

Global prevalence of recurrent and chronic vulvovaginal candidiasis

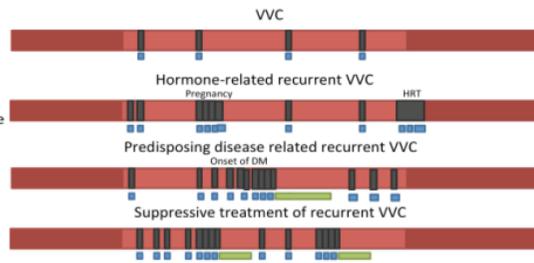
David W. Denning,¹ Matthew Kneale,² Riina Rautemaa-Richardson,^{2,3} Jack D. Sobel.⁴

¹Global Action Fund for Fungal Infections, Geneva; ²Wythenshawe Hospital, UK; ³University of Manchester, UK; ⁴Wayne State University, Michigan, USA



Introduction

- Between 50-75% of women develop vulvovaginal candidiasis (VVC) at least once in their lives.^{1,2}
- Recurrent VVC (rVVC) is defined as four or more episodes of confirmed VVC within 12 months.¹⁻³
- Pathogenesis is poorly understood: episodes of VVC may be triggered by antibiotic use, sexual activity, high carbohydrate diet, local or systemic corticosteroids. Often no predisposing factor can be identified.⁴
- RVVC occurs throughout reproductive life with a maximum prevalence between 25 and 34 years of age, although it is also associated with hormone replacement therapy (HRT). The new anti-diabetic agents, SGLT2 inhibitors promote glycosuria and increase VVC rates.
- RVVC is associated with considerable suffering, interference with sexual relations and cost.⁵ It has been calculated that rVVC results a mean of 33 lost work hours/year, costing €266-1,130 per woman.³
- To our knowledge no global estimation of the prevalence of this condition has been made.



Materials and Methods

- We set out to determine the global prevalence of rVVC using UN World Population Prospects (2012) data⁵ and existing literature:
 - ✓ Reports on women attending gynaecology or STD/GUM clinics (821 women from Australia, Belgium (Flemish), France, Germany, Iran, Italy, Nigeria, Spain, Tunisia, US and the UK).^{2-3,7-11}
 - ✓ One telephone survey where 2000 women from the US were interviewed.¹²
 - ✓ One international online omnibus survey with a VVC section (6000 people in the USA, France, Italy, Spain, Germany and the UK)¹
- These reports describe rVVC prevalence between 5-10% and the online omnibus survey of 9%.
- The women for the online survey were selected by age and demographic factors. Therefore, it provides least biased cross-sectional data, with the only potential biases from misdiagnoses by healthcare professionals and patient recollection.
- Hence for the purposes of this study we made an estimate of 6% prevalence in women between 15-64 years of age. We also made reduced estimates for 4.5% and 3% prevalence to compensate for possible 25% or 50% over-diagnosis.

Results

Fig 1: Global estimated case burden per 100,000 people (6% prevalence)

Global burden of recurrent vulvovaginal candidiasis (rVVC)

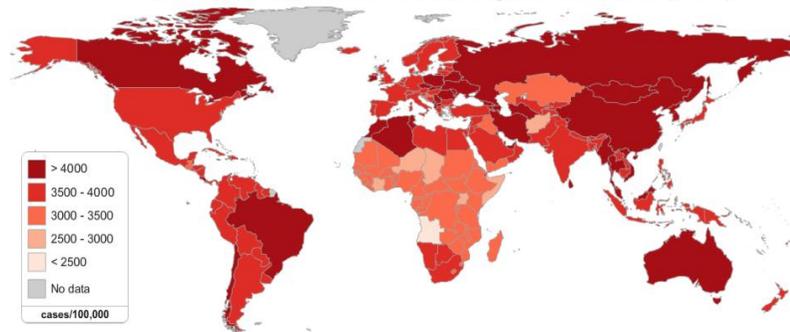
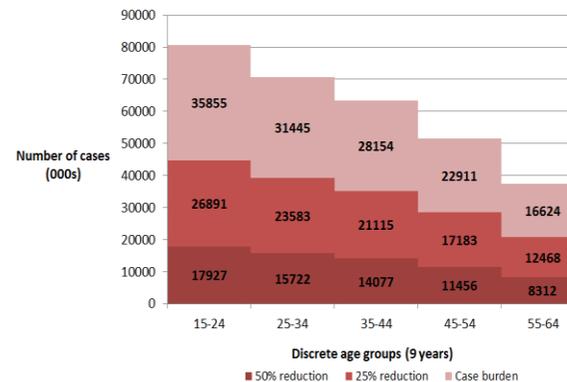


Fig 2: Base case of rVVC by age group with lower 4.5% and 3% estimates



- The 6% rate of rVVC in 15-64 year old women yields a global total burden of 134,988,103 patients (median 3,866/100,000).
- Assuming 25% over-diagnosis or reporting the a global total burden is 101,241,077 patients (2,900/100,000).
- Assuming 50% over-diagnosis or reporting the a global total burden is 67,494,051 patients (1,933/100,000).
- Based on our base case, an estimated increase in the World's at-risk population to 2.76 billion could result in over 23 million extra cases worldwide by 2030.

Fig 3. Global RVVC case burden (6%) and rates against the largest female populations

Country/region	Females	Females aged 15-64	Case burden (6%)	Rate
WORLD	3,439,987,865	2,249,801,715	134,988,103	3,866
China	655,638,410	482,760,273	28,965,616	4,418
India	581,880,874	376,680,712	22,600,843	3,884
USA	158,717,489	105,281,442	6,316,887	3,980
Indonesia	119,588,989	78,060,584	4,683,635	3,916
Brazil	99,108,777	67,102,026	4,026,122	4,062
Pakistan	84,222,853	51,122,437	3,067,346	3,642
Nigeria	78,512,362	41,885,861	2,513,152	3,201
Russian Federation	77,262,711	53,902,205	3,234,132	4,186
Bangladesh	74,390,700	47,651,469	2,859,088	3,843
Japan	65,317,763	40,345,013	2,420,701	3,706

Conclusions

- RVVC is a long term condition which can have significant medical consequences and impact on quality of life but its prevalence has been poorly documented across the world
- The global burden of RVVC is very high and comparable to that of depression (121 million people affected worldwide)
- Both the pathogenesis and natural history of rVVC is poorly understood and given its impact on women's health requires better solutions than are currently available.
- Additional population based surveys of rVVC are required, particularly in different ethnic groups as VVC and rVVC are reported as being more common in black women, as an example.

References

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