



*Assessing the incidence, timing, and risk factors for vitamin B12 deficiency following cystectomy with urinary diversion*

William R Boysen, Yuan Wu, Leah Davis, Andrew C Peterson

Duke University Division of Urology  
Durham, NC USA

# Objectives and methods



- The use of ileum for urinary diversion following cystectomy is standard in modern practice, but the impact on B12 absorption remains unclear
  - We sought to characterize the incidence and timing of B12 deficiency among patients with urinary diversions at our institution
- With IRB approval, we queried our institutional electronic health record for all patients who underwent cystectomy with urinary diversion between 12/1997 and 10/2018
  - Excluded: Patients under age 18 or without 1 year follow up
  - Primary Outcome measure: B12 deficiency (defined as  $<300$  ng/L )

# Results and Conclusions



Total sample with urinary diversion, n	1228
Meeting inclusion criteria, n (%)	856 (69.7%)
Male, n (%)	611 (71.4)
Female, n (%)	245 (28.6)
BMI, median (IQR)	27.1 (24.1-30.4)
Follow up in months, median (IQR)	16 (15-41)
B12 Monitoring performed, n (%)	299 (34.9)
B12 Deficiency detected, n (%)	149 (49.8)
Duration to B12 deficiency, months	10 (3-24)

**B12 deficiency is common:**  
detected in **49.8%** of monitored patients

**More common in:**  
Older patients  
Continent diversions

In this large institutional series, B12 monitoring was performed infrequently but B12 deficiency was common (detected in nearly half of screened patients)

Patients of older age and with continent diversion had higher odds of developing B12 deficiency on UV analysis

Female gender increases the odds of developing B12 deficiency on MV analysis

Routine screening of patients for B12 deficiency following urinary diversion is warranted, with particular attention to females and those with continent diversions.

## On univariate regression analysis:

Lower age decreased the odds of developing B12 deficiency (OR 0.97, 95%CI 0.95-0.99, p=0.002)

Continent diversion increased odds of B12 deficiency (OR 2.02, 95% CI 1.06-3.99 p=0.04)

## On Multivariate regression analysis:

	<i>OR (95% CI)</i>	<i>p-value</i>
Age at surgery, years	0.97 (0.94-1.00)	0.063
Female gender (ref=male)	2.17 (1.04-4.52)	0.038
African American race (ref=Caucasian)	0.4 (0.14-1.13)	0.083
Continent diversion (ref=incontinent)	1.6 (0.68-3.73)	0.28
BMI	0.96 (0.90-1.01)	0.133