

# Diarrhoea in the travelling child

anders pærregaard

Montezumas revenge  
Delhi belly

# Hvor har du været på din ferie ?

- På arbejde, men en dag var vi i Zoo
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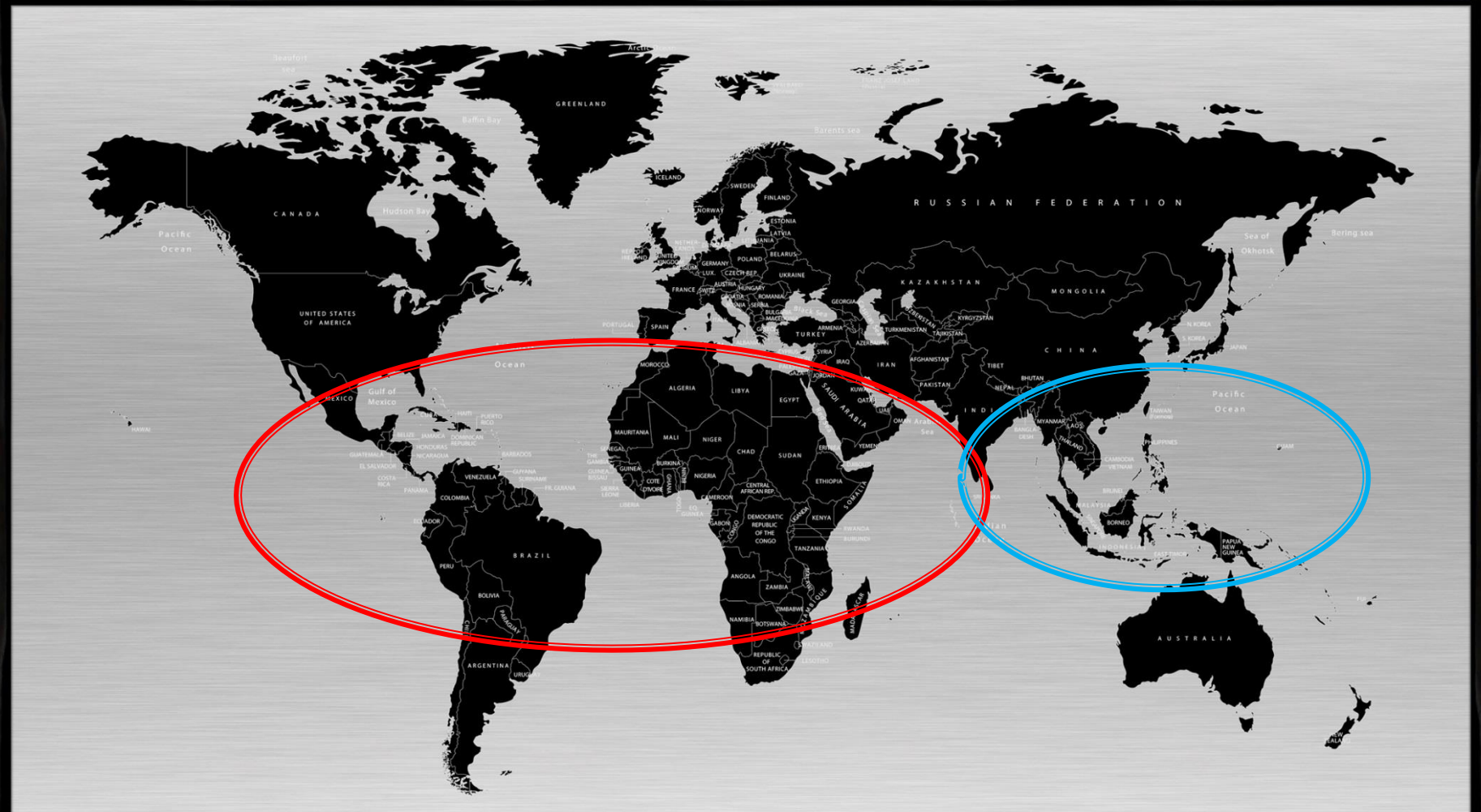
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# Vi rejser gerne

- > 1 mia international travellers per year
- 300 mio travellers from industrialised countries to countries with low sanitary conditions



**Det har sin pris at hvile under  
sydens palmer:**

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# Det har sin pris at hvile under sydens palmer:

