WORKSHOP NEONATOLOGY

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Comite de Imunizaçao da Sociedade Brasileira de Infectolgia

Neonatal Care

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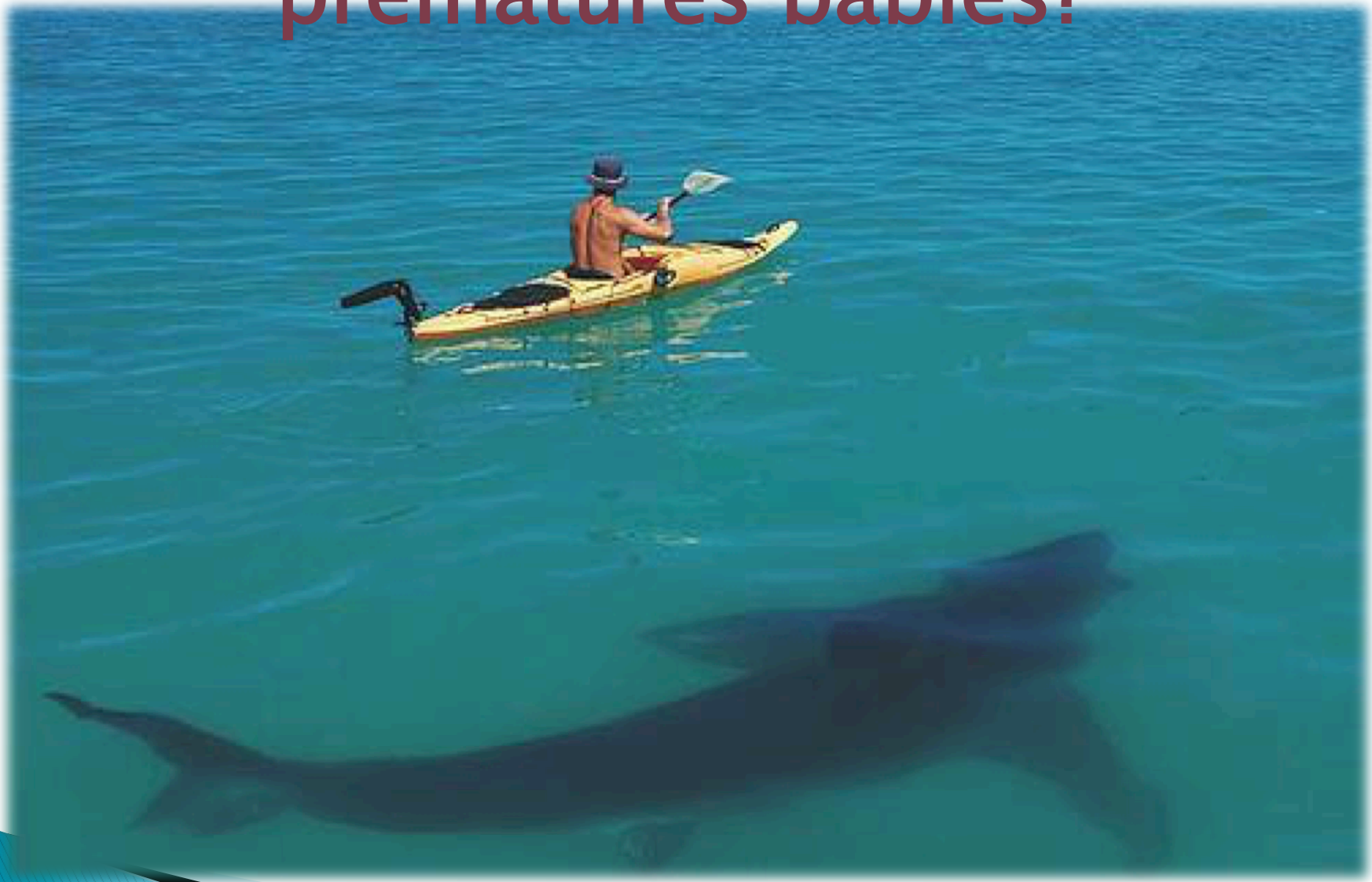
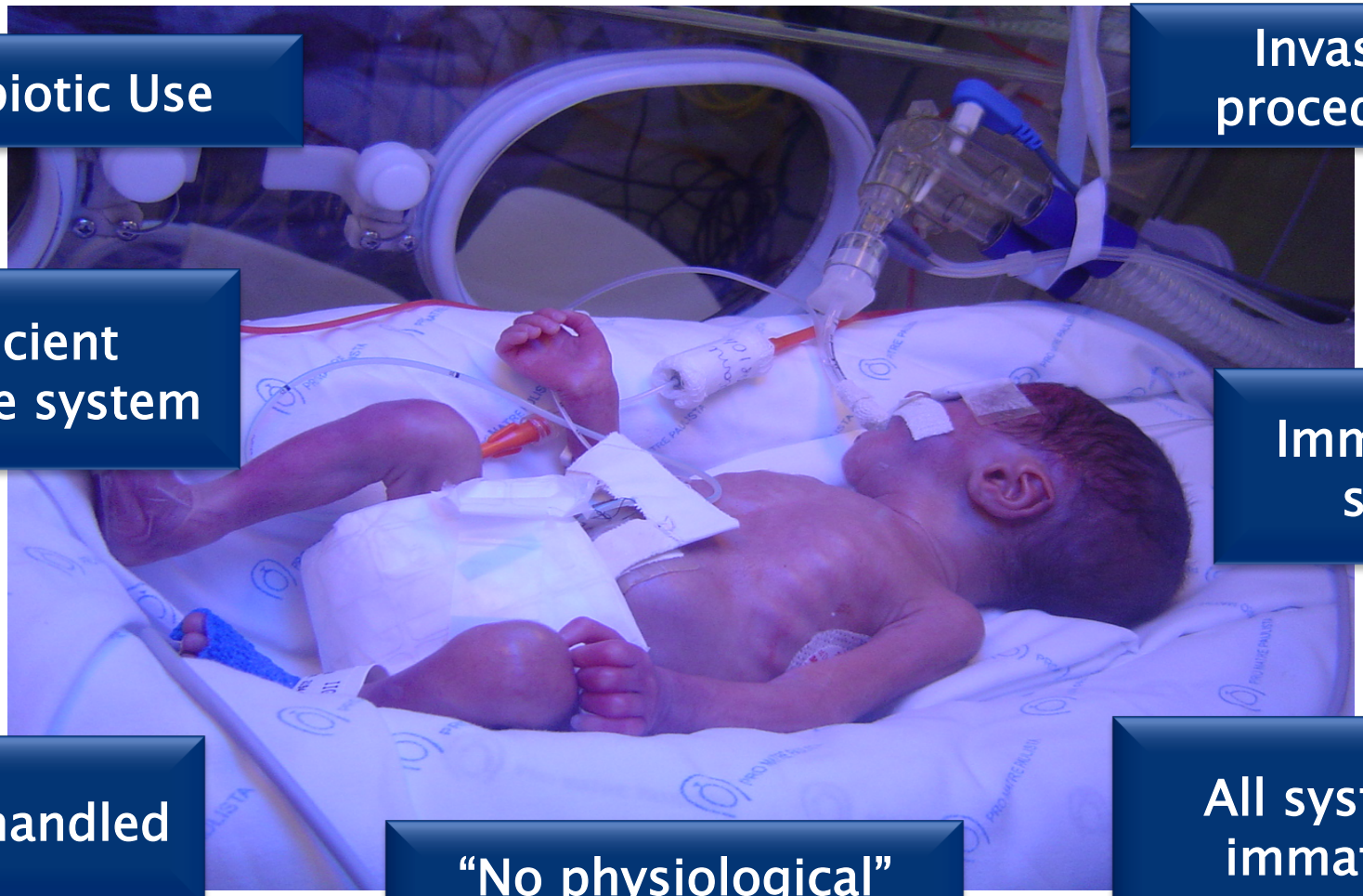
What are the challenges of the prematures babies?



