

## The Carriage Rate of Neisseria Meningitides in Children 1- 15 Years of Age, Khartoum State, Sudan, 2017

First Author: Mawahib S J Rashid,

Email : [talentsforall@yahoo.com](mailto:talentsforall@yahoo.com)

Second Author: Abdelgader A Basheir

Email: [abdelgadir50@yahoo.com](mailto:abdelgadir50@yahoo.com)

### Abstract:

#### Background:

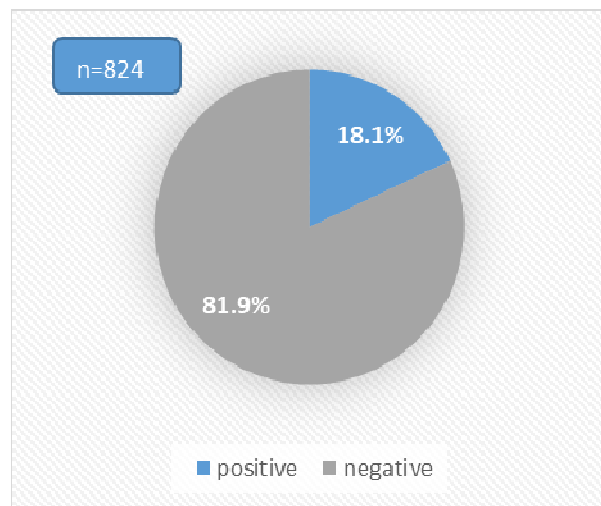
In the African meningitis belt devastating Meningococcalepidemicsare important public health problems. Sudan as one of the 26 countries of the belt is not an exception, Neisseria meningitides(Nm)is hosted only by humans and transmission of the disease occurs usually through close contact or by air-borne large respiratory droplets from asymptomatic human carriers, Thusstudying meningococcal carriage and human-to-human transmission is a key to control the epidemic.

**Objectives:** To study the frequency of colonization of Neisseria meningitidesisolated from Healthy children of 1 to 15 years of age, in Khartoum State, 2017.

**Materials and Methods:** This is a Cross-sectional community based study in Khartoum state, Sudan. A total 824 of pharyngeal swabs were taken from enrolled children using multi stage cluster sampling technique during the non-seasonal period. Laboratory tests were done using conventional PCR to measure the overall carriage of Nm.

**Results:** The overall prevalence of Nm was 18.1 %,in 1to less than 5 years the prevalence was 18.2%, whileit was 23.5. %among 5-15 years children.

The PCR testing result for Nm carriage rate among1-15, Khartoum state 2017.



**Conclusions:** This was a high carriage rate for non-seasonal time, children aged 5 to 15 years had a higher rate compared to less than 5 years old.

**Keywords:** Neisseria meningitides,carriage rate.

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Tropical medicine & international health: TM & IH. 2013 Aug;18(8):968.

## References:

1. World Health Organization. Control of epidemic meningococcal disease: WHO practical guidelines.
2. Borrow R. Advances with vaccination against *Neisseria meningitidis*. *Tropical Medicine & International Health*. 2012 Dec 1;17(12):1478-91.
3. Sow SO, Okoko BJ, Diallo A, Viviani S, Borrow R, Carlone G, Tapia M, Akinsola AK, Arduin P, Findlow H, Elie C. Immunogenicity and safety of a meningococcal A conjugate vaccine in Africans. *New England Journal of Medicine*. 2011 Jun 16;364(24):2293-304.
4. Djingarey MH, Barry R, Bonkougou M, Tiendrebeogo S, Sebgo R, Kandolo D, Lingani C, Preziosi MP, Zuber PL, Perea W, Hugonnet S. Effectively introducing a new meningococcal A conjugate vaccine in Africa: the Burkina Faso experience. *Vaccine*. 2012 May 30;30:B40-5.
5. Kristiansen PA, Diomandé F, Ba AK, Sanou I, Ouédraogo AS, Ouédraogo R, Sangaré L, Kandolo D, Aké F, Saga IM, Clark TA. Impact of the serogroup A meningococcal conjugate vaccine, MenAfriVac, on carriage and herd immunity. *Clinical infectious diseases*. 2012 Oct 19;56(3):354-63.
6. Massenet D, Vohod D, Hamadicko H, Caugant DA. Epidemic meningococcal meningitis, Cameroon. *Emerging infectious diseases*. 2011 Nov;17(11):2070.
7. MenAfriCar Consortium. Meningococcal carriage in the African meningitis belt. *Tropical medicine & international health: TM & IH*. 2013 Aug;18(8):968.
8. MacNeil JR, Medah I, Koussoubé D, Novak RT, Cohn AC, Diomandé FV, Yelbeogo D, Kambou JL, Tarbangdo TF, Ouédraogo-Traoré R, Sangaré L. *Neisseria meningitidis* serogroup W, Burkina Faso, 2012. *Emerging infectious diseases*. 2014 Mar;20(3):394.
9. Kristiansen PA, Ba AK, Ouédraogo AS, Sanou I, Ouédraogo R, Sangaré L, Diomandé F, Kandolo D, Saga IM, Misegades L, Clark TA. Persistent low carriage of serogroup A *Neisseria meningitidis* two years after mass vaccination with the meningococcal conjugate vaccine, MenAfriVac. *BMC infectious diseases*. 2014 Dec 4;14(1):663.
10. Bärnes GK, Kristiansen PA, Beyene D, Workalemahu B, Fissiha P, Merdekios B, Bohlin J, Preziosi MP, Aseffa A, Caugant DA. Prevalence and epidemiology of meningococcal carriage in Southern Ethiopia prior to implementation of MenAfriVac, a conjugate vaccine. *BMC infectious diseases*. 2016 Nov 4;16(1):639.
11. Díaz J, Cárcamo M, Seoane M, Pidal P, Cavada G, Puentes R, Terrazas S, Araya P, Ibarz-Pavon AB, Manríquez M, Hormazábal JC. Prevalence of meningococcal carriage in children and adolescents aged 10–19 years in Chile in 2013. *Journal of infection and public health*. 2016 Aug 31;9(4):506-15.
12. Maïnassara HB, Paireau J, Idi I, Jusot JF, Pelat JP, Oukem-Boyer OO, Fontanet A, Mueller JE. Serogroup-Specific Characteristics of Localized Meningococcal Meningitis Epidemics in Niger 2002–2012 and 2015: Analysis of Health Center Level Surveillance Data. *PloS one*. 2016 Sep 22;11(9):e0163110.
13. Toneatto D, Pizza M, Massignani V, Rappuoli R. Emerging experience with

meningococcal serogroup B protein vaccines.  
Expert Review of Vaccines. 2017 May  
4;16(5):433-51.

14. Evans CM, Pratt CB, Matheson M, Vaughan TE, Findlow J, Borrow R, Gorringe AR, Read RC. Nasopharyngeal colonization by *Neisseria lactamica* and induction of protective immunity against *Neisseria meningitidis*. *Clinical Infectious Diseases*. 2011 Jan 1;52(1):70-7.