

PIG TALES

Health From A Pig's Point of View



April 2017
Prairie Swine Center Producer Meetings

zoetis

AGENDA

Vaccination

1. The pig's immune system
 - Innate and Adaptive Immunity
 - Vaccines & Immunity
2. Getting the most out of Vaccines
 - Timing/Doses
 - Diagnostics
3. Pigs, People and Vaccinating

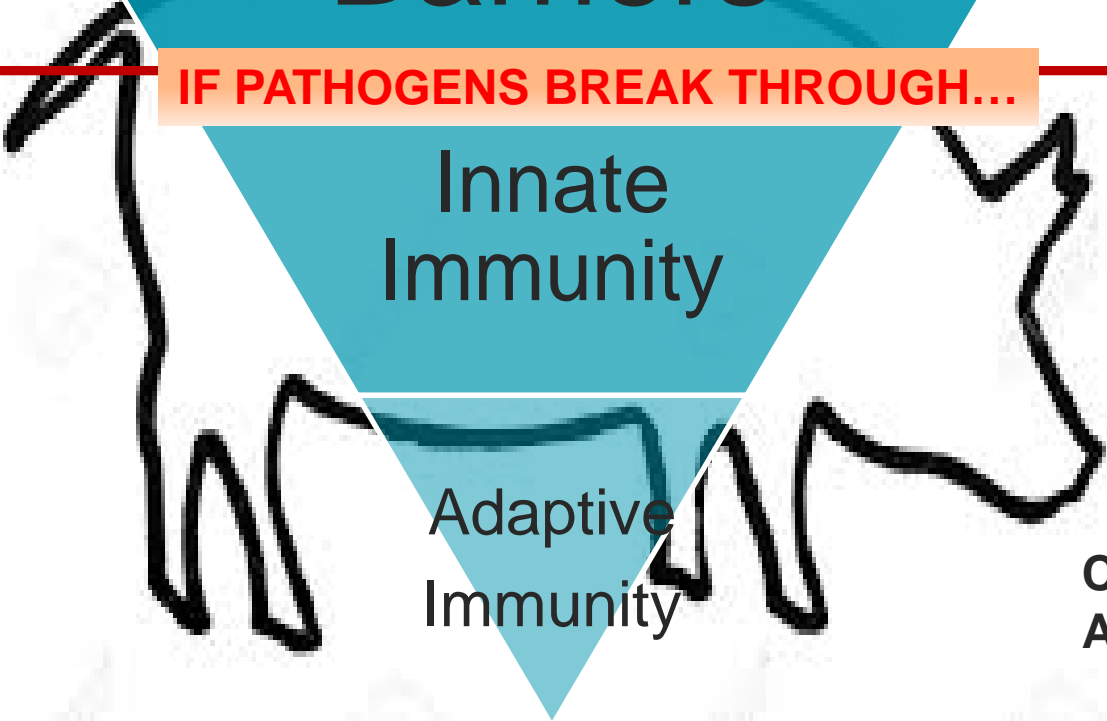
PIG LEVEL

Keeping Invading Microorganisms Out



Skin
Mucous membranes

IF PATHOGENS BREAK THROUGH...



