National Center for Global Health and Medicine
Disease Control and Prevention Center
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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.
Lactococciosis

Lactococciosis, 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 Lactococciosis in amberjack in Oita

- the number of fishes which Lactococciosis vaccines had been injected
- the amount of damage caused by Lactococciosis
- 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

①Capture

②Anesthesia

③Injection

④Release
Estimated amount of damage caused by Lactococcosis in amberjack in Oita

Approval of oral vaccine
↓ Approval of injectable vaccine

Estimated total amount of damage and use of macrolide (100 million yen)

- Red line: the number of fishes which Lactococcosis vaccines had been injected
- Blue area: the amount of damage caused by Lactococcosis
- Green area: the amount of use of macrolide antibiotics

Number of fishes to which vaccine was injected (10,000 fishes)
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 ⇒ Decrease in 414 million yen
- Cost of medicines
  510 − (23 + Cost of vaccines 110)
  ⇒ Decrease in 377 million yen