Evaluation of a Provider-initiated Cryptococcal Antigen Screen-and-Treat Program, South Africa

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Background

- Serum cryptococcal antigen (CrAg) screening can identify persons at risk for cryptococcal meningitis (CM) and pre-emptive antifungal treatment can prevent progression to CM.
- In 2011, WHO issued conditional recommendation for serum CrAg screening among ART-naïve HIV-infected persons with CD4<100 and pre-emptive fluconazole treatment,
- In August 2012, the Western Cape Province (WC), South Africa, implemented a large-scale province-wide, provider-initiated CrAg screening program.
- Providers at provincial clinics were sent a memo to order a serum CrAg test for patients with CD4 count <100 l initiating ART and treat asymptomatic CrAg-positive patients with fluconazole.; no further training was provided to providers.

Methods

We conducted a retrospective evaluation of the implementation and effectiveness of this program during September 1, 2012—August 31, 2013 by merging multiple pre-existing data sources

Data Sources:

- CD4 counts and CrAg test results: National Health Laboratory Service Data Warehouse
- ART status: WC provincial HIV program data
- Patient outcome data: nationwide CM surveillance program
- Fluconazole prescriptions: patient medical records

Data analysed for:

- Proportion of eligible patients screened for CrAg and treated pre-emptively
- Prevalence of CrAg positivity among screened population
- Incidence of CM among eligible patients screened and not screened for CrAg

Results

- Of 9,91 patients with CD<100 during the study period, 4395 were considered eligible for screening.
- Overall, 27% of eligible patients were screened in the first year of the screening program.
- Prevalence of CrAg positivity was 2.1% (24/1170)
- Treatment data available for 13/24 CrAg-positive patients; nine were treated with fluconazole.
- Incidence of CM was 0.8% in screened group compared with 1.5% in the not-screened group.

Figure 1: Incidence of CM among patients screened and not screened for CrAg, Western Cape, South Africa, 2012—2013

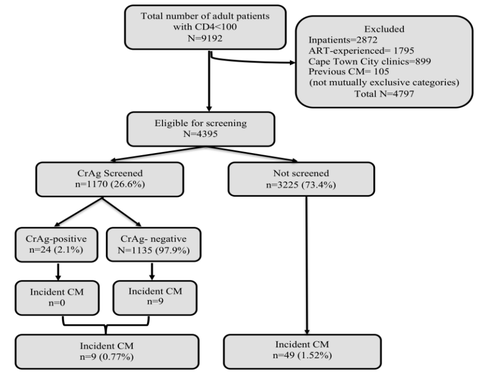
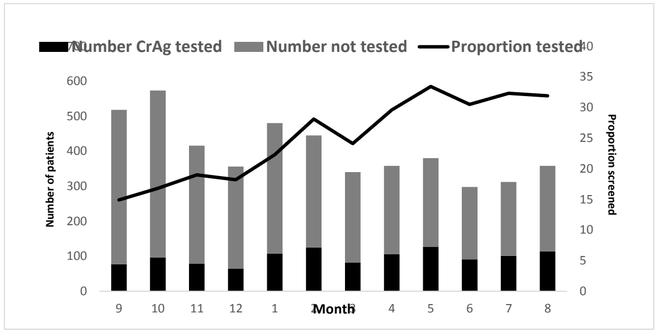


Table 1: Characteristics of patients eligible for CrAg screening, Western Cape, South Africa, 2012—2013

	CrAg screened (n=1151)	Not screened (n=3225)	P value
Female, n (%)	555 (48.2)	1649 (51.3)	0.02
Median age, years (IQR)	35.2 (29.6-41.4)	34.3 (29.3-40.8)	0.05
CM Incidence, n (%)	9 (0.8)	49 (1.5)	0.07
Median time to CM, days (IQR)	103 (69-119)	155 (70-262)	0.48
ART started, n (%)	853 (74.1)	1556 (48.3)	<0.001
Median time to ART, days (IQR)	24 (16-36)	33 (18-62)	<0.001

Figure 2: Proportion of eligible patients screened for CrAg /month, Western Cape, South Africa, September 2012—August 2013



Limitations

- Retrospective evaluation meant that intent of providers and reasons for screening and not screening unknown

Conclusions

- The coverage of provider-initiated CrAg screening in the WC was poor; only 1 in 4 eligible patients was screened, though the proportion screened increased over time. Providers may not be aware of guidance or may forget to screen.
- Although not statistically significant, there were half as many CM cases in the CrAg-screened group compared with those not screened; this may be a result of CrAg screening, pre-emptive fluconazole treatment and higher rate of ART initiation in the screened group.
- CrAg screening along with prompt ART initiation can reduce the CM burden, but needs to be implemented well.
- Laboratory-based reflex screening, where CrAg testing is automatically performed on CD4 test remnant blood without a provider order, would enhance screening rates, and should be considered where possible.

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