

Perceptions and practices related to pork production chain in Hung Yen province, Vietnam

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Introduction



Introduction

Pork and Food safety

- ✓ Pork: the major animal food source in Vietnam, representing over 75% of consumed meat.
- ✓ Pork: considered as a source of bacteria and/or parasite, such as *Salmonella*, *Campylobacter*, *Streptococcus suis*, *Trichinella*, or tapeworm.
- ✓ Hygienic practices and perceptions along pork production chain plays an important role in food safety strategy.



Pork and Food safety

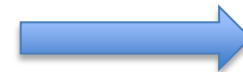
Pork production chain



Relevant
groups/actors

- ✓ Farmers
- ✓ Slaughter workers
- ✓ Slaughterhouse owners
- ✓ People living around slaughterhouse
- ✓ Sellers
- ✓ Consumers
- ✓ Veterinary staffs
- ✓ Public health staffs, ...

Perception,
Practice, ...



Food safety

=> The need to minimize risky practices along the chain.



Introduction

Objectives

- ✓ To study the perceptions and practices of key actors in the pork production chain in Hung Yen province, Vietnam regarding food safety along this line



Materials and Methods



Materials and Methods

Study location



Fig. 1. The 3 selected districts in Hung Yen province, Vietnam

Materials and Methods

Study framework using an integrated approach

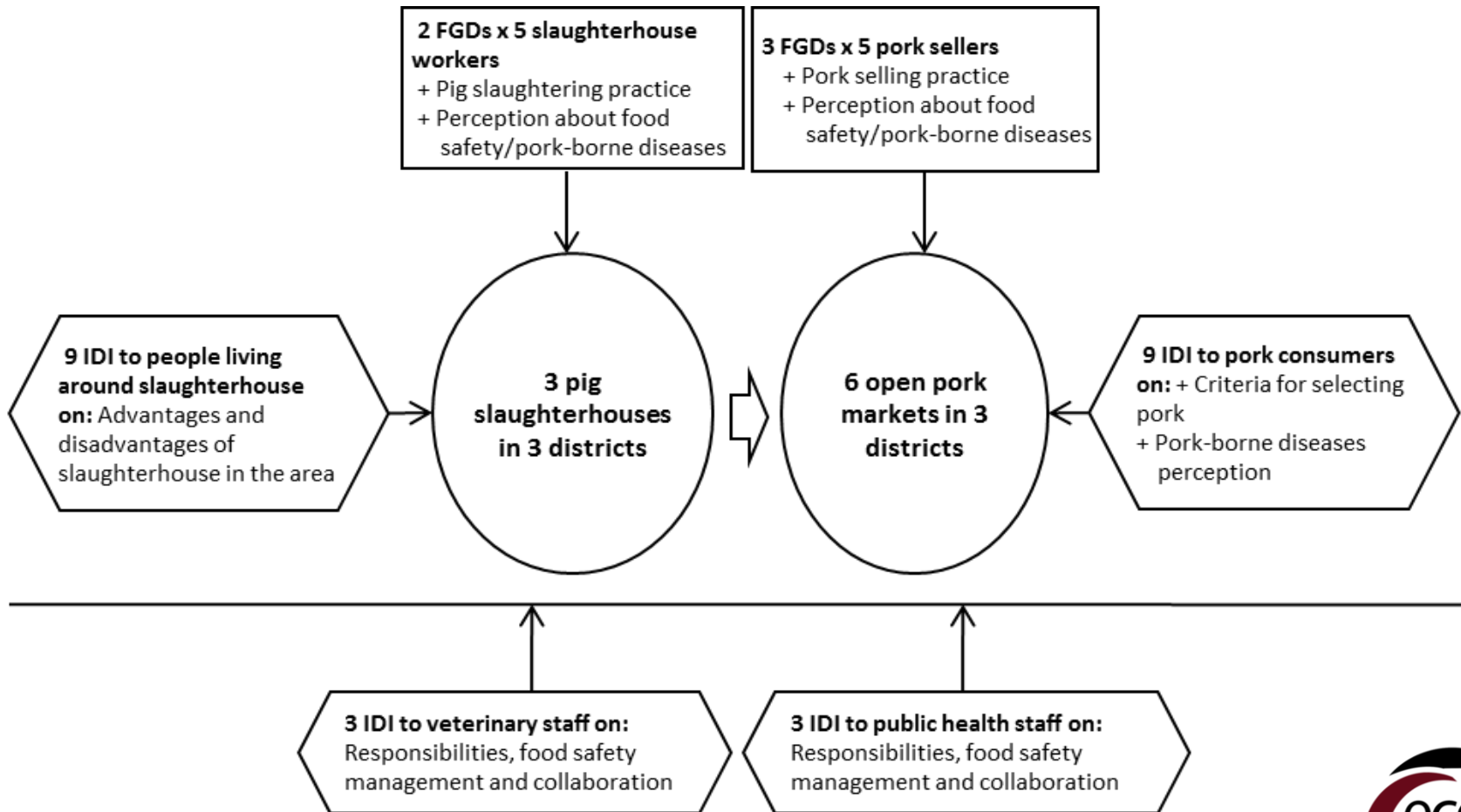


Fig.2. Study framework on relevant groups/actors



Materials and Methods

Qualitative tools and Key topics

Focus group discussion

Slaughter workers (2 FGDs/
10 participants)

Pork sellers (3 FGDs/ 15
participants)

Key topics

- Hygienic practice in slaughtering
- Perception, knowledge about pork borne diseases

- Pork selling practice
- Pork borne diseases (knowledge, awareness, perception)

In-depth interview

People living around
slaughterhouse (9 IDI)

Pork consumer (9 IDI)

Public health staff (3 IDI)

Veterinary staff (3 IDI)

- Advantages and disadvantages of slaughterhouse around their living area

- Criteria for selecting pork
- Pork borne diseases (knowledge, awareness, perception)

Food safety and zoonotic management & collaboration

Food safety and zoonotic management & collaboration



Results and Discussions



Results and Discussions

General information

