FACTORS ASSOCIATED WITH MENINGOCOCCAL VACCINATION AMONG PATIENTS WITH NEWLY DIAGNOSED HIGH-RISK CONDITIONS

Parinaz K Ghaswalla[1], Lindsay G Bengtson[2], Gary S Marshall[3], Ami R Buikema[2], Tim Bancroft[2], Krista M Schladweiler[2], Eleena Koep[4], Patricia Novy[1], Cosmina S Hogea[1]

[1]GSK, Philadelphia, PA, US; [2]Optum, Eden Prairie, MN, US; [3]Norton Children's and University of Louisville School of Medicine, Louisville, KY, US; [4]UnitedHealth Group, Minnetonka, MN, US

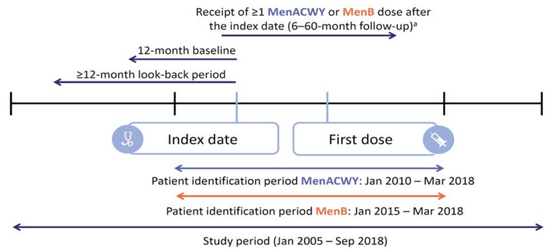
Background

- In the United States (US), vaccination is recommended for persons at increased risk for invasive meningococcal disease (IMD) due to complement component deficiency (CD), asplenia or human immunodeficiency virus (HIV) infection.
- Uptake of meningococcal vaccines one year following a new high-risk diagnosis is very low.[1]
- Little is known about factors associated with receipt of vaccines against meningococcal serogroups A, C, W, and Y (MenACWY) and serogroup B (MenB) among patients newly diagnosed with high-risk conditions.
- Because patients with these high-risk conditions are also recommended to receive pneumococcal vaccination, meningococcal and pneumococcal vaccine uptake were examined to assess provider knowledge gaps for vaccine recommendations.

Methods

- This retrospective cohort study identified patients from a large US commercial administrative claims database (Optum Research Database) with continuous enrollment during the baseline and variable follow-up periods.
- Cox proportional hazards regression models were used to identify characteristics associated with time to receipt of ≥1 dose of MenACWY or MenB during time periods corresponding with Advisory Committee on Immunization Practices (ACIP) recommendations.

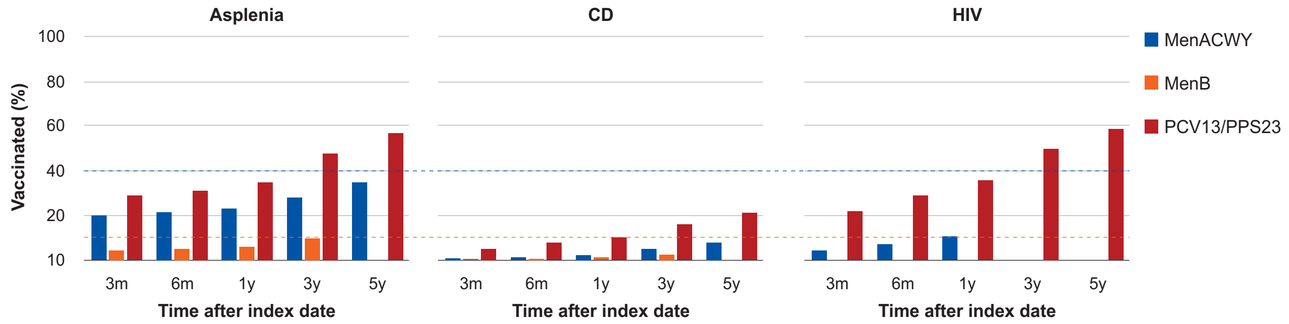
Patient selection & study design



[a]Vaccinations within 90 days before the index date were also included for asplenia. **Index date**: First evidence of asplenia, CD or HIV.
CD, complement component deficiency; **HIV**: human immunodeficiency virus; **MenACWY**, meningococcal vaccines against serogroups A, C, W, Y (polysaccharide and conjugate); **MenB**, meningococcal vaccines against serogroup B.

Results

Receipt of MenACWY and MenB vaccines among newly diagnosed high-risk patients is below 40% and 10%, respectively



CD, complement component deficiency; **HIV**: human immunodeficiency virus; **m**: months; MenACWY, meningococcal vaccines against serogroups A, C, W, Y; **MenB**, meningococcal vaccines against serogroup B; **PCV13**: 13-valent pneumococcal conjugate vaccine; **PPSV23**: 23-valent pneumococcal polysaccharide vaccine; **y**: year(s).