Our client... The PRETERM BABY



Antibiotic Use

Invasive procedures

Deficient immune system

Immature skin

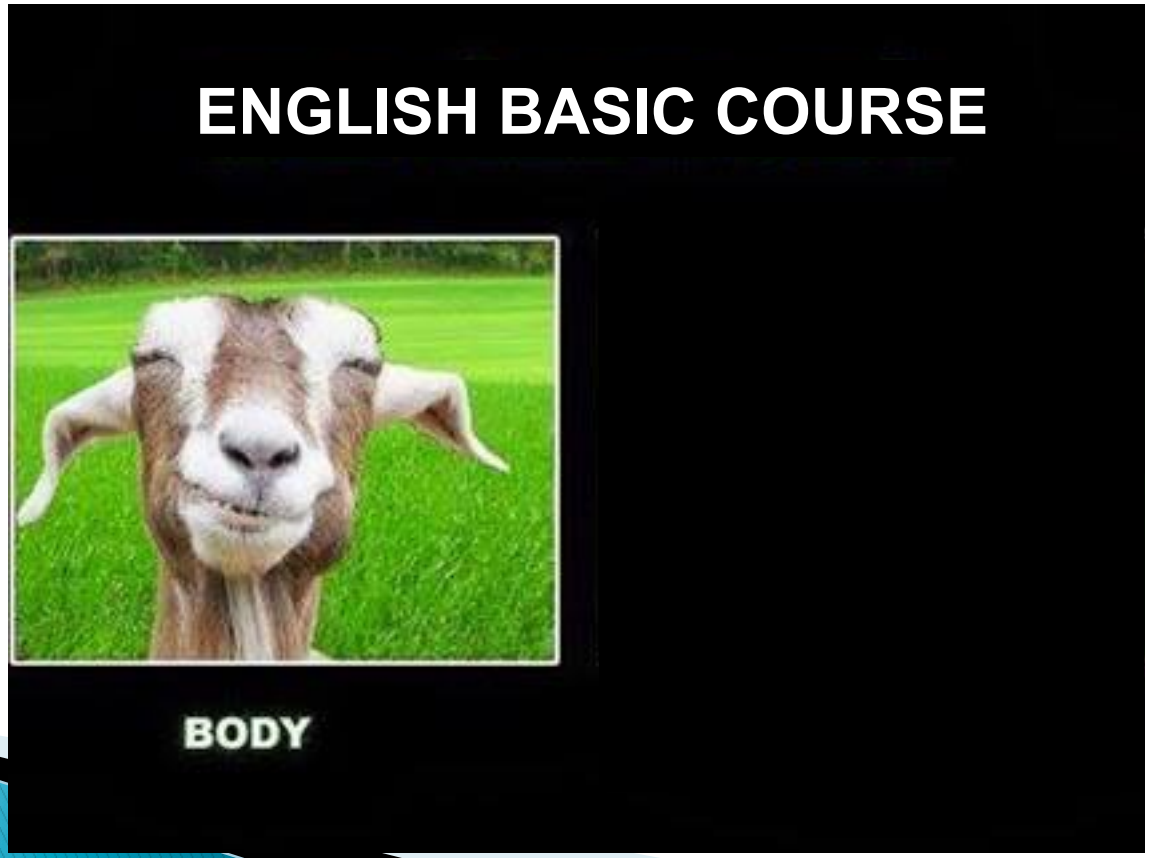
Highly handled

"No physiological" colonization

All systems immature

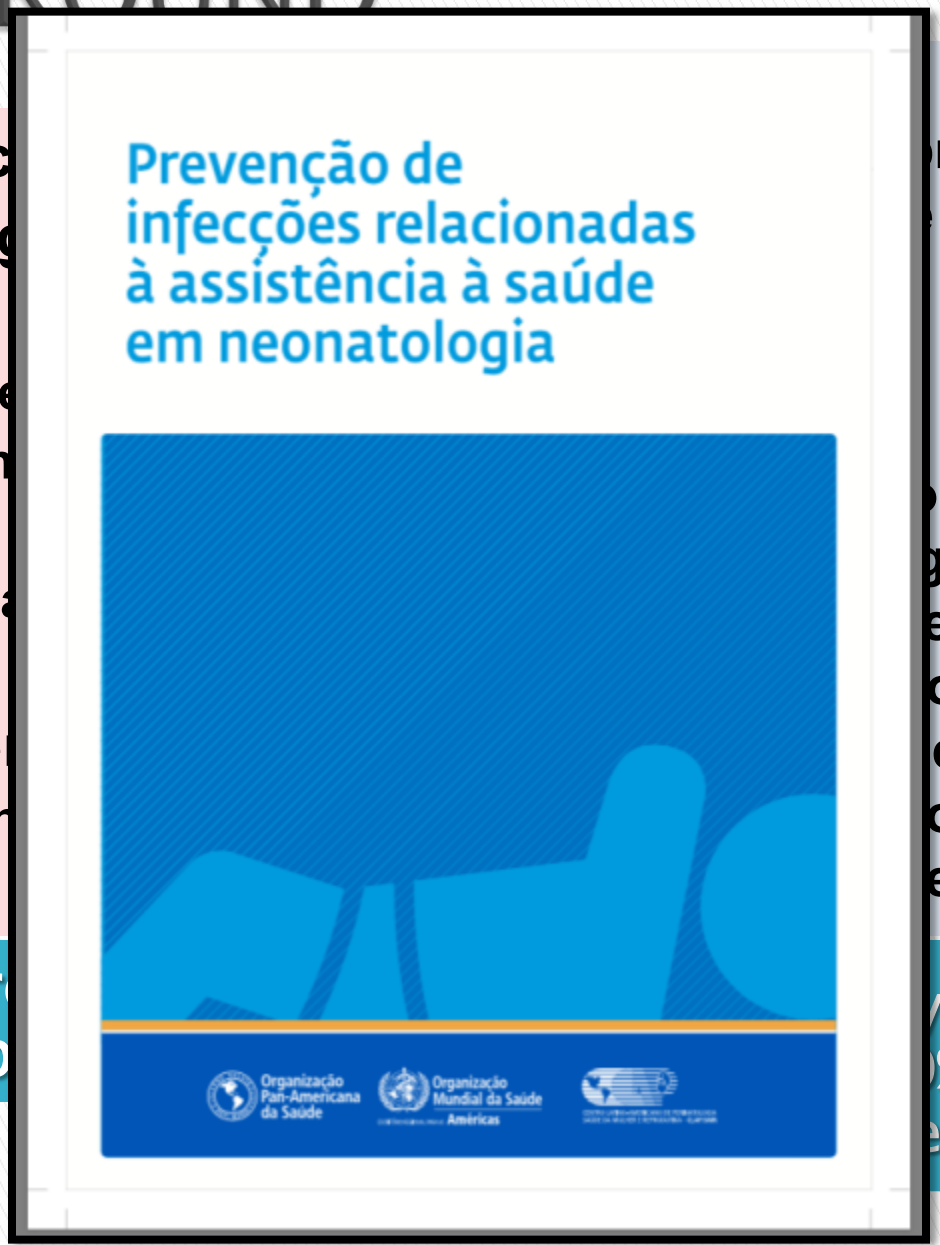
Agenda for this WORKSHOP

- DISCUSSION WITH "YOU"
- INTERACTION WITH "YOU"



BACKGROUND

- Surveillanc
- Microbiolog
- Prevention
  - Hand hygie
  - Precaution
  - Protocols
  - Catheter ca
  - Education
- Manageme
