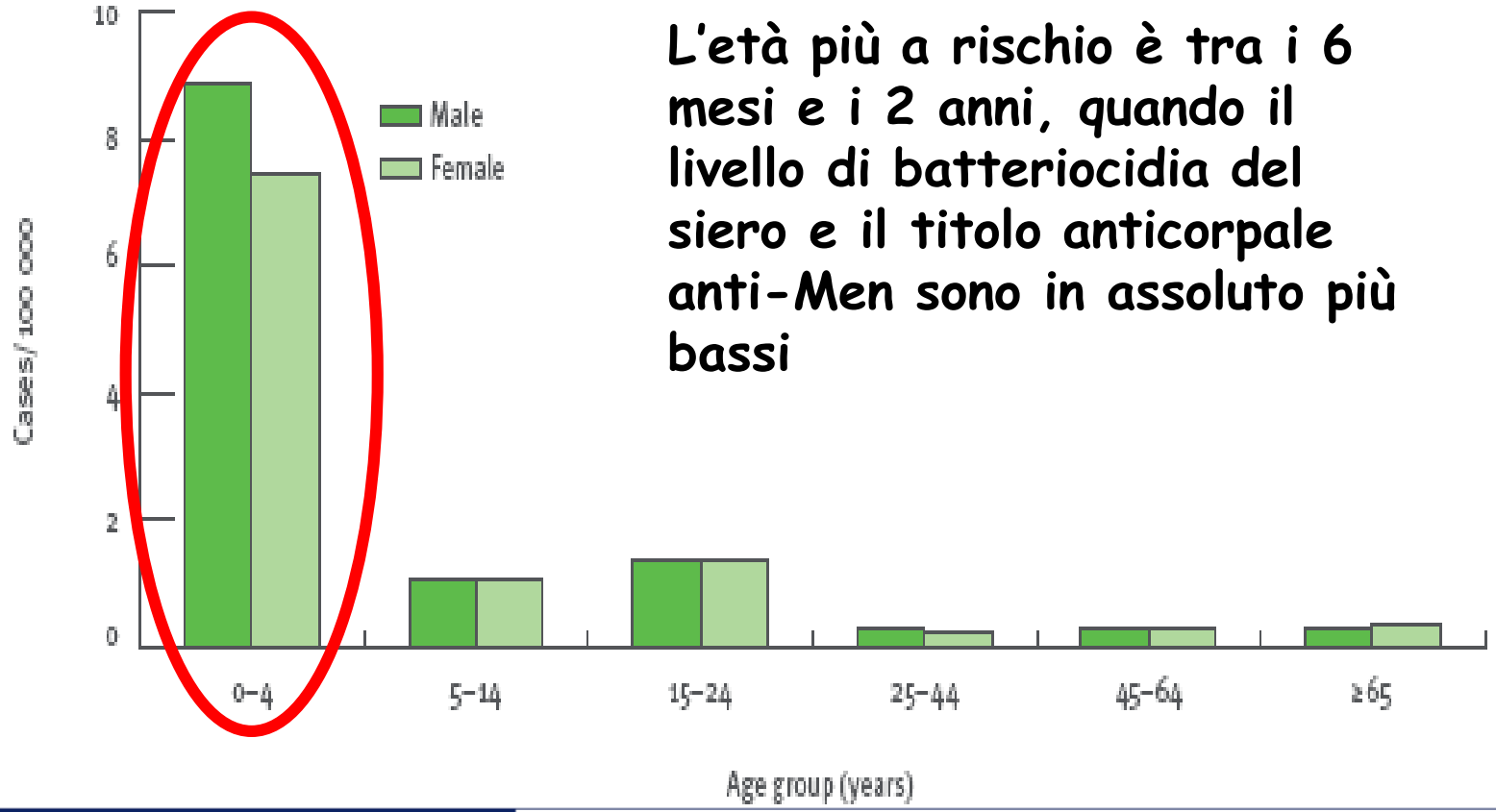
Sibling familial risk ratio of meningococcal disease in UK Caucasians

Siblings risk ratio by interval between onset of index case and sibling case

Interval between MD onsets in index case and affected sibling(s) pairs	Number of affected siblings to index cases	Expected number of affected siblings	λ_s (95% CI)
All data	27	0·892	30·3 (20·0–44·0)
>1 week	16	0·878	18·2 (10·4–30·0)
>1 month	10	0·842	11·9 (5·7–21·8)
>3 months	9	0·859	10·5 (4·8–19·9)
>6 months	9	0·859	10·5 (4·8–19·9)
>9 months	8	0·854	9·4 (4·0–18·5)
>12 months	7	0·822	8·2 (3·4–17·9)

Age is the most important risk factor for IMD

IMD in EU and EEA/EFTA, 2008 (n= 3042)



L'età più a rischio è tra i 6 mesi e i 2 anni, quando il livello di batteriocidia del siero e il titolo anticorpale anti-Men sono in assoluto più bassi

ORIGINAL RESEARCH | Annals of Internal Medicine

Elevated Risk for Invasive Meningococcal Disease Among Persons With HIV

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- The average annual incidence rate of IMD was 0.39 cases per 10^5 persons.
- The relative risk for IMD among PLWHA in NYC during 2000 to 2011 was 10.0 (95% CI, 7.2 to 14.1).
- Among PLWHA, patients with IMD were 5.3 times (CI, 1.4 to 20.4 times) as likely as age-matched control patients to have CD4 counts less than 0.200 $x10^9$ cells/L.