Table 1. General information of participants and interviewees

Information	Seller	Slaughterhouse worker	Public health staff	Veterinary staff	People living around slaughterhouse	Consumer	Total
Education							
Secondary school	12	7	-	-	5	1	25
High school	3	2	-	-	4	2	11
College	-	1	1	-	-	4	6
University/higher	-	-	2	3	-	2	7
Gender							
Male	3	9	1	3	6	3	25
Female	12	1	2	-	3	6	24
Age							
< 31	-	2	-	1	1	-	4
31-40	3	4	-	2	1	1	11
41-50	6	1	1	-	4	3	15
51-60	6	3	2	-	3	4	18
> 60	-	-	-	-	-	1	1
Total	15	10	3	3	9	9	49

Results and Discussions

Food safety practices

Slaughterhouse workers groups: No specific regulations, standard operation procedure (SOP) or rules for workers to follow in their slaughterhouses.

- “internal rule” that senior workers would show juniors how to operate, and then it becomes a habit-and-routine work within the group.

Table 2. Ranking given to potential risks to microbial contamination on carcass

Potential risks	FGD1	FGD2	Average
Feces on live pigs	1	3	2
Punctured intestine	2	2	2
Water source	3	1	2
Feces on the bleeding area	2	4	3
Open intestine at slaughter areas	2	5	3.5
Feces in lairage	1	7	4
Boots at all places	6	7	6.5
Cloths to wipe carcass	5	8	6.5
Transport vehicle	7	9	8

Results and Discussions

Food safety practices

Pork sellers: Most of them mentioned that they preferred and used wood surface tables, even if the government helped them to build tables with enamel tiles or a granite surface.

"Table surface can help pork stay dry and keep pork fresher" (FGD3)

Using personal protective equipment, the discussed groups mentioned wearing aprons, sometimes thin gloves, but rarely used masks or protective hats.

Results and Discussions

Food safety practices

Pork sellers:

Table 3. Ranking potential risk factors related to microbial contamination on pork at markets

Potential risks	FGD3	FGD5	Average
Cleanness of table surface	3	1	2
Dirty/waste water next to shop	2	2	2
Cleanness of surrounding shop area	1	4	2.5
Insects (flies, bluebottle, ant, cockroach)	2	5	3.5
Water for wash hand, knife, table	4	4	4
Bags - Basket (pork transport)	5	3	4
Cloths used many times in selling day	6	2	4
Pork transportation to the market	7	3	5
Clothes, shoes of sellers	8	6	7

Note: the rank 1 to 3 means high risk of cross contamination, 4 to 8 are low risk.