  - GBS proph



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use in ELBW

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What we alr
and MUST p

know, BUT…
% agreement
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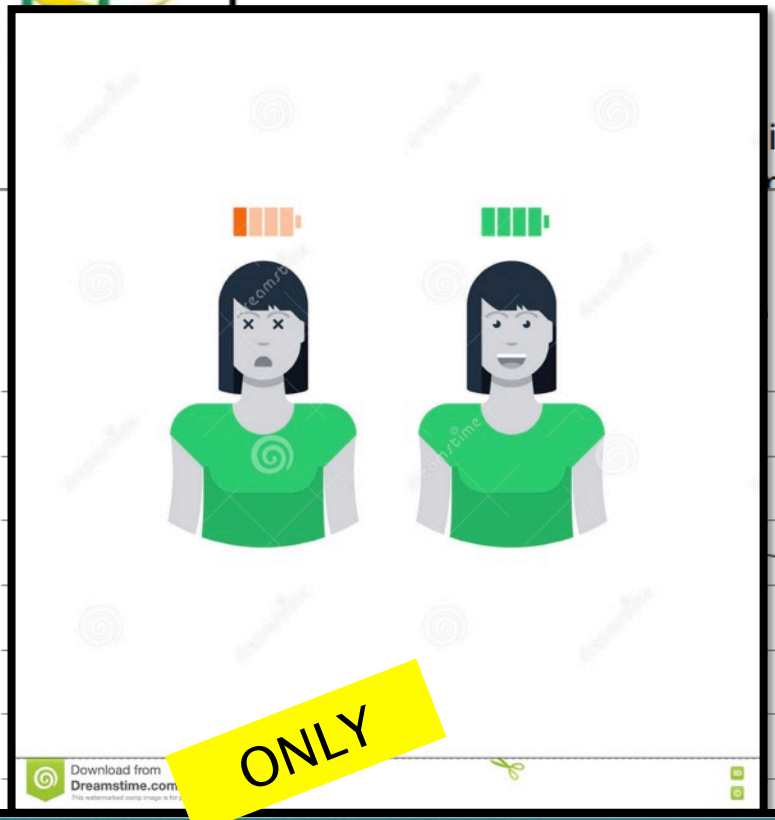
ONLY
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Qual remédio que avisa quando você está bebado?
PARACETAMAL


DON'T COMPARE YOURSELF TO OTHERS.
COMPARE YOURSELF TO
THE PERSON FROM
YESTERDAY.