Innate Immunity

Inflammation

Adaptive Immunity

Cell-mediated immunity
Antibodies

Innate + Adaptive = Total Immunity

Innate Immunity

= Inflammation; triggered by microbial invasion and tissue damage

1. Increased blood flow
2. Activation of non-specific cells that destroy invaders, preventing their spread in the body

**PRESENT AT BIRTH
SAME RESPONSE EVERY TIME**

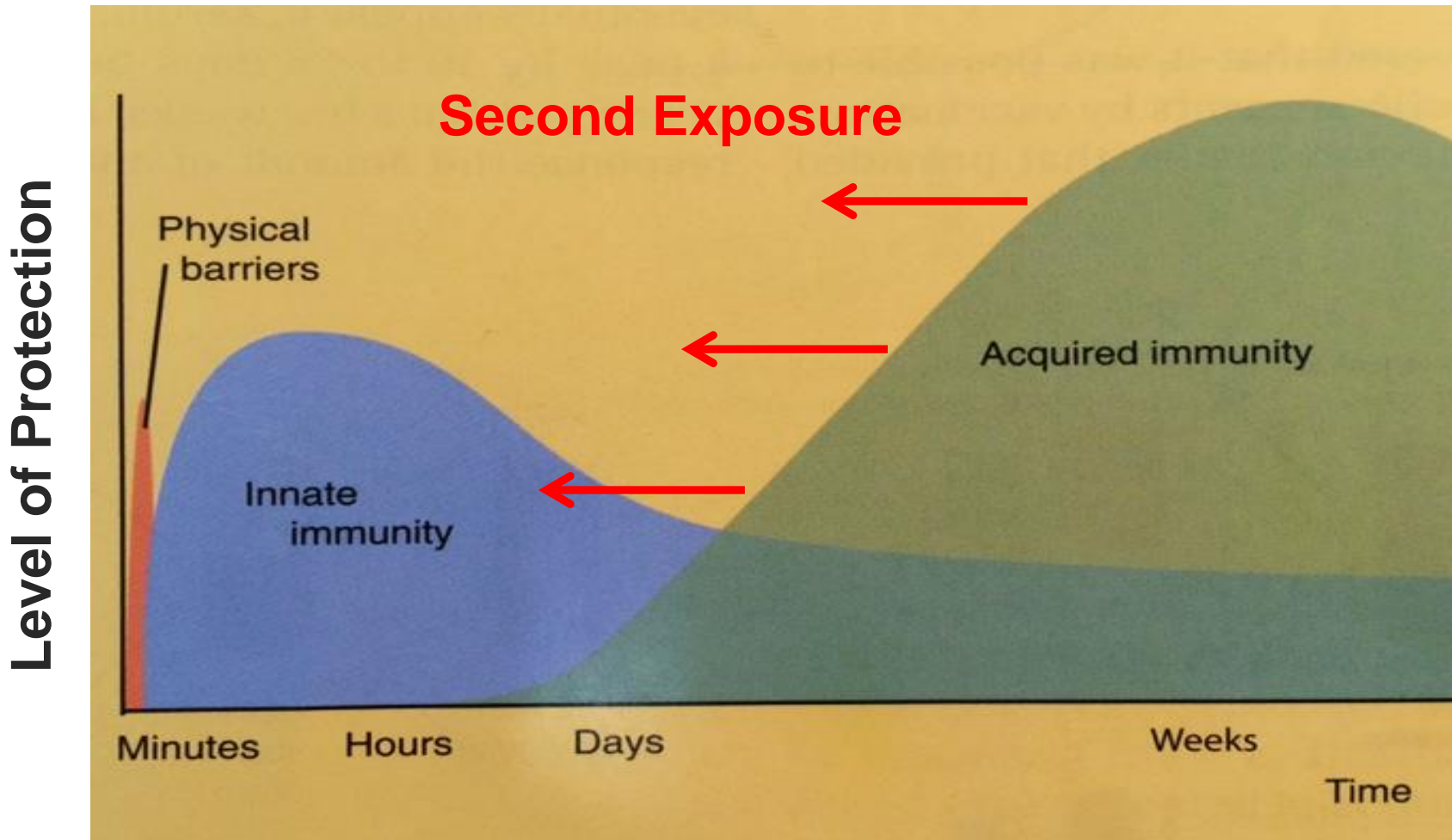
Adaptive Immunity

= Recognizes / destroys specific pathogens and learns from the process for future response to invader

1. **Antibody-Mediated Immunity** – circulate in fluids and attack body cells against extracellular pathogens
2. **Cell-Mediated Immunity** – special cells that attack pathogens **INSIDE** body cells