## *diarrhoea*

- Adults: 20-60%
- Children:
  - 1991: 40%
  - 2007: 21%





# Etiology

Table 2. Identification of enteric pathogens from patients with TD by conventional detections, data obtained from 11 published literatures<sup>3,4,6-15</sup> between 2010 and 2016

Enteric pathogens	Latin America	Southeast Asia
No bacterial pathogens	28%	35%
Bacterial pathogens	72%	80%
Single pathogens	34%	41%
EAEC	38%	17%
ETEC	42%	28%
<i>Shigella</i>	4%	13%
<i>Campylobacter</i>	2%	16%
<i>Salmonella</i>	2%	5%
Norovirus	10%	3%
<i>Giardia</i>	3%	9%
<i>Cryptosporidium</i>	4%	2%

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# Giardiasis



# Etiology

**TABLE 2. Bacterial findings in 382 returning travellers | criteria<sup>1</sup>**

		Ongoing TD at time of sampling	No TD at time sampling
	Total	Ongoing TD	Asymptomatic
	n (%)	n (%)	n (%)
Total:	382	115 (30)	135 (35)
Any bacterial pathogen	287 (75)	96 (83)	82 (61)
Two or more pathogens	152 (40)	61 (53)	34 (25)
Diarrhoeagenic	277 (73)	95 (83)	81 (60)
<i>E. coli</i> (DEC)			
EPEC	174 (46)	63 (55)	57 (42)
EAEC	171 (45)	58 (50)	38 (28)
ETEC	76 (20)	42 (37)	12 (9)
EHEC	34 (9)	7 (6)	10 (7)
Non-DEC	36 (9)	12 (10)	4 (3)
<i>Campylobacter</i>	26 (7)	9 (8)	1 (1)
<i>Salmonella</i>	29 (2)	3 (3)	3 (2)
EIEC/ <i>Shigella</i>	3 (1)	1 (1)	0 (0)
<i>Vibrio cholerae</i>	0 (0)	0 (0)	0 (0)
<i>Yersinia</i> spp.	0 (0)	0 (0)	0 (0)



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# The disease

- Acute watery diarrhoea (+pain, +/- fever)
- Dysentery (urge, pain, blood, fever)
- (Viral gastroenteritis: vomiting and diarrhoea)

Usually lasting 3-5 days

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Risk of postinfectious IBS

# Changes over time

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*"Cook it, peel it, or leave it"*

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- 1980'ies: Flouroquinolones
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  - Prophylaxis:

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- 1960-70'ies: Identification of pathogens
- 1970'ies: Treatment not recommended
- 1980'ies: Tetracycline or TMP-SMX
- 1980'ies: Flouroquinolones
  - Treatment: 3 days, 1 day, 1 dose
  - Prophylaxis: **microbiologists only**

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(SE Asia, Thailand)

# Changes over time

- 1990'ies: E.coli: resistance to flourokinolones  
(SE Asia more than South America)
- 1990'ies: Azithromycin
- 2000'ies: Campylobacter: res. to flourokinolones  
(SE Asia, Thailand)
- 2000'ies: Rifaximine
  - treatment
  - prophylaxis