IH / 1000 RN-dia
12
10
8
6
4
2
0
6,6
2013
2014
2015

DAILY Microbiological REPORT

MatrixMiddleware

SANTA JOANA

20161106

ALA A 5º ANDAR

Requisição	Data	Nome Paciente	Material	Status	Resultado
875918904	02/11/2016	ANA CLARA DE SOUZA AMERICO	URINA	FINAL	NEGATIVO
877115402	05/11/2016	TATYANNA ALVES NASCIMENTO MATOS	SECREÇÃO ANAL/ VAGINAL	FINAL	POSITIVO PARA STREPTOCOCCO BETA HEMOLÍTICO DO GRUPO B (S. AGALACTIAE)

ALA A 6º ANDAR

Requisição	Data	Nome Paciente	Material	Status	Resultado
876973701	04/11/2016	ELIZABETH SARA PEREIRA	ANAL/VAGINAL	FINAL	NEGATIVO PARA STREPTOCOCCO BETA HEMOLÍTICO DO GRUPO B (S. AGALACTIAE)

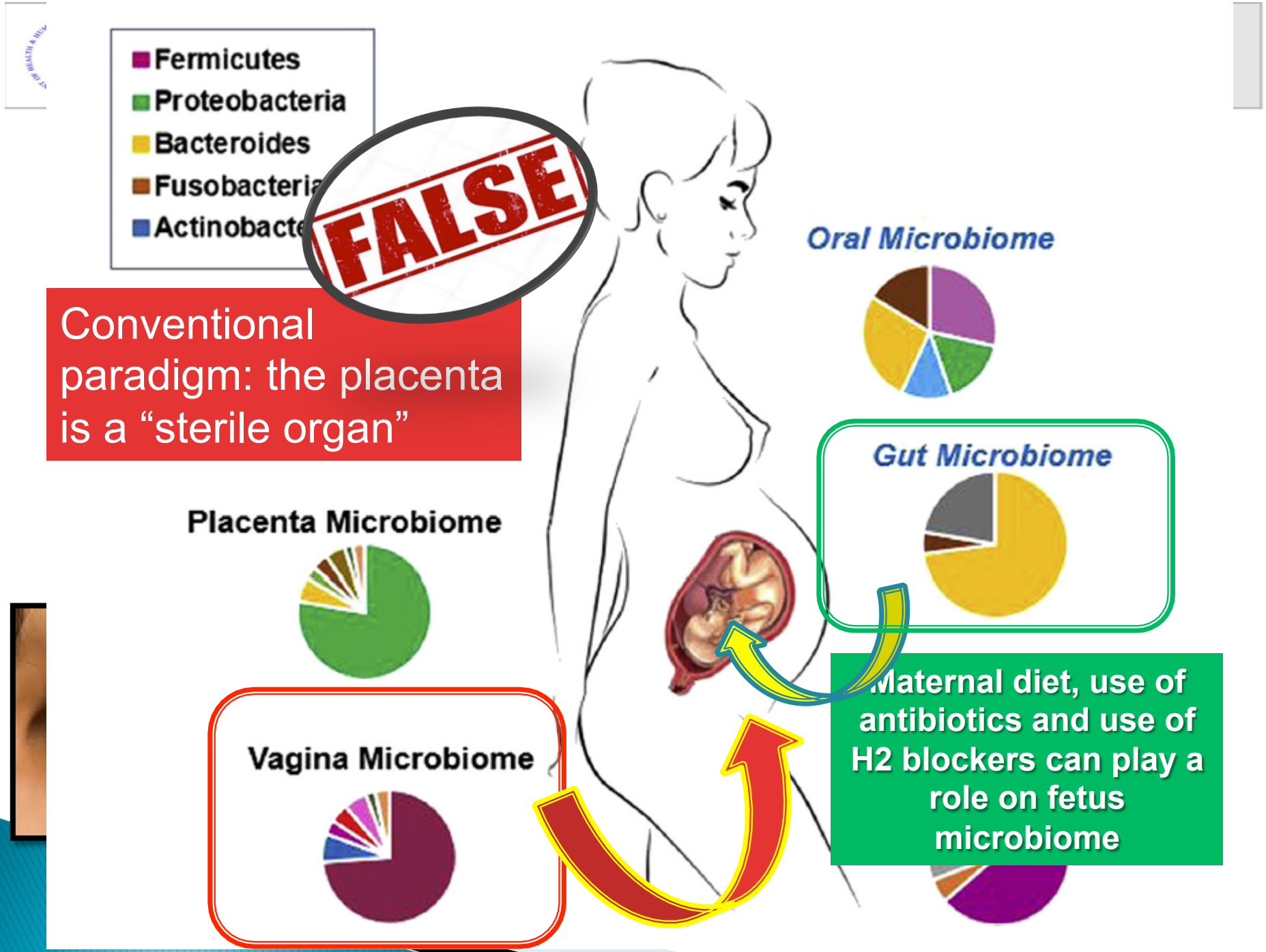
ALA B 4º ANDAR

Requisição	Data	Nome Paciente	Material	Status	Resultado
875556603	01/11/2016	NATASHA DELCILIO DA SILVA	URINA	FINAL	NEGATIVO
875592205	02/11/2016	SANDY NEPOMUCENO JUCA	URINA	FINAL	ESCHERICHIA COLI
876111601	02/11/2016	MERCEDES MARILOLI BUSTILLOS IRAHOLA	URINA	FINAL	NEGATIVO

ALA B 5º ANDAR

Requisição	Data	Nome Paciente	Material	Status	Resultado
875549301	01/11/2016	VALERIA DARC BOTELHO DE OLIVEIRA	SECREÇÃO ANAL/VAGINAL	FINAL	NEGATIVO PARA STREPTOCOCCO BETA

Microbiological Diagnosis


Fermicutes
Proteobacteria
Bacteroides
Fusobacteria
Actinobacte
FALSE
Conventional paradigm: the placenta is a “sterile organ”
Oral Microbiome
Gut Microbiome
Placenta Microbiome
Vagina Microbiome
Maternal diet, use of antibiotics and use of H2 blockers can play a role on fetus microbiome

C-section X vaginal delivery?

