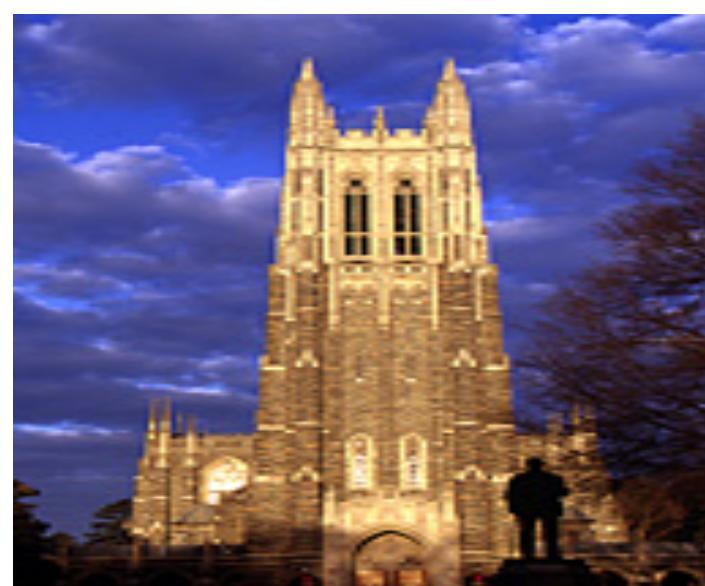




# Assessing the incidence, timing, and risk factors for vitamin B12 deficiency following cystectomy with urinary diversion



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## Introduction

- The use of ileum for urinary diversion following cystectomy is standard in modern practice, but the impact on B12 absorption remains unclear
- Cases of symptomatic B12 deficiency following urinary diversion are rare, but many centers continue to routinely monitor B12 levels in patients with urinary diversions
- We sought to characterize the incidence and timing of B12 deficiency among patients with urinary diversions at our institution

## Materials & Methods

- 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
- Patients under age 18 or without 1 year follow up were excluded
- Demographics, diversion type, and B12 assays were collected
  - B12 deficiency was defined as a value under 300 ng/L
- Descriptive statistics as well as univariable and multivariable logistic regression analysis were performed.

## Results

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

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

**Patients who developed B12 deficiency were: Younger (age 62.5 years versus 66.4, p=0.003)**

**More likely to have undergone continent diversion (19.5% versus 10.7%, p=0.049)**

**Gender, race, and BMI did not vary between groups**

**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:**

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

**Female gender increased the odds of B12 deficiency (OR 2.17, 95%CI 1.04-4.52, p=0.038)**

## Conclusions

- 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.