# What to do about it ?

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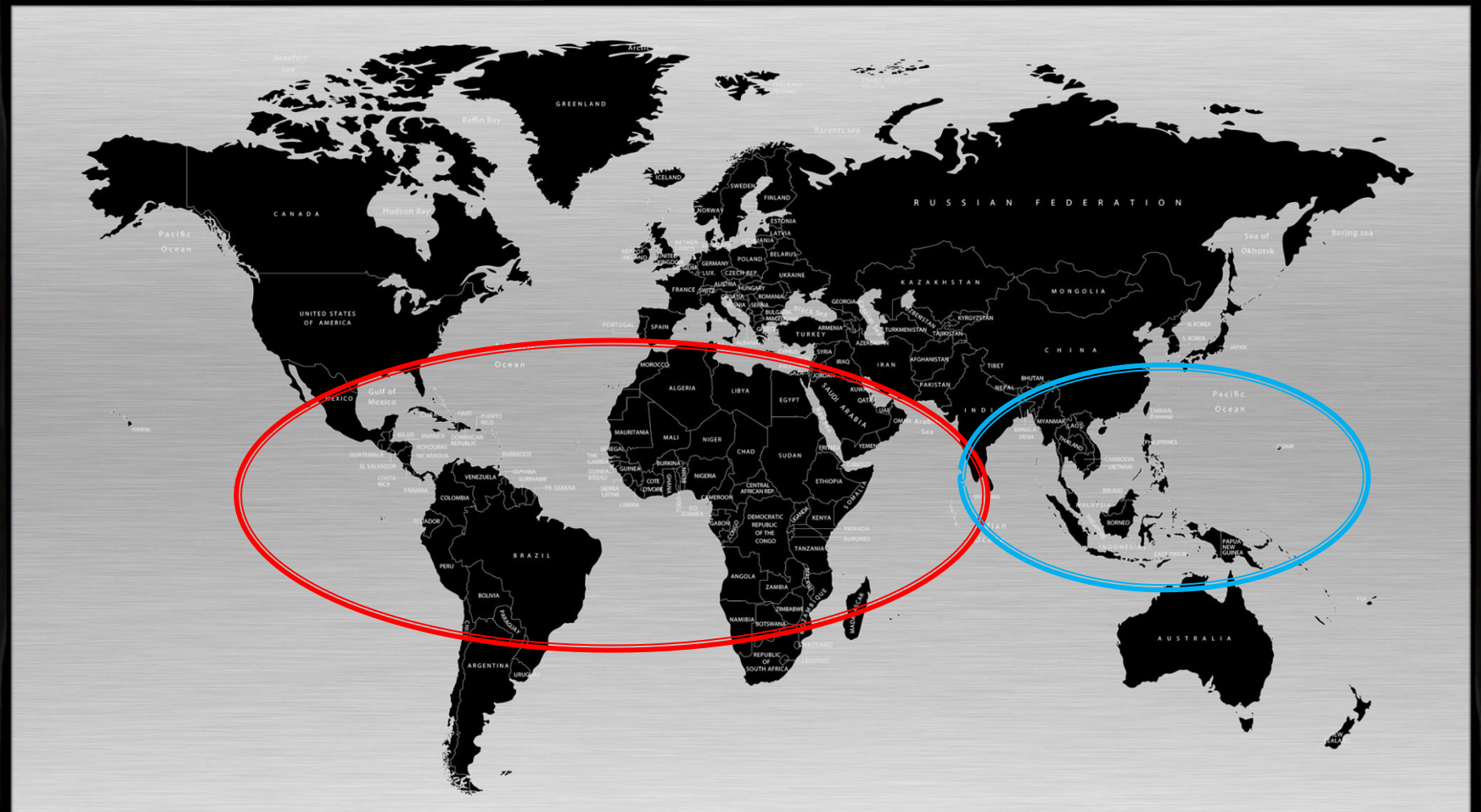
- Remember ORS and clean water
- Remember other diagnoses than TD



# What to do about it ?

## Mild disease

- Nothing
- Loperamide ?



# What to do about it ?

## Treatment

SE Asia	South Am Africa
AZM	FLOU
RIF	RIF

# What to do about it ?

## Treatment

SE Asia	South Am Africa
<b>AZM</b> 1000 mg once or 500 mg x1 for 3 days	<b>FLOU</b> 500 mg once 500 mg twice 500 mg x2 for 3 days
<b>RIF</b> 200 mg x3 for 3 days	<b>RIF</b> 200 mg x3 for 3 days

# What to do about it ?

**Treatment**

SE Asia	South Am Africa
AZM	FLUQU
<b>+ loperamide ?</b>	
500 mg x1 for 3 days	500 mg x2 for 3 days
RIF 200 mg x3 for 3 days	RIF 200 mg x3 for 3 days

# What to do about it ?

## Prophylaxis

Immune status	SE Asia	South Am Africa
Normal	-	-
Incompetent	RIF	FLUO (RIF)
Microbiologists		

# What to do about it ?

## Prophylaxis

Immune status	SE Asia	South Am Africa
Normal	-	-
Incompetent	RIF	FLUO (RIF)
Microbiologists	Certainly not	Certainly not

# What to do about it ?

## Prophylaxis

Immune status	SE Asia	South Am Africa
Normal	-	-
Incompetent	RIF	FLUO (RIF)

Probiotics ?



# Risk of antibiotics

- Adverse effects
- May predispose til TD
- May predispose til C.difficile
- May disrupt the gut microbiome

# Vaccines

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- Oral Cholera vaccine (ETEC)
- Oral Rotavirus vaccine

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Far og mor sidder i stuen og streamer Games of Thrones eller er ved at stille Matadorspillet op