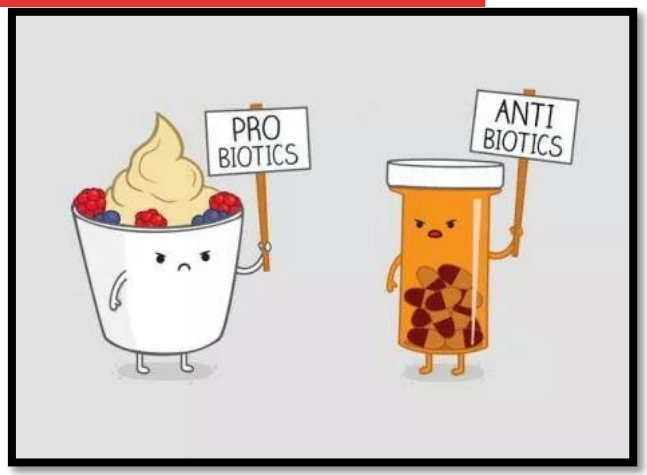
- Infants born via C-section: **microbial flora** similar to **environmental** microbes
- Infants born vaginally: **intes**
  similar to the
- **MICROBIOME I**
  NEW
  FOR
  and
- **Microbiome? What does it means?**
  ...ence in microbial ...mbos...n is important because **comm** ...development of the **infant's**
- Infants born by ... of age to colonize the co...
- Infants born via ...ne to future childhood dise... ...sthma and celiac disease.

#IWANNAMAMMY'SMICROBIOME

PREVENTING INFECTION X RISK FACTORS

- Parents skin
- Feeding type
- Environmental Surfaces, Nursing Workspaces and Caregiving Equipment
- Health Care Provider Skin
- Antibiotic Use

Prebiotics and Probiotics



Systematic Review and Meta-Analysis

Study or subgroup	Experimental, *n* events	Experimental, *n* total	Control, *n* events	Control, *n* total	Weight, %	Risk ratio M-H, fixed (95% CI)
Al-Hosni [19], 2012 (USA)	2	50	2	51	0.8	1.02 [0.15, 6.96]
Bin-Nun [20], 2005 (Israel)	1	72	10	73	3.9	0.10 [0.01, 0.77]
Braga [21], 2011 (Brazil)	0	119	4	112	1.8	0.10 [0.01, 1.92]
Costeloe [22], 2016 (UK)	61	650	66	660	25.6	0.94 [0.67, 1.31]
Dani [23], 2002 (Italy)	4	295	8	290	3.2	0.49 [0.15, 1.61]
Demirel [24], 2013 (Turkey)	6	135	7	136	2.7	0.86 [0.30, 2.50]
Dilli [25], 2015 (Turkey)	2	100	18	100	7.0	0.11 [0.03, 0.47]
Dutta [26], 2015 (India)	1	38	0	35	0.2	2.77 [0.12, 65.82]
Fernandez-Carrocera [27], 2013 (Mexico)	6	75	12	75	4.7	0.50 [0.20, 1.26]
Fuji [28], 2006 (Japan)	0	11	0	8		not estimable
Hays [29], 2015 (France)	8	145	3	52	1.7	0.96 [0.26, 3.47]
Jacobs [30], 2013 (Australia and New Zealand)	11	548	24	551	9.4	0.46 [0.23, 0.93]
Kanic [31], 2015 (Slovenia)	0	40	5	40	2.1	0.09 [0.01, 1.59]
Lin [32], 2005 (Taiwan)	2	180	10	187	3.8	0.21 [0.05, 0.94]
Lin [33], 2008 (Taiwan)	4	217	14	217	5.5	0.29 [0.10, 0.85]
Manzoni [34], 2006 (Italy)	1	39	3	41	1.1	0.35 [0.04, 3.23]
Manzoni [35], 2009 (Italy)	0	151	3	168	1.3	0.16 [0.01, 3.05]
Manzoni [36], 2014 (Italy)	0	238	5	247	2.1	0.09 [0.01, 1.70]
Mihatsch [37], 2010 (Germany)	2	91	4	89	1.6	0.49 [0.09, 2.60]
Oncel [38], 2014 (Turkey)	8	200	10	200	3.9	0.80 [0.32, 1.99]
Patole [39], 2014 (Australia)	0	77	1	76	0.6	0.33 [0.01, 7.95]
Rojas [40], 2012 (Colombia)	6	176	10	184	3.8	0.63 [0.23, 1.69]
Rougé [41], 2009 (France)	2	45	1	49	0.4	2.18 [0.20, 23.21]
Saengtawesin [42], 2015 (Thailand)	1	31	1	29	0.4	0.94 [0.06, 14.27]
Samanta [43], 2009 (India)	5	91	15	95	5.7	0.35 [0.13, 0.92]
Sari [44], 2011 (Turkey)	6	110	10	111	3.9	0.61 [0.23, 1.61]
Serce [45], 2013 (Turkey)	7	104	7	104	2.7	1.00 [0.36, 2.75]
Tewari [46], 2015 (India)	0	123	0	121		not estimable
Totsu [47], 2014 (Japan)	0	153	0	130		not estimable
Total (95% CI)		**4,304**		**4,231**	**100.0**	**0.57 [0.47, 0.70]**
Total events	146		253			

Heterogeneity: $\chi^2 = 32.27$, df = 25 ($p = 0.15$), $I^2 = 23\%$

Test for overall effect: Z = 5.57 ($p < 0.00001$)

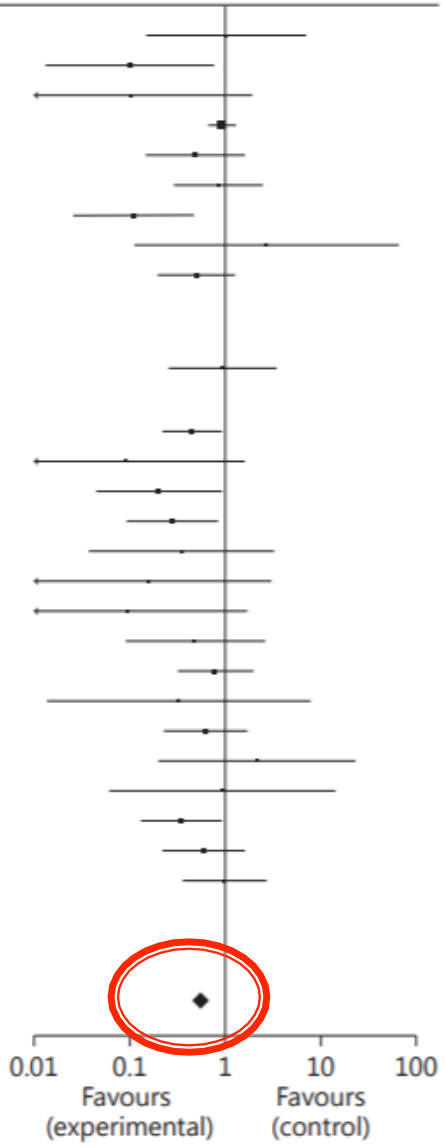


Fig. 1. Effects of probiotics on severe NEC (stage II–III) in RCT studies.

