

National Center for Global Health and Medicine  
Disease Control and Prevention Center  
Norio Ohmagari

What is AMR?

AMR and its consequence

Tackle against AMR

Efforts to reduce antibiotics used for fish

TAKING ANTIBIOTICS  
WHEN YOU DON'T  
NEED THEM SPEEDS  
UP ANTIMICROBIAL  
RESISTANCE.

THIS ALSO HAPPENS  
WHEN ANIMALS ARE  
GIVEN ANTIBIOTICS.



#AntibioticResistance



# NATIONAL SUMMARY DATA



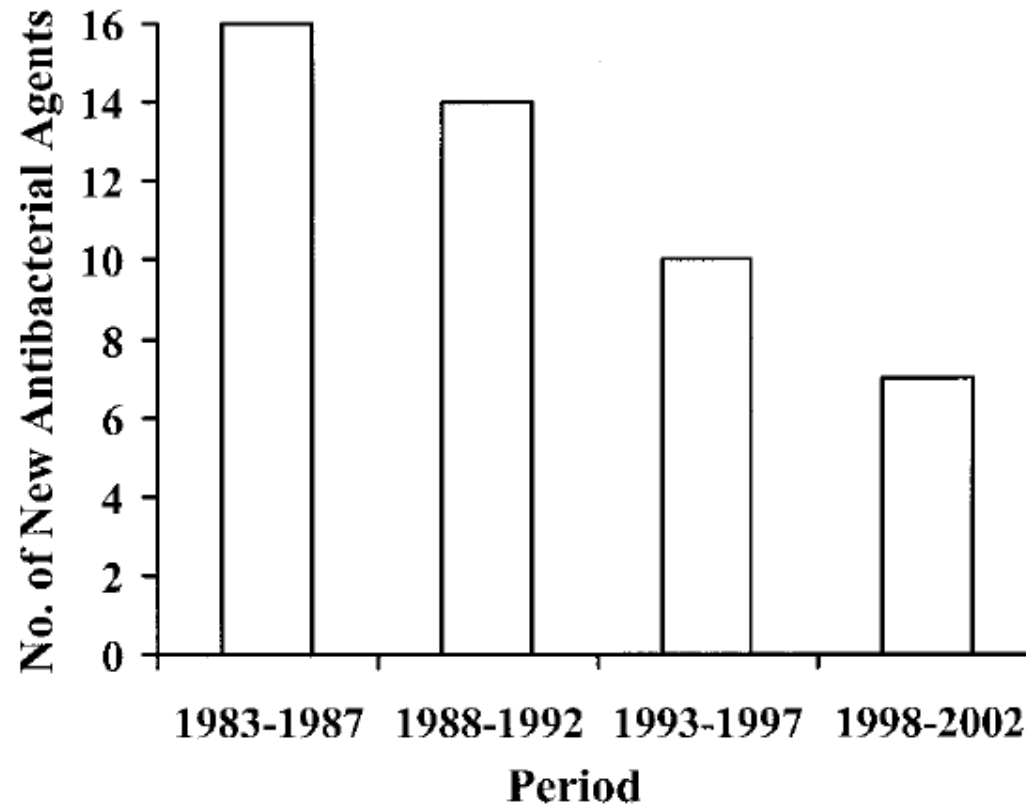
Estimated minimum number of illnesses and deaths caused by antibiotic resistance\*:

At least  **2,049,442** illnesses,  
 **23,000** deaths

*\*bacteria and fungus included in this report*



# Stagnation in Development of Antimicrobials



**Figure 1.** New antibacterial agents approved in the United States, 1983–2002, per 5-year period.

Antimicrobial agents are a resource that can be depleted.

**Without harmonized and immediate action on a global scale, the world is heading towards a post-antibiotic era in which common infections could once again kill.**

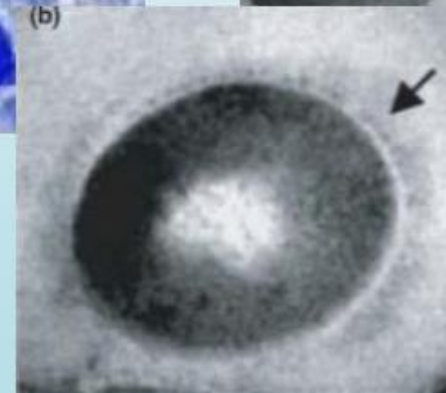
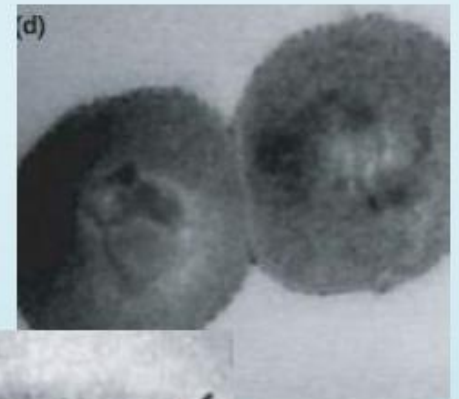
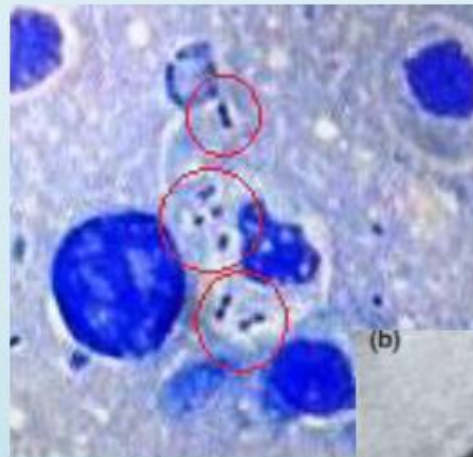
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**GLOBAL ACTION PLAN**  
ON ANTIMICROBIAL  
RESISTANCE