Results and Discussions

Food safety practices

Pork consumers

Table 4. Ranking of pork selection criteria by consumers (n=9)

Criteria	Mean \pm SD
Bright red, soft and sticky	9.6 \pm 0.7
Freshness, good smell	9.6 \pm 0.5
Cleanness	9.1 \pm 0.8
Trust in seller	9 \pm 1.1
Considered as safe meat	8.9 \pm 0.9
Good storage	8.6 \pm 1.8
Nutritional value	8.2 \pm 2.0
Pork inspection document	8 \pm 1.7
Accessibility	7.4 \pm 1.7
Price	6.6 \pm 1.1

Note: the scale from 1 to 10 represents the score from lowest to highest in terms of importance.

Results and Discussions

Food safety practices

Veterinary and public health staff

Public health and veterinary management of food safety and zoonoses: All 3 interviewees agreed that **their responsibilities were on “cooked food”** (raw meat was the veterinary authorities’ duty).

Veterinary staff: The gap in the **pork inspection, mostly apply to the big slaughterhouses or markets**; medium, small or private butchers or retailers are not frequently inspected.

Have certain **collaboration on food safety, zoonotic management**, such as reporting and updating within sectors at district or provincial authorities.

Results and Discussions

Food safety perceptions

Pork quality, pig diseases and zoonoses.

2 groups of *slaughterhouse workers* said that FMD, PRRS, liver fluke and helminthes, and pig diarrhea are **diseases that can affect pork quality and safety**. Some of them mentioned zoonosis: cysticercosis and leptospirosis, but were not too concerned about the risk.

However, *all of the three pork seller groups*: pork quality was **strongly related to the manner of slaughtering**. 2 groups considered leptospirosis, FMD, and classic swine fever as potential zoonoses.

7 out of 9 *consumers*: **at least one zoonotic disease**, such as cysticercosis, *Streptococcus suis*, leptospirosis, anthrax. One: not knowing of any such diseases, and one other mentioned PRRS, FMD, which can also affect humans.

Most of the consumers said that less safe pork might have a strange color, smell or wet looking.

Results and Discussions

Food safety perceptions

Source of food safety information.

Pig disease and pork-borne diseases information came from mass media, such as newspaper, internet, or television

Slaughterhouse worker: they gained **knowledge about food safety or hygienic practices from following or emulating their fellow workers'** work habits and not from training, or “learning by doing”.

Observed human illness related pig or pork.

Slaughterhouse worker and seller groups: No observed cases of illness or diarrhea among themselves in the last 6 months

One consumer mentioned that her 3-year-old daughter got diarrhea once after pork consumption, but she didn't clearly know the cause.

Results and Discussions

Food safety perceptions

Advantages and disadvantages of a slaughterhouse's presence in their living area

Provides jobs (9/9), offers more available pork to buy (7/9) and creates business opportunities (4/9)-or created a “pork trade village” (3/9)

Table 5. Disadvantages of a slaughterhouse's presence

Issues	Over all	IDI 1-3	IDI 4-6	IDI 7-9
Noise	0/9	0/3	0/3	0/3
Polluted environment	1/9	1/3	0/3	0/3
Dust	1/9	0/3	1/3	0/3
Polluted air	2/9	2/3	0/3	0/3
Flies/Mosquitoes	2/9	0/3	1/3	1/3
Smell	3/9	1/3	0/3	2/3
Polluted water	3/9	2/3	0/3	1/3
The spread of animal diseases	3/9	2/3	0/3	1/3
Health effect	5/9	2/3	1/3	2/3

Key messages



Key messages

- Use of qualitative tool provide valuable information in addition to biometric approaches in studying food safety (e.g. *Salmonella* survey)
- Better understanding the perception/practice of each relevant actor;
Triangulate the practice, knowledge/perception and biological aspect; Link of evidence and problem base in food safety management.
- Improvement of the practices => considerably reduce the risk of contamination (e.g, wear gloves/washing, standard information, training,...)
- Provide information/data for risk assessment and risk management



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**Thank you for
your attention !**