**DEVELOPED AFTER BIRTH
SPECIFIC
MEMORY**

Time Course of Innate and Adaptive Immunity for First Exposure



Veterinary Immunology 8th Edition
Ian Tizard

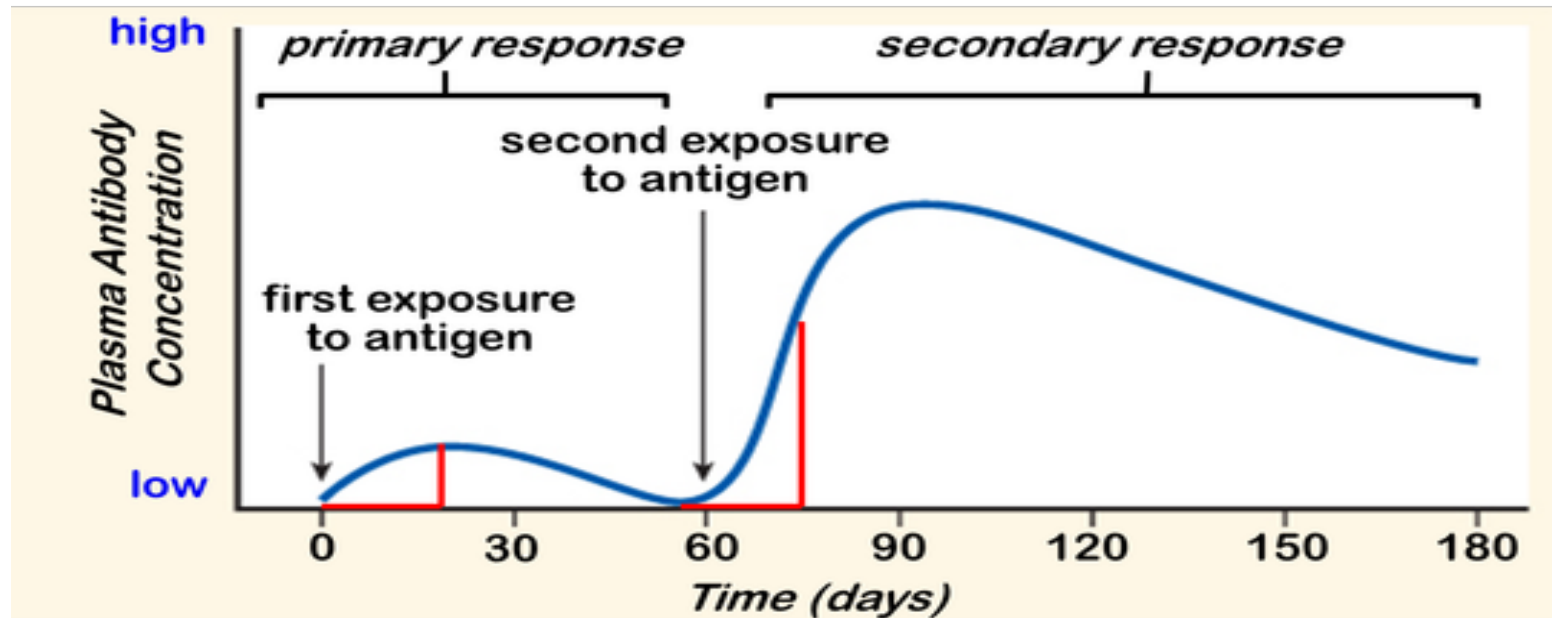
Adaptive Immunity & Vaccination

Adaptive Immunity triggered in 2 ways:

1. Exposure to pathogen
2. Vaccination

Either will provide long-term protection against future infection by the same pathogen

Adaptive Immunity has Memory



A Special Case

Maternal Antibodies = Adaptive Immunity

2 Ways To Get Immunity

1. **From the Sow** (maternal antibodies and immune cells in colostrum) **BUT NO MEMORY!**