Ann Intern Med. 2014;160:30-7.

Vaccinazione anti-meningococcica: LG italiane 2016

Indicazione Razionale	Posologia: a = primo ciclo; b = richiami/ rivaccinazioni	Raccomandazioni
Alle persone HIV+, in particolare se con un'altra condizione di rischio (asplenia, deficit splenico, deficit fattori complemento, trattamento con Eculizumab, MSM, viaggi in aree endemiche, rischio professionale, età ≥18 < 25anni, ecc.), va offerto vaccino quadrivalente (MenACWY) [anche se già vaccinate con MenC] e il vaccino ricombinante contro il meningococco B (4CMenB protein vaccine).	A: 2 dosi di MenACWY distanziate di 8-12 settimane e 2 dosi di 4CMenB distanziate di almeno un mese. Cosomministrazione in fase di studio. Si ritiene possibile se ritardo potrebbe comportare lmancata protezione della persona a rischio.	*La vaccinazione è raccomandata alle persone HIV+, in particolare se, oltre all'infezione da HIV, presentano un'altra condizione di rischio, impiegando il vaccino quadrivalente coniugato MenACWY)* **[AII]** ***e il vaccino ricombinante antimeningococco B (4CMenB) [AIII].***
Rischio aumentato di nfezione e a malattia, per le persone in AIDS. Studi recentindicano che anche le persone HIV+ hanno un rischio aumentato di malattia invasiva.	B: MenACWY, non di routine. CDC (USA) e altri raccomandano richiami ogni 5 anni di per le persone con fattori di rischio che permangono nel tempo. B: 4CMenB, non stabilito.	*Tali vaccinazioni sono indicate per tutte le persone HIV+* ***[BIII]. Si possono considerare richiami con MenACWY in HIV+ con altri fattori di*** *rischio persistenti, per mantenere adeguato il titolo anticorpale nel tempo* ***[BII].***

Urethritis Caused by Novel *N.meningitidis* Serogroup W in MSM, Japan

- We report a case of urethritis caused by a novel multilocus sequence type (ST), 10651, of the ST11/electrophoretic type (ET)–37complex *N.meningitidis* serotype W.
- The patient was a MSM HIV positive (CD4 count 649 cells/mL) but was not receiving ART.
- We also report on the patient's male partner, who was colonized with the same bacteria

Hayakawa,K et al. Emerg Infect Dis 2014; 20: 1585-87

RESEARCH LETTERS

Two Cases of *Neisseria meningitidis* Proctitis in HIV-Positive Men Who Have Sex with Men

- Two cases of infectious proctitis caused by *N. meningitidis* in HIV-positive *MSM*.
- Genetic characterization of the isolates showed that they are unusual serogrup B strains not found in other more frequent meningococcal locations.
- This finding suggests an association between specific strains and anogenital tract colonization

Emerg Infect Dis. 2017; 23: 542-43.

Past epidemiologic studies in MSM

- Past epidemiologic studies in MSM found high carriage of oropharyngeal *N. meningitidis* (43%) and 2% rectal and 1% urethral colonization rates.

Janda WM, Bohnoff M, Morello JA, Lerner SA.1980; 244:2060-4.

Frequency of Recovery of *N.meningitidis* from the Genito-Urinary Tract and Anal Canal, from the Second Trimester of 1975 through the First Trimester of 1979

- The majority of strains were isolated from anal canal cultures of male patients most of whom were seen in a clinic treating homosexuals.
- *N. meningitidis* and *N. gonorrhoeae* were cultured together from 41 patients: in 24 cases from different sites and in 17 instances from the same specimen.
- Evidence of clinically significant *N. meningitidis* involvement of genitourinary sites was obtained in a number of cases of urethritis and proctitis as well as in three instances of epidemiologically linked cases

