Introduction
Candidemia is common and associated with significant mortality and morbidity. Previous population-based studies in the 2000s and early 2010s have suggested that the incidence of candidemia might be increasing, presumably due to widespread use of central lines and broad-spectrum antibiotics. Recent trends of candidemia incidence have not been well described.

Study Objective
We aimed to describe temporal trends in the incidence of candidemia within the Veteran Health Administration (VHA) system from 2000 to 2017.

Materials and Methods
Study Design: Retrospective cohort study.

Data Source:
National electronic medical records data warehouse of VHA (Corporate Data Warehouse).

Study Population:
All patients who had a positive blood culture for Candida spp. at 130 VHA hospitals between January 2000 and December 2017. Number of unique patients for each month was calculated. Patient-days was used as a denominator (acute and long-term care combined), and the crude incidence rate was expressed as the number of unique patients with candidemia per 100,000 patient-days for each month.

Statistical Analyses:
Temporal trends were analyzed by joinpoint regression models to identify statistically significant changes in trend. All analyses were conducted by Joinpoint Trend Analysis Software Ver 4.6.0.0 from the National Cancer Institute.

Results
Table 1. Patient Population Demographics of Candidemia Cases and Patient-Days of 130 VHA Hospitals

<table>
<thead>
<tr>
<th>Year</th>
<th>n</th>
<th>Mean Age ±SD</th>
<th>Patient-Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-2002</td>
<td>2,996</td>
<td>60.7±14.3</td>
<td>15,826,262</td>
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<tr>
<td>2003-2005</td>
<td>4,199</td>
<td>61.3±14.1</td>
<td>13,715,076</td>
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<tr>
<td>2006-2008</td>
<td>4,029</td>
<td>61.6±14.3</td>
<td>12,763,705</td>
</tr>
<tr>
<td>2009-2011</td>
<td>6,029</td>
<td>61.7±14.6</td>
<td>12,482,456</td>
</tr>
<tr>
<td>2012-2014</td>
<td>1,980</td>
<td>62.1±14.9</td>
<td>11,724,469</td>
</tr>
<tr>
<td>2015-2017</td>
<td>1,444</td>
<td>62.8±15.1</td>
<td>10,934,741</td>
</tr>
</tbody>
</table>

Figure 1. Temporal Trends in Monthly Candidemia Incidence Rates from 2000 to 2017

Discussion
Incidence rates were increasing in the early 2000s and were relatively stable in the mid-2000s, followed by a sustained decline. Two statistically significant changes in slope were found in 9/2003 and 6/2007. The incidence rates during 2016-2017 were nearly one-third of their peak in the mid-2000s. The incidence rate of Candida albicans started to decline earlier than that of Non-albicans Candida species. Prevention efforts for healthcare-associated infections, such as hand hygiene, central-line associated bloodstream infection prevention bundle and increased use of fluconazole as prophylaxis are possible explanations of this decline.

Conclusions
In this large cohort of Candidemia over 18 years in the VHA system, there was a significant decline in incidence. There were two statistically significant changes in slope found in 9/2003 and 6/2007. Further study is needed to investigate etiologies of these changes in temporal trends to identify potential effective prevention approaches.