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# SHORT PAPER

# Family Pediatrician and Public Health collaboration, an alliance to increase vaccination coverage: an experience with MenB vaccination in Italy

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**Abstract**

***Background.*** *Invasive Meningococcal Disease is a severe disease mainly affecting infants and young children. Most infections are caused by serogroups A, B, C, W, X, and Y. In the last 10 years, serogroup B has been the main cause of Invasive Meningococcal Disease in Europe. Recent data resulting from an observational study conducted in Italy show a significant reduction in the number of Invasive Meningococcal Disease cases due to Neisseria meningitidis B after the introduction of vaccine 4CMenB. Thus, the Naples Team of Federation of Italian Primary Care Pediatricians and the Public Health Department started an active collaboration focused on vaccination process management (named "Progetto Via") with the aim of increasing Meningococcal B vaccination coverage.*

***Study design.*** *Source of data is the regional platform "GE.VA.". Every Primary care Pediatrician uses daily to record vaccination activity. This platform is integrated with data entered by operators of the District/ Vaccination Center.*

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***Methods.*** *Time: January 2019 – December 2019. The Federation of Italian Primary Care Pediatricians/ Naples organized a meeting to identify six coordinators. The pediatricians could choose to counsel in their own offices and send children to the vaccination center or to counsel and vaccinate directly in their own clinics.*

***Results.*** *A total of 78 pediatricians took part in the project: 46 did only counseling and 32 did both counseling and vaccination in their medical clinic. Data obtained show an overall average vaccination coverage growth of about 13% in the first 4 months of the survey, and a further growth of about 11% in the following seven months, with a total growth in the entire period of 24%. The pediatricians' counseling is essential to recover non-compliant subjects, considering both the relationship of trust with the families and the visits already scheduled as an ideal moment for vaccinations' status check.*

***Conclusions.*** *The project highlights how an effective collaboration between family pediatricians and the Local Health Authority becomes valuable in getting closer to reach the Ministerial goal of 95%. Vaccination coverage increased significantly when family pediatricians supported the activity of vaccine centers in distress in many regional situations. The trust relationship, the hourly availability and the capillary network of family pediatricians' clinics were key elements for the success of this project and were also recognized by parents.*

## Background

Invasive meningococcal disease (IMD) is a severe disease mainly affecting infants and young children (1). Most infections are caused by serogroups A, B, C, W, X, and Y. In the last 10 years, serogroup B has been the main cause of IMD in Europe (2). The highest incidence is found in the first year of life, usually between the fourth and eighth month of age (3-5).

The four-component anti-meningococcal B vaccine (4CMenB vaccine) was licensed in Italy in 2014. In 2017 it was implemented in the National Immunization Program as four-dose schedule starting at 2 months of age, with an incremental vaccination coverage target of up to 95% to be achieved by 2019 National Vaccine Prevention Plan (PNPV) (6).

Recent data resulting from an observational study conducted in Italy show a significant reduction in the number of IMD cases due to *Neisseria meningitidis B* after the introduction of 4CMenB, demonstrating a consistent impact of the vaccination program in infants. Furthermore, these data support that early starting strategy ensured a greater level of children's protection between four and eight months of life, which represents the age group at highest risk of IMD due to *Neisseria meningitidis B*.

The Regional Campania Immunization Program recommends 2 doses of MenB vaccine from the third by the twelfth month of age, plus a third booster dose from the 13th month of life.

Difficulties in implementing the PNPV 2017-2019 requirements, mainly organizational issues related to overcrowded vaccination calendar in the first year of age (2 or 3 doses of Rotavirus and 2 + 1 doses Pneumococcal conjugate Vaccine PCV and Hexavalent vaccine) were observed all around Italy and in Campania too.

Thus, the Naples Team of FIMP (Federation of Italian Family Pediatricians) and the Public Health Department started an active collaboration focused on vaccination process management (named "Progetto Via"), with the aim of increasing MenB vaccination coverage.

## Study design

Source of data for the realization of this study is the regional computerized platform "GE.VA." that every family pediatrician who adheres to the regional active collaboration

agreement on vaccination activity uses daily to record vaccination activity. This platform is integrated with data of the same vaccination registry entered by operators of the District/Vaccination Center to which they belong, in order to ensure a complete view at the time of detection.

## Methods

The time frame of the project reported here encompasses January 2019 – December 2019.

FIMP Naples organized a first meeting to identify six coordinators of Progetto VIA; those representatives were given the objective of interfacing with the pediatricians of each Local Health Authority (LHA) and coordinate the counseling and vaccination activities between the participants. The pediatricians participating to Progetto VIA could choose to counsel in their own offices and send children to the vaccination center or to counsel and vaccinate directly in their own clinics.