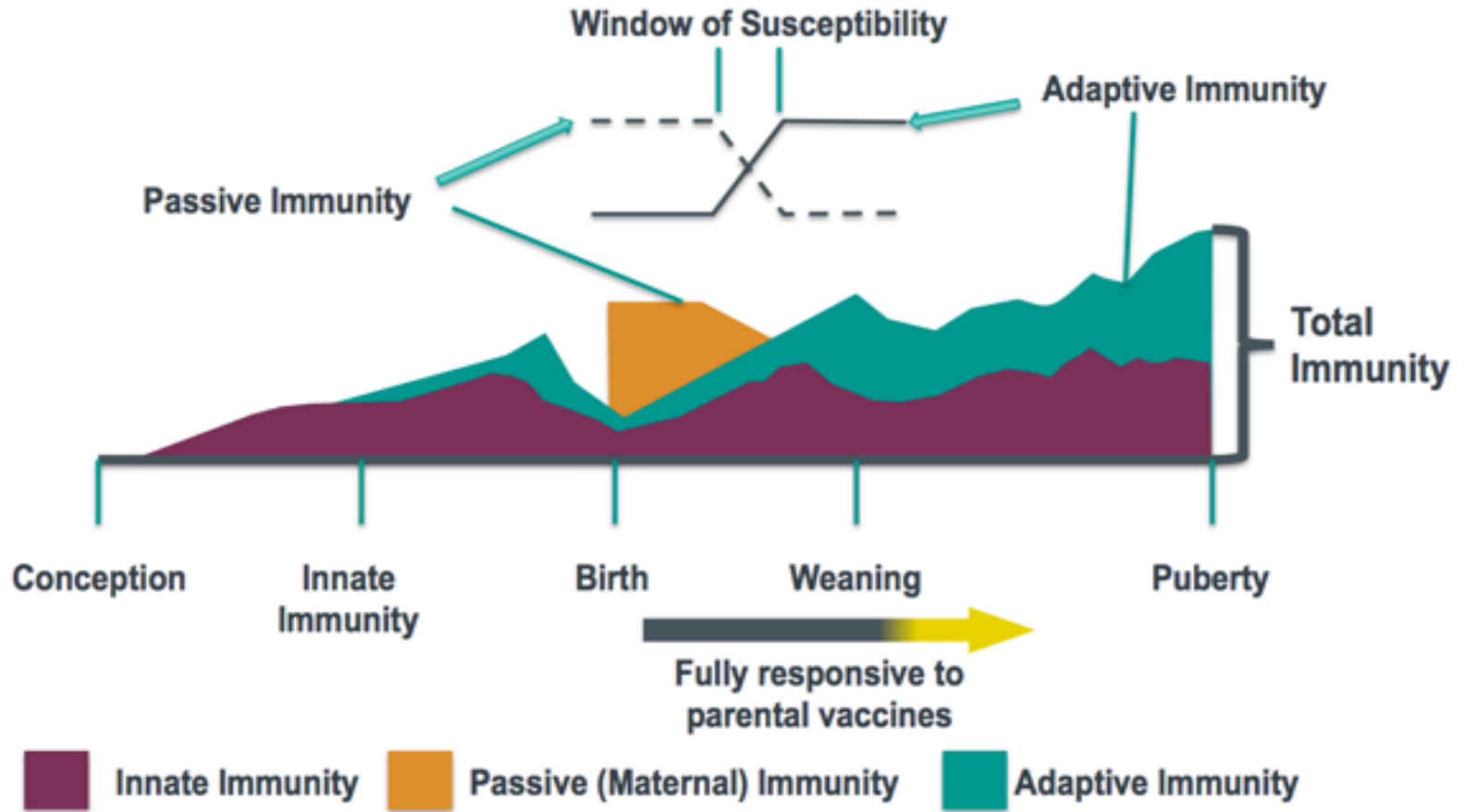
Immune cells in colostrum will only cross the intestine and enter the blood of the sow's own piglets.

= DELAY CROSS-FOSTERING UNTIL AFTER 24 HOURS!

2. **Build your own**
 - Natural exposure
 - Vaccination



Immunity in the Growing Pig



Getting The Most Out Of Vaccines

Vaccine Efficacy

1. Timing
2. One dose vs. Two dose
3. Vaccine administration - pigs & people

VACCINATION ≠ IMMUNIZATION

Vaccine Timing

1. Vaccination should be given ahead of challenge
 - Pig needs 10-14 days to respond to vaccine
2. Maternal antibodies can interfere with vaccines
 - Depends on maternal Ab level and the vaccine
3. Flexi Dose vaccines can help

Maternal Antibodies & Vaccine Interference

WHY? Maternal antibodies bind to the vaccine, preventing the piglet's immune system from “seeing” it

WHAT TO DO? Time piglet vaccination to avoid excessively high maternal antibodies &/or use 2 doses

RISK FACTORS FOR HIGH MATERNAL ANTIBODIES

1. Sow/Gilt vaccination
2. Sow/Gilt natural exposure
3. Younger piglets

How Do You Know If & When Exposure Happens During a Pig's Life?