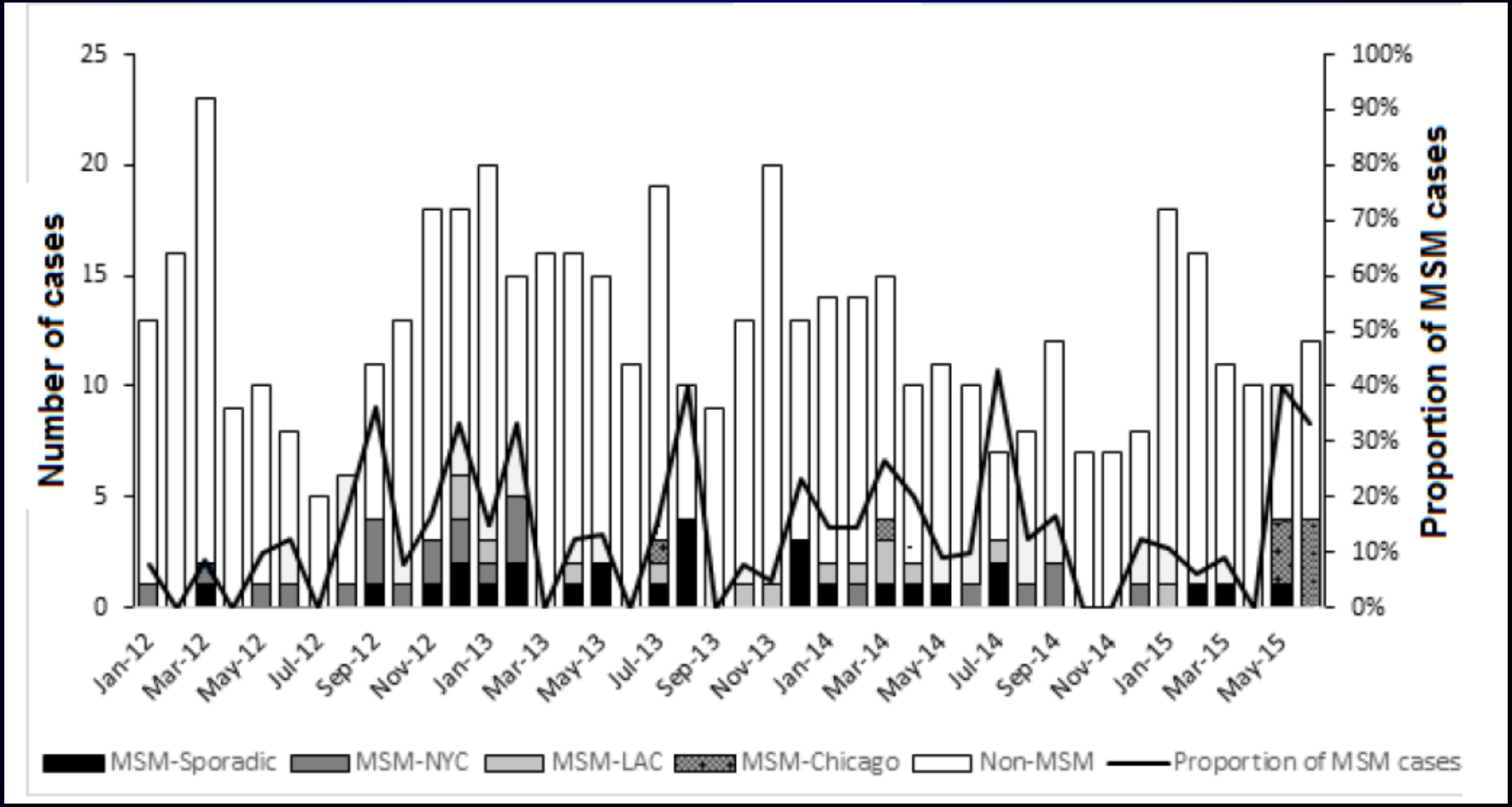
Faur YC, Wilson,ME, May PS . Am J Public Health 1981; 71:53-58.

Men C ST-11 in MSM

- Since 2001, IMD clusters in MSM have been reported in Toronto (2001)[1], Chicago (2003)[2] and New York City (2010–13)[3,4], Berlin (2012-13)[5]
- All outbreaks were caused by MenC and were of the multilocus sequence type (MLST) 11 (ST-11)[6].
- The outbreaks in Toronto and Chicago (six cases each) ended rapidly after carrying out targeted MenC vaccination campaigns in the gay communities affected.

[1]Tsang RS, et al. J Clin Microbiol. 2003; 41: 4411-4.
[2]Schmink S, et al. J Clin Microbiol. 2007;45:3768-70.
[3]Simon MS, Weiss D, Gulick RM. Ann Intern Med. 2013;159:300-1.
[4]MMWR 2013; 61: 1048. [5]Marcus U,et al. Euro Surveill. 2013; 18: 20523
[6]Weiss D, Varma JK. Euro Surveill. 2013;18:20522.

Increased Risk for Meningococcal Disease among Men who have Sex with Men in the United States, 2012-2015



Folarannmi et al 2017