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Infect Control Hosp Epidemiol. 2016 April ; 37(4): 381–387. doi:10.1017/ice.2015.316.

Active Surveillance Cultures and Decolonization to Reduce NICU *Staphylococcus aureus* Infections

Victor O. Popoola, MBBS MPH Sc.M[1], Elizabeth Colantuoni, PhD[2], Nuntra Suwant

S aureus: 2nd most common cause of late-onse sepsis in the NICU

- **High morbidity and hard to treat!**
- **Current recommendations that work +/**
  - identifying colonized neonates (Who ar)
  - Place them under contact precaution (we do not have enough "SPACE" for everyone and no likes this measure – HCW, parents

orns and HC

MRSA!

MSSA?

MSSA: 2,5 x more frequent than MRSA and same morbidity and mortality!

What they

Before h and

e for MR

sal swab

+

tion: Mu

vith 2% chlorhexidine

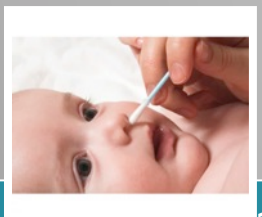
(48h / 48h),> 36w or> 4w, and if> 2m of life daily

What did they find?

- Pre intervention:
  - 1523 admitted NB (29,220 pat-d)

- Post intervention:
  - 1195 admitted NB (22,045 pat-d)
  - 899 (75.2%) MSSA screened
  - 89 (MSSA +)
  - 72 (78.7% = decolonization + bath

MSSA incidence

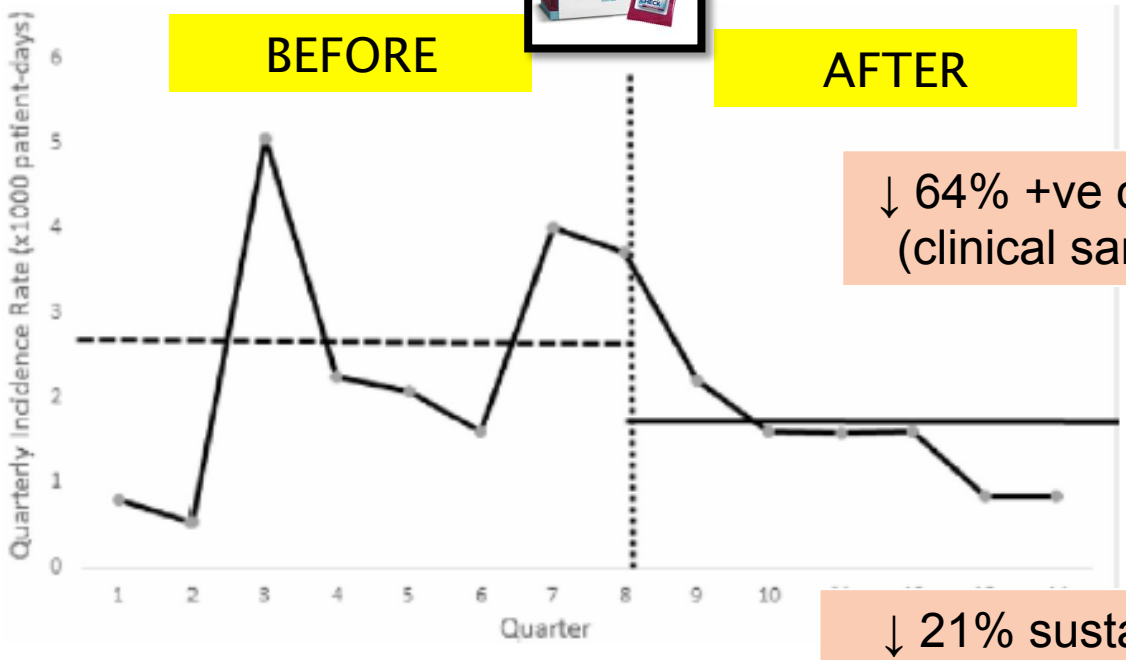


3.62/1000pat-d

1.02/1000pac-d

BEFORE

AFTER



↓ 64% +ve cultures (clinical samples)

↓ 21% sustained each 3m

Figure 1.
Mean quarterly incidence of MSSA before and after implementation of an ASC and decolonization protocol. The dashed, horizontal and solid, horizontal lines represent the incidence rate of MSSA averaged over the pre- and post-intervention periods respectively and the dotted, vertical line (beginning of the 9th study quarter) marks the start of the intervention.

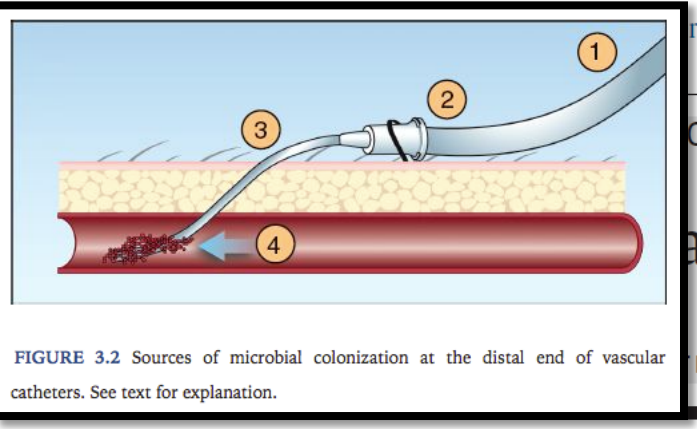


FIGURE 3.2 Sources of microbial colonization at the distal end of vascular catheters. See text for explanation.