Well-care visits and receipt of pneumococcal vaccine are associated with increased likelihood of MenACWY and MenB receipt

Independent variable	Receipt of ≥1 dose of **MenACWY** Asplenia HR (95% CI)	Receipt of ≥1 dose of **MenACWY** CD HR (95% CI)	Receipt of ≥1 dose of **MenACWY** HIV HR (95% CI)	Receipt of ≥1 dose of **MenB** Asplenia HR (95% CI)
Male (vs female)	1.24 (1.05–1.46)	-	2.72 (1.18–6.26)	-
11–18 (vs 2–10) years	-	4.52 (2.29–8.92)	-	-
≥19 (vs 2–10) years	0.21 (0.14–0.31)	0.14 (0.07–0.29)	-	-
≥19 (vs 10–18) years	-	-	-	0.34 (0.15–0.79)
≥56 years	-	-	0.42 (0.18–0.97)	-
Midwest (vs Northeast)	1.63 (1.20–2.22)	-	-	-
Midwest (vs South)	-	-	1.78 (1.16–2.71)	2.53 (1.19–5.41)
West (vs South)	-	-	2.24 (1.44–3.47)	2.57 (1.13–5.86)
Well-care visit	6.63 (4.84–9.09)	5.85 (1.96–17.43)	3.67 (1.11–12.12)	11.17 (3.02–41.26)
PCV13/PPSV23	26.02 (21.01–32.22)	3.19 (1.78–5.73)	23.03 (13.93–38.09)	3.89 (2.07–7.29)

Results from multivariable models. Blank cells indicate that the association was not significant. Other variables found to be significant in the asplenia model: index MenB ACIP age eligibility, year of index date, baseline influenza vaccination, baseline inpatient stay, baseline office visits, baseline pharmacy fills.
ACIP: Advisory Committee on Immunization Practices; **CD**, complement component deficiency; **CI**: confidence interval; **HCP**: health care practitioner; **HIV**: human immunodeficiency virus; **HR**: hazard ratio; **MenACWY**: meningococcal vaccines against serogroups A, C, W, Y; **MenB**: meningococcal vaccines against serogroup B; **PCV13**: 13-valent pneumococcal conjugate vaccine; **PPSV23**: 23-valent pneumococcal polysaccharide vaccine.

Plain Language Summary

Most patients with newly diagnosed high-risk conditions do not receive recommended meningococcal vaccinations, potentially remaining vulnerable to meningococcal disease.

Conclusions

- **Among newly diagnosed asplenia and CD patients, the association of MenACWY vaccination with age suggests confusion between routine age-based and high-risk recommendations, whereas the association of MenACWY and MenB vaccination with pneumococcal vaccines suggests that providers recognize the overlap in risk factors for IMD and pneumococcal disease.**
- **It is crucial to educate providers about MenACWY and MenB vaccination recommendations for high-risk patients and ensure health care access for these vulnerable patients.**

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Scan for handout, disclosures and references

PDF

SUPPLEMENTAL DATA

Meningococcal vaccination recommendations for persons at increased risk due to select medical conditions[2]

Risk group	MenACWY vaccine	MenB vaccine
Persons with functional or anatomic asplenia (including sickle cell disease)	Aged ≥2 months	Aged ≥10 years
Persons with complement component deficiency	**Aged ≥2 months**	**Aged ≥10 months**
Persons with HIV infection	Aged ≥2 months	No recommendation

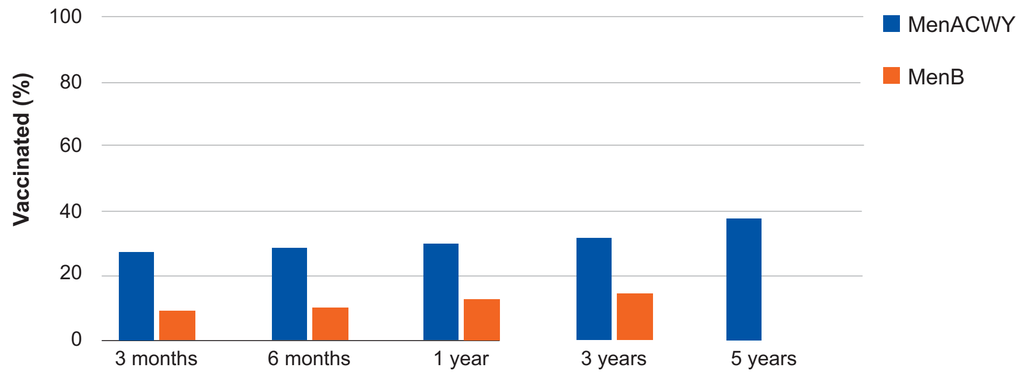
HIV: human immunodeficiency virus; **MenACWY**: meningococcal vaccines against serogroups A, C, W, Y; **MenB**: meningococcal vaccines against serogroup B.