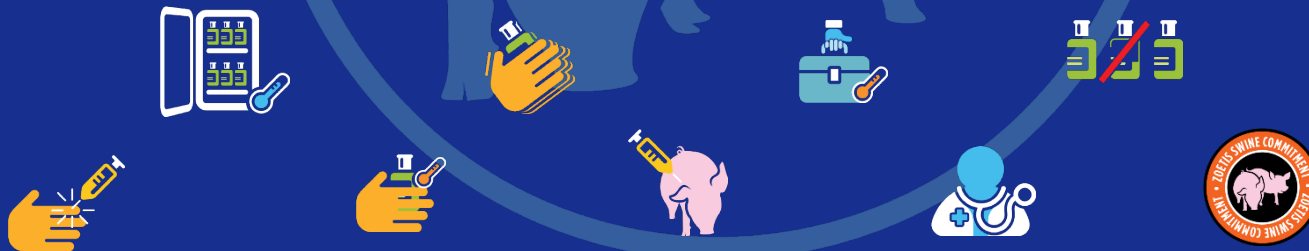
= **DIAGNOSTICS** (let the pig tell you)



VACCINE CARE and HANDLING

Vaccines provide important disease prevention and control in your herd, and require special attention to storage, use and handling for maximum benefit.

This presentation outlines **9 important considerations** for proper care and handling of all swine vaccines.



VACCINATION GUIDELINES

- Proper storage of product
- Proper transport of product
- Pre-warm the vaccine
- Agitate the vial before using
- Avoid contaminating the vial
- Use proper needle length for pigs you are vaccinating
- Injection site – injection technique
- Minimize Stress on the pigs & the people
- Avoid injecting yourself
- Adverse reactions should be reported

EVERYONE KNOWS THE THEORY...

- Which pigs to vaccinate
- When to vaccinate
- The vaccine should be pre-warmed
- How & where to inject the animals
- What needle size is correct.
- Stress on the pigs/people will be a negative
- Keep the vaccine bottle clean to avoid contamination.
- Improperly stored vaccine may not work.

WHY DOESN'T THE THEORY MATCH THE REALITY?



**What things are getting in the way
of our success?**



How To VS Removing roadblocks



To be successful:

- We need to teach our staff to first recognize the problems they are facing.
- Help them find solutions.

COMMON STATEMENTS WHEN ASKED ABOUT IMPROVING VACCINATION PROCESS:

- *We don't have time (enough help)...*
- *Nobody wants to do that job so we just get the kids/new guy to vaccinate...*
- *We don't have enough syringes/they are broken/improperly maintained etc...*
- *We can't vaccinate at that time because pig size/pen size/not enough help...*
- *We've always done it this way...*

Things I commonly see on farm:

- Lack of a plan to be successful at vaccination
- Lack of understanding of:
 - pigs immune system; disease; vaccine
- Lack of tools/equipment for the job
- Lack of time/help
- Lack of Training

1. HAVING A PLAN IS IMPORTANT!!

"He who fails to plan is
planning to fail"

- Sir Winston Churchill

THE PLAN

- WHO is doing it?
- WHAT Tools do we need?
 - Auto-syringes/vaccine/crowd boards/paint
- WHEN are we doing it?
- WHERE are we doing it?
 - In the pen, in the hallway, on the scale
- WHY are we doing it?
 - People need to understand why – Teach them

RETURN ON INVESTMENT

PCV2 Vaccination			
Cost of Vaccination			
Pigs vaccinated	1,000		
Avg \$\$/dose	\$ 1.65		
Labour/dose	\$0.10		
Total cost/1000 pigs	\$ 1,750.00		
Expected payback Mortality / ADG /Culls			
	2 : 1	4 : 1	7 : 1
Total Payback	\$ 3,500.00	\$ 7,000.00	\$ 12,250.00
Time to vaccinate 1000 pigs			
Seconds per pig	5		
Total Minutes	83		
# of people	4		
Minutes/person	21		
ROI per hour of labour	\$ 1,750.00	\$ 5,250.00	\$ 10,500.00

2. THE PEOPLE MAKE THE DIFFERENCE!



- Staff Training is critical
- Provide enough time to complete the job or figure out why they don't have enough time
- Make it easy for them to be successful!
- Work with them to understand fully what is happening.

3. TEAMWORK

- Make mission critical tasks a team projects!



4. MANAGE & TEACH BY DOING!

- The more time you spend working side by side with your people teaching them to identify and solve problems the less problems you have overall.

PLAN – PEOPLE – TEAMWORK - TEACH

- LEARN about the basics of how the pigs immune system works.
- UNDERSTAND the disease you are vaccinating for.
- Use DIAGNOSTICS to understand the current status of your herd – do this regularly!
- TEACH your staff!
- ADAPT – your plan as required to be a success
- Proper vaccination pays back to the farm!

THANK
YOU !