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Contents lists available at ScienceDirect

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nal homepage: www.ajicjournal.or

State of the Science Review

Clinical usefulness of catheter-drawn blood samples and catheter tip cultures for the diagnosis of catheter-related bloodstream infections in neonatology: A systematic review

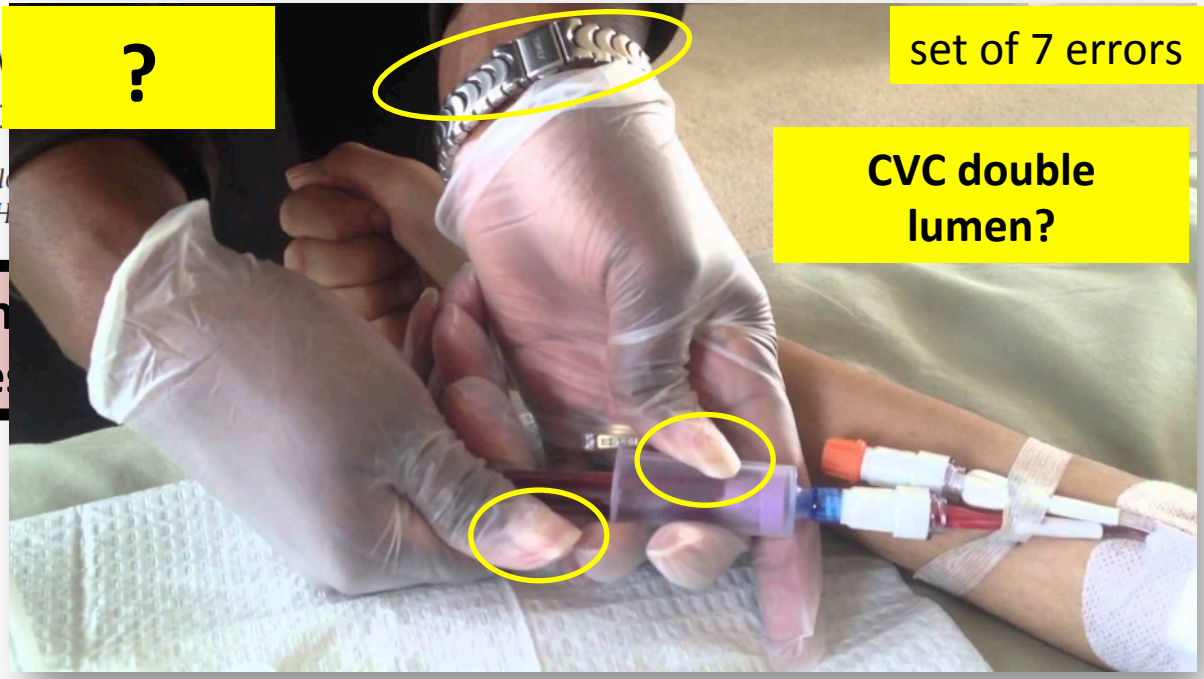
Janita Ferreira MPH [a,*], Paulo Augusto M
Wanessa Trindade Clemente PhD [b], Rob

[a] Hospital das Clínicas da Universidade Federal de Minas Gerais, Bel
[b] Faculdade de Medicina da universidade Federal de Minas Gerais, H

What they did?

What did they find?

A system studie



What did they find?

CVC tip cultures and cultures of catheter fragments:
S: 58.5%-100% and Specificities: 60%-95.7%.

CVC-drawn blood cultures + paired with peripheral blood cultures:
S: 94% and specificity 71% when evaluated for the differential time to positivity
Quantitative evaluation: S= 80% Sp= 99.4%

FOR DISCUSSION!

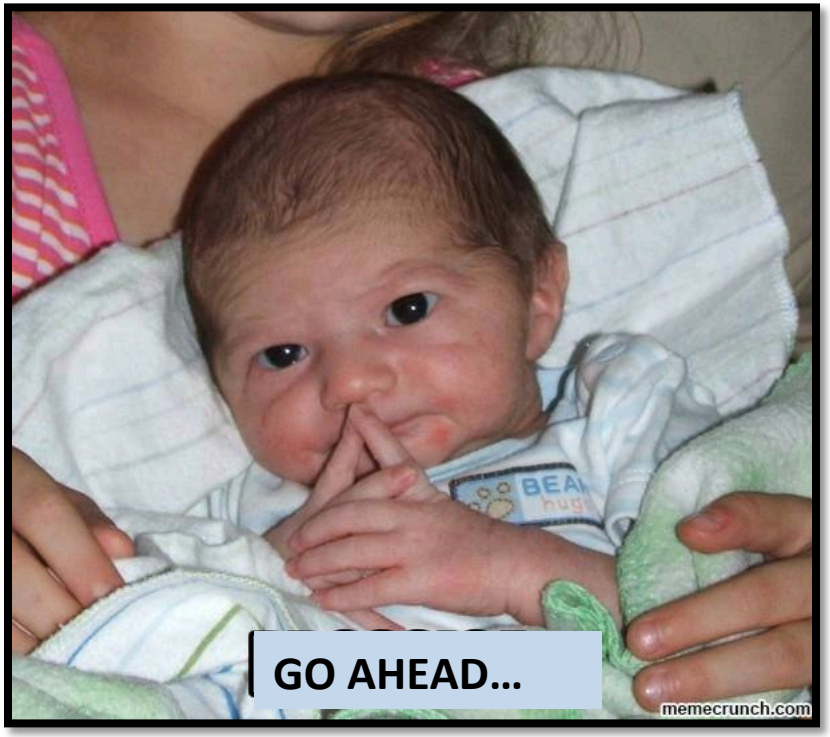
- **Surveillance**
- **Microbiological diagnosis**
- **Prevention and control**
  - **Hand hygiene**
  - **Precaution measures**
  - **Protocols**
  - **Catheter care and team**
  - **Education**
- **Management of Infection**
  - **GBS prophylaxis**

What we already know and MUST perform!