Pneumococcal vaccination recommendations for persons at increased risk due to select medical conditions[3-5]

Risk group	Age	
Persons with functional or anatomic asplenia (including sickle cell disease, complement component deficiency, or HIV infection	2–5 (18) years[a]	PCV13 followed by PPSV23 ≥8 weeks later; or PPSV23 followed by PCV13 ≥8 weeks later
	6 – 8 (18) years	Pneumococcal vaccine naïve: PCV13 followed by PPSV23 ≥8 weeks later; or PPSV23 followed by PCV13 ≥8 weeks later
	≥19 years	Pneumococcal vaccine naïve: PCV13 followed by PPSV23 ≥8 weeks later; or PPSV23 followed by PCV13 ≥12 months later

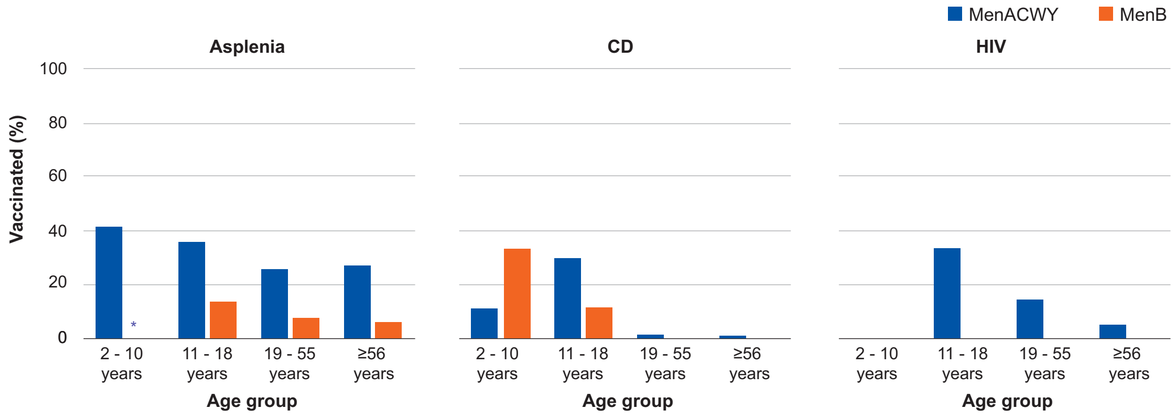
[a]Catch-up for children aged 6-18 if not previously vaccinated.
HIV: human immunodeficiency virus; **PCV13**: 13-valent pneumococcal conjugate vaccine; **PPSV23**: 23-valent pneumococcal polysaccharide vaccine.

Receipt of MenACWY and MenB vaccines among patients who had a total splenectomy are below 40% and 15%, respectively



Post hoc analysis.
MenACWY: meningococcal vaccines against serogroups A, C, W, Y; **MenB**: meningococcal vaccines against serogroup B.

Receipt of meningococcal vaccines vary with condition and age



*There were no 2-9 years old patients eligible for MenB.
CD: complement component deficiency; **HIV**: human immunodeficiency virus; **MenACWY**: meningococcal vaccines against serogroups A, C, W, Y; **MenB**: meningococcal vaccines against serogroup B.

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PRESENTING AUTHOR'S DETAILS

Parinaz K Ghaswalla, parinaz.k.ghaswalla@gsk.com, ORCiD: 0000-0002-2883-5590

DISCLOSURES

- Business & Decision Life Sciences platform provided editorial assistance and publications coordination, on behalf of GSK. Amandine Radziejwoski coordinated publications development and provided editorial support.
- PKG, PN, and CSH are employed by and hold shares in the GSK group of companies. LGB, ARB, TB, KMS, and EK are employees of Optum, which was contracted by the GSK group of companies to conduct this research. GSM reports involvement as an investigator and consultant for the GSK group of companies, Merck, Seqirus, Pfizer, and Sanofi Pasteur and also as a speaker for Pfizer and Sanofi Pasteur. The authors did not disclose any other financial or non-financial conflicts of interest.