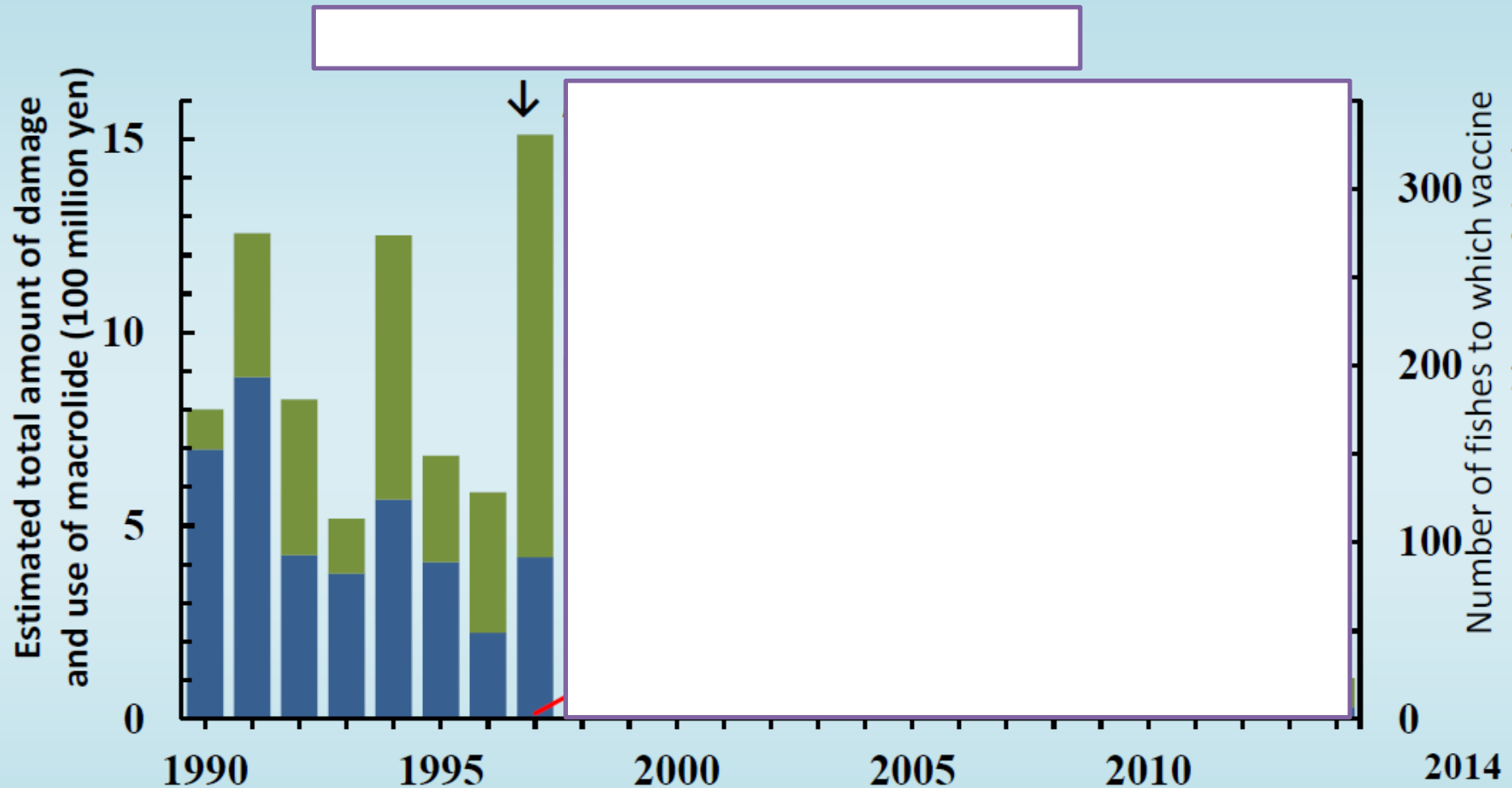
# Lactococcosis

Lactococcosis, caused by *Lactococcus garvieae*, is one of the most serious bacterial diseases and is causing a great economic loss in marine aquaculture including amberjacks





# Estimated amount of damage caused by Lactococcosis in amberjack in Oita



- ● — the number of fishes which Lactococcosis vaccines had been injected
- the amount of damage caused by Lactococcosis
- the amount of use of macrolide antibiotics