Counseling carried out by the pediatricians was an "advanced" one: parents of non-compliant children were invited to talk about the importance of vaccinations, during periodic visits, the so-called "health checks".

## Results

A total of 78 pediatricians took part to the project: 46 did only counseling and 32 did counseling and vaccination in their medical clinic.

Data obtained show an overall average vaccination coverage (VC) growth of about 13% in the first 4 months of the survey, and a further growth of about 11% in the following seven months, with a total growth in the entire period of 24%.

The following two graphs show the vaccination coverage growth obtained in the three LHAs in the three periods under evaluation; respectively Figure 1 for the 2017 Cohort and Figure 2 for the 2018 Cohort.

For the 2017 Cohort the growth in VC, recorded in the first 4 months analyzed, varies from a minimum of 3.88% to a maximum of approximately 5.6%. After seven months, at the end of the year, this variability ranged from about 9.3% to about 10.6%.

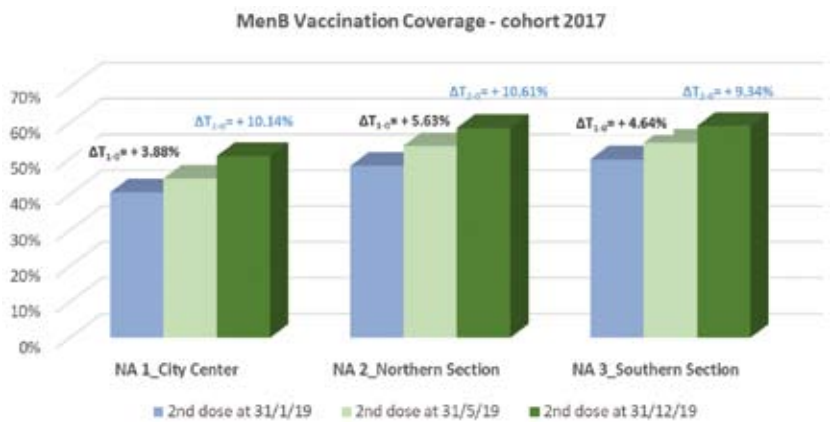


Figure 1 - Evolution of VC against *N meningitidis B* over the three observation periods, for the 2017 Cohort and for each single Neapolitan district

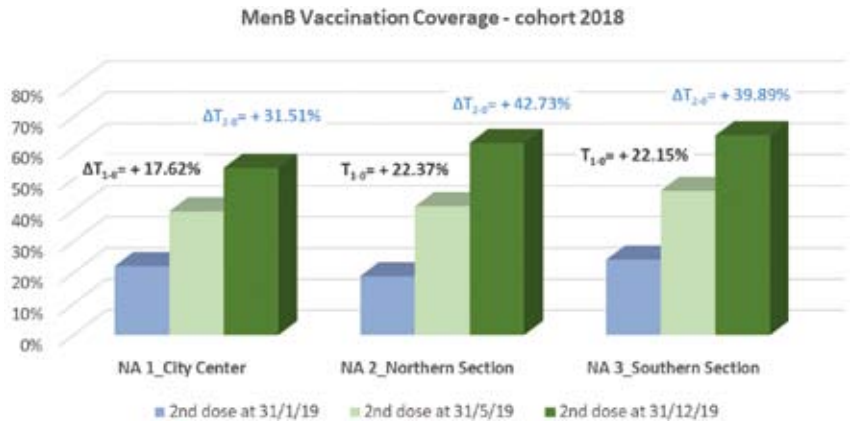


Figure 2 - Evolution of VC against *N meningitidis B* over the three observation periods, for the 2018 Cohort and for each single Neapolitan district

For the 2018 cohort the growth between the first and second survey (January vs May 2019) is much higher than in 2017. As a matter of fact, it varies from a minimum of about 17% to a maximum of 22%, and this growth is also confirmed by the second observation, with percentages ranging from about 31% to 43%.

From the detail of each district, for the three LHAs of the Neapolitan territory, it is clear how much the situation is still heterogeneous and far from what is required by the ministerial objectives (VC=95%).

Furthermore, another data subject to monitoring was the number of non-compliant children for the vaccination against *N meningitidis B*. Here it emerges that the overall percentage in the Neapolitan territory varies from 49% to 57% in the first survey (May), lowering towards the year end, with percentages ranging from 40% to 44%, with wide variability between the various LHAs involved and a more marked improvement for the 2018 cohort. This can be interpreted as a further element that pediatricians' counseling is essential to recover non-compliant subjects, considering both the relationship of trust with the families and the visits already scheduled as an ideal moment for vaccinations' status check.

