The changing epidemiology of rotavirus diarrhea in the context of universal vaccination in Brazil

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Figure 4: Attributable incidence of pathogen-specific moderate- to severe diarrhoea per 100 child-years by age stratum, all sites combined.

The bars show the incidence rates and the error bars show the 95% CIs.
BRAZIL

• ~ 202,000,000 inhabitants (IBGE, 2014)
• Large socio-economic differences

INTRODUCTION

16,983,485 inhabitants

53,081,510 inhabitants

14,993,194 inhabitants

27,665,289 inhabitants

84,465,579 inhabitants
OBJECTIVE

To describe epidemiological aspects of diarrhea disease (DD) in Brazil in the last 18 years (1996-2013) focusing on two major aspects:

i) the changing epidemiological picture of RVA infection, including genotype distribution;

ii) temporal trends and geographical differences in child mortality in Brazil.

MATERIAL AND METHODS

• **RVA Surveillance (1996-2013):** 20,419 patients with DD in 22 out of 27 Brazilian states;

• EIARA (Bio-Manguinhos®/RidaScreen®/Premier Rotaclone®) and polyacrylamide gel electrophoresis (PAGE);

• dsRNA viral extraction (Boom et al., 1990);

• RVA-positive samples were genotyped by semi nested RT-PCR

This project was approved by the Fiocruz Research Ethical Commission (CEP 311/06).
**RESULTS**

**Monovalent rotavirus A vaccine (RV1) coverage (%) in distinct Brazilian regions (2007 – 2013)**


Increased vaccination coverage (79.8% - 86.4%)
Specific diarrhea mortality rates in children aged less than 12 months in distinct Brazilian regions

Brazilian Ministry of Health databank

Laboratory-based group A rotavirus surveillance in Brazil, 1996-2013

- RVA was detected in 21.2% (4,334 /20,419) of the subjects;
- RVA detection rate decreased from 24.7% (2,708/10,952) in the period 1996-2005 (pre vaccination era) to 17.2% (1,626/9,467) between 2006 and 2013 (p<0.001) (post vaccination era).
RESULTS

Rate of detection of distinct group A rotavirus G-genotypes by year from 1996 to 2013

Pre vaccination era

Post vaccination era

G1
G2
G3
G4
G5
G9

P4
P6
P8
CONCLUSIONS

- Increased RV1 vaccination coverage (79.8% - 86.4%);
- A reduction in the prevalence of RVA infection in patients with DD;
- The decrease in RVA-detection rates was not uniform, the great reduction on RVA prevalence was observed in the Southern and Southeastern regions;
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