# Injectable Vaccination Technical Workshop since 1999 (1 ~ 4 times a year)



(Classroom lecture)

- Basic knowledge on immunity and allergy
- Precautions for use of fish vaccines



(Hands-on training)

Technical training of fish vaccine injection

***Currently 148 “fish vaccine professional technician”  
are registered***

***(the accumulated number of workshop participants: 502)***



# Vaccination of Amberjacks



① Capture



② Anesthesia

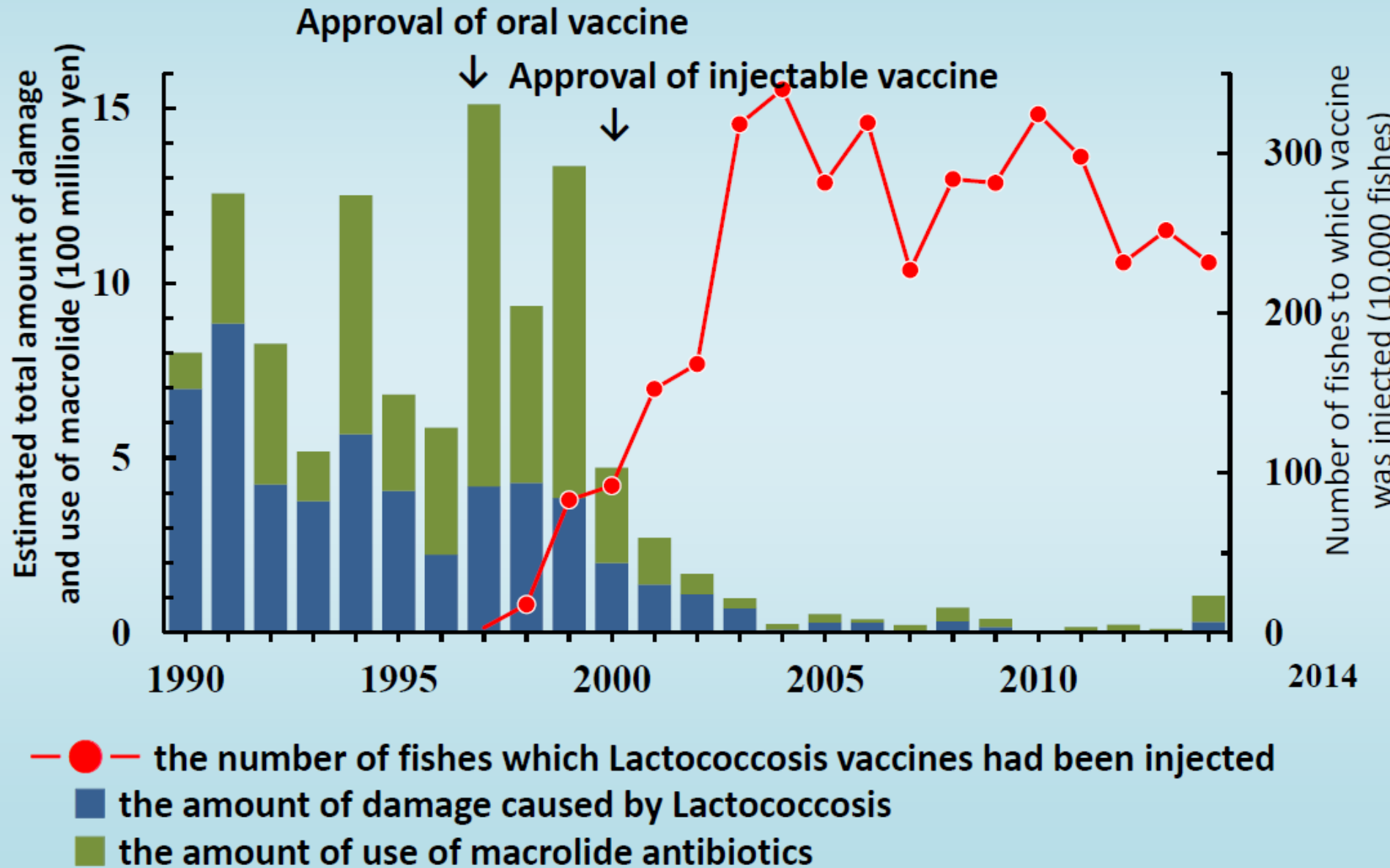


③ Injection



④ Release

# Estimated amount of damage caused by Lactococcosis in amberjack in Oita



## Estimated amount of damage cost caused by Lactococcosis of amberjack in Oita

Before the approval of vaccine (~2000):

430 million yen /year

→ After the popularization of vaccine (~2005)

16 million yen / year

## Estimated amount of use of macrolide antibiotics

Before the approval of vaccine: 510 million yen / year

→ After the popularization of vaccine: 23 million yen /year

▪ **Damage caused by fish diseases:**

$430 - 16 \doteq$  Decrease in 414 million yen

▪ **Cost of medicines**

$510 - (23 + \text{Cost of vaccines } 110)$

$\doteq$  Decrease in **377 million yen**

Total  
cost down

791million  
yen/year