

BACKGROUND

Metformin is the recommended first-line agent for Type 2 Diabetes in normal kidney function and is widely used.¹ Multiple studies have linked metformin to lower vitamin B₁₂ levels. Studies have shown that 7-30% of metformin-treated patients experience subnormal vitamin B_{12} levels and 6-10% develop vitamin B₁₂ deficiency.²⁻⁴ Longer duration of use and higher doses of metformin have been consistently associated with a greater risk of vitamin B_{12} deficiency. Consequences of vitamin B_{12} deficiency include macrocytic anemia and neurologic manifestations, which can mimic the signs and symptoms of diabetic peripheral neuropathy.⁵ In 2017, the American Diabetes Association (ADA) Standards of Medical Care in Diabetes Guideline introduced a recommendation for periodic vitamin B₁₂ monitoring in metformin-treated patients, especially those with anemia or peripheral neuropathy.¹ VA North Texas Health Care System (VANTXHCS) current practice recommends at least annual B_{12} monitoring for metformin-treated patients and supplementation for vitamin B_{12} <250 pg/mL. The impact of the ADA guideline recommendation and current compliance are unknown.

PRIMARY OBJECTIVE

To determine the impact of the ADA Standards of Medical Care in Diabetes Guideline recommendations of vitamin B_{12} monitoring in a veteran population on long-term metformin therapy.

OUTCOMES

- Primary:
- \circ Proportion of patients receiving vitamin B₁₂ levels in 2016 versus 2018 • Secondary:
- \circ Metformin effect on vitamin B₁₂ levels by dose and duration

Vitamin B₁₂ Levels

Deficient	Intermediate	Normal
<145 pg/mL	145-179 pg/mL	180-914 pg/mL

 \circ Amount of supplementation for low vitamin B₁₂ levels according to VANTXHCS current practice (<250 pg/mL) and local lab reference range (<170 pg/mL)

	METHODS		
	Inclusion Criteria	Exclusion Crite	
•	Diagnosis of Type 2	 ≤1 A1c in 2015 	
	Diabetes	 ≤80% PDC (proportion of 	
•	18 years or older	 Additional criteria for sub- 	
•	Active metformin	metformin dose and durat	
	prescription	Baseline anemia or B ₁₂ deficie	
•	New start metformin	 Documented medications or of 	
	prior to 2005	could impact vitamin B12 leve	

Evaluation of Vitamin B₁₂ Monitoring in Veterans with Type 2 Diabetes on Metformin Therapy

Haley A. Runeberg, Ashley M. Higbea, Rick A. Weideman, Carlos A. Alvarez Veterans Affairs North Texas Health Care System and Texas Tech University Health Sciences Jerry H. Hodge Center School of Pharmacy, Dallas, TX



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SULIS				
		Baseline Characteristics		
		Age (yrs), median	55	
		BMI (kg/m ²), median	31.65	
		Male, n (%)	85 (96.6)	
yses		Race, n (%)		
on		 Caucasian 	263 (66.8)	
		 African American 	81 (20.56)	
		• Hispanic	4 (1.01)	
		• Other	46 (11.67)	

	2016 (n=394)	2018 (n=3	94)
evel,	136 (34.5)	198 (5	0.3)
	OR 1.94	, P<0.001	
	3		3
	3		14
	130		181
	20		33

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Reason	
Diagnos for neur since sta Diagnos vitamin Prescribe docume Prescribe level <2 Total	
Vitamin E significar Association Patients of Patients of Metformin Lack of v mistreate References: 1. American E 2017;40(Ja 2. Aroda VR, Program O 3. Beulens JV cobalamin 4. de Groot-K its consequ 5. Langan RC Disclosure S personal relation	
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CONCLUSIONS

 B_{12} monitoring in 2018 for patients on metformin therapy tly increased after the release of 2017 American Diabetes *ion Standards of Medical Care in Diabetes* Guidelines were identified that had never received a vitamin B₁₂ level after in initiation (all pts on metformin at least 14 years) itamin B₁₂ monitoring can increase risk of patients being ed or misdiagnosed with neuropathy

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Statement: Authors of this presentation have nothing to disclose concerning possible financial or ionships with commercial entities that may have a direct or indirect interest in the subject matter of