Finally, if we consider what is reported in the latest data processed by the General Directorate of Health Prevention of the Ministry of Health for 2018, there is an overall and significant improvement in vaccination coverage for all age groups. This can be interpreted as a sign coming from the positive work that has been done both at national and regional level starting from 2017 (following the approval of the NIP 2017-2019 and the Ministry Decree on Essential Assistance Levels (DPCM 12/01/2017)) (7) but also highlights how much work still needs to be done.

## Discussion

Growth results of vaccination coverage against *N meningitidis B* obtained in the Neapolitan territory in the 12 months of observation certainly represent a quantitative indicator of the value of the vaccination strategy adopted, since they provide information on both the actual implementation on the territory and the efficiency of the vaccination system chosen.

## Conclusion

The project highlights how an effective collaboration between family pediatricians and LHAs becomes valuable in getting closer to reach the Ministerial goal of 95%, leveraging on a well-structured counseling activity that supports the final vaccination results.

These results can be an incentive for all the actors involved to continue investing their time and effort in order to reach the 95% VC level and to protect all vulnerable subjects from *N meningitidis B.*

The VIA Project reported here is supposed to be inspirational for other Regions, however some relevant efforts and attempts that are required in such an organizational model need to be taken into account.

Nevertheless, in our experience, the VC increases significantly when family pediatricians support the activity of vaccine centers in distress in many regional situations. The trust relationship, the hourly availability and the capillary network of family pediatricians' clinics were key elements for success of this project which were also recognized by parents.

## Limitations

Due to the design of the study, and the fact that the Department of Prevention only provides "merged" data, we were unable to evaluate separately the improvements of VCs attributable to the pediatricians offering only counseling and those associated with the pediatricians offering both counseling and vaccination.

**Conflict of interest statement**
The authors declare no affiliations with or involvement in any organization or entity with any financial or nonfinancial interest related to this manuscript.

**Riassunto**

***Pediatra di famiglia e collaborazione con la Sanità Pubblica, un'alleanza per aumentare la copertura vaccinale: un'esperienza con la vaccinazione MenB in Italia***

***Premessa.*** La malattia meningococcica invasiva è una malattia grave che colpisce principalmente neonati e bambini piccoli. La maggior parte delle infezioni sono causate dai sierogruppi A, B, C, W, X e Y. Negli ultimi 10 anni, il sierogruppo B è stata la principale causa di malattia meningococcica invasiva in Europa. I dati recenti mostrano una significativa riduzione del numero di casi di malattia meningococcica invasiva dovuti a Neisseria meningitidis B dopo l'introduzione del vaccino 4CMenB. La Federazione Italiana Medici Pediatri, sede di Napoli ed il Dipartimento di Sanità Pubblica hanno avviato una collaborazione attiva ("Progetto Via") con l'obiettivo di aumentare la copertura vaccinale contro la meningite B.

***Disegno dello studio.*** La fonte dei dati è la piattaforma regionale "GE.VA.". Ogni pediatra di famiglia la utilizza quotidianamente per registrare l'attività vaccinale. Questa piattaforma è integrata con i dati inseriti dagli operatori del Distretto / Centro Vaccinazioni.

***Metodi.*** Periodo: gennaio 2019 - dicembre 2019. La FIMP Napoli ha organizzato un incontro per identificare sei coordinatori; i pediatri potevano scegliere di svolgere attività di counseling nei propri ambulatori e inviare i bambini al centro di vaccinazione, o di effettuare counseling e vaccinare direttamente nei propri ambulatori.

***Risultati.*** Un totale di 78 pediatri hanno preso parte al progetto: 46 hanno fatto solo consulenza e 32 hanno fatto consulenza e vaccinazione nel loro studio professionale. I dati ottenuti mostrano una crescita media complessiva della copertura vaccinale di circa il 13% nei primi 4 mesi dell'indagine, e un'ulteriore crescita di circa l'11% nei sette mesi successivi, con una crescita totale nell'intero periodo del 24%. L'intervento attivo dei pediatri di famiglia è fondamentale per il recupero di soggetti inadempienti, grazie a due fattori: il rapporto di fiducia con le famiglie ed i Bilanci di Salute, visite programmate ad età filtro come momento ideale per la verifica dello stato delle vaccinazioni.

***Conclusioni.*** Il progetto evidenzia come un'efficace collaborazione tra pediatri di famiglia e Azienda Sanitaria Locale diventi preziosa per avvicinarsi al raggiungimento dell'obiettivo ministeriale del 95%. La copertura vaccinale è aumentata in modo significativo quando i pediatri di famiglia hanno coadiuvato l'attività dei centri vaccinali in difficoltà. Il rapporto di fiducia, la disponibilità oraria e la rete capillare dei pediatri di famiglia sono stati elementi chiave per il successo di questo progetto che è stato apprezzato anche dai genitori.

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