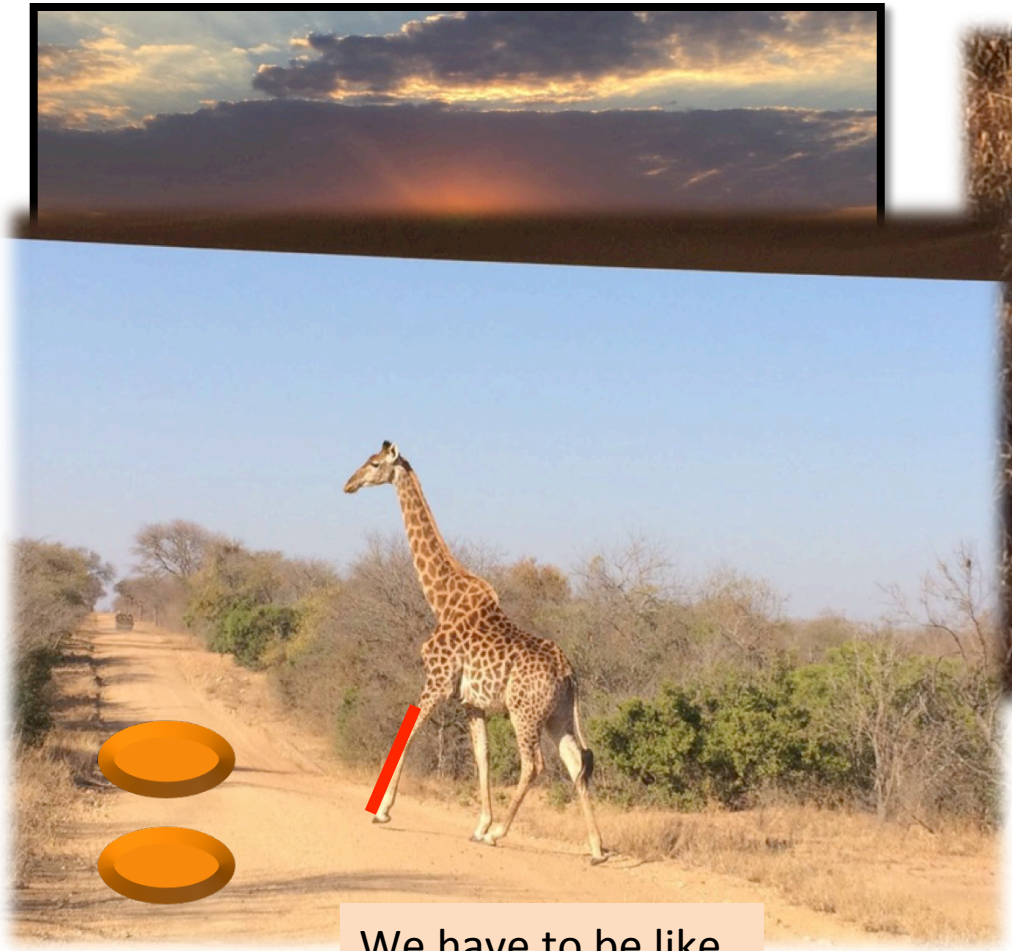
- **Probiotics**
- **Fluconazole prophylaxis**
- **Chlorhexidine use in ELBW**
  - **Bathing**
  - **Dressing**
  - **Skin care**
- **VAP prevention**
- **MDR microorganisms control and treatment**
- ***S. aureus* decolonization**
- **Perinatal vertical transmission of antibiotic-resistant bacteria**

What we already know, BUT… there is not 100% agreement or absence of research

A “reflection” on Infection in the NICU…



We have a lot to learn with the animals – “NATURAL WILD POLICIES”

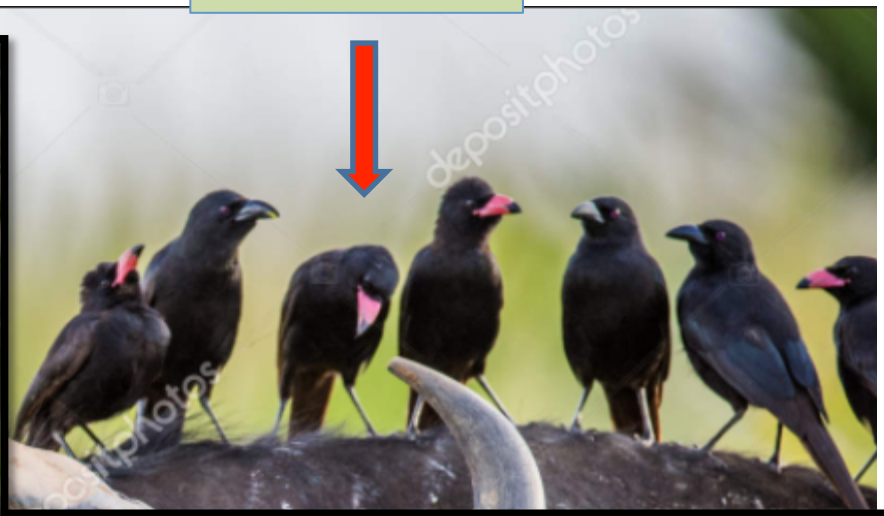


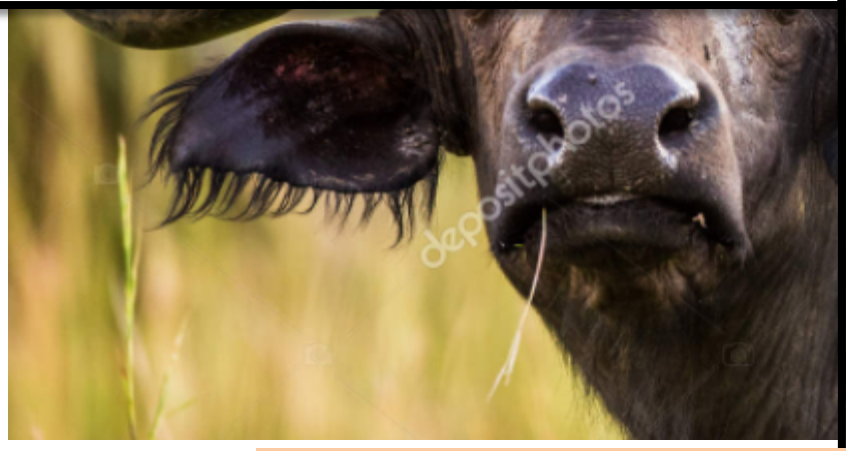
We have to be like the Giraffe…

And bacteria, virus, like the LION…

TEAM WORK

"cleaning" the buffalo





Night habits

High “Stress”= Early death

BirthWeigh is VERY IMPORTANT FACTOR

- Territorialist
- Brave