Flukes in other locations than blood

INTESTINAL FLUKES:

- ***Fasciolopsis buski***
- ***Heterophyes heterophyes***
- ***Metagonimus yokogawai***
- ***Echinostoma spp***

LIVER FLUKES:

- ***Clonorchis sinensis***
- ***Opisthorchis viverrini***
- ***Fasciola hepatica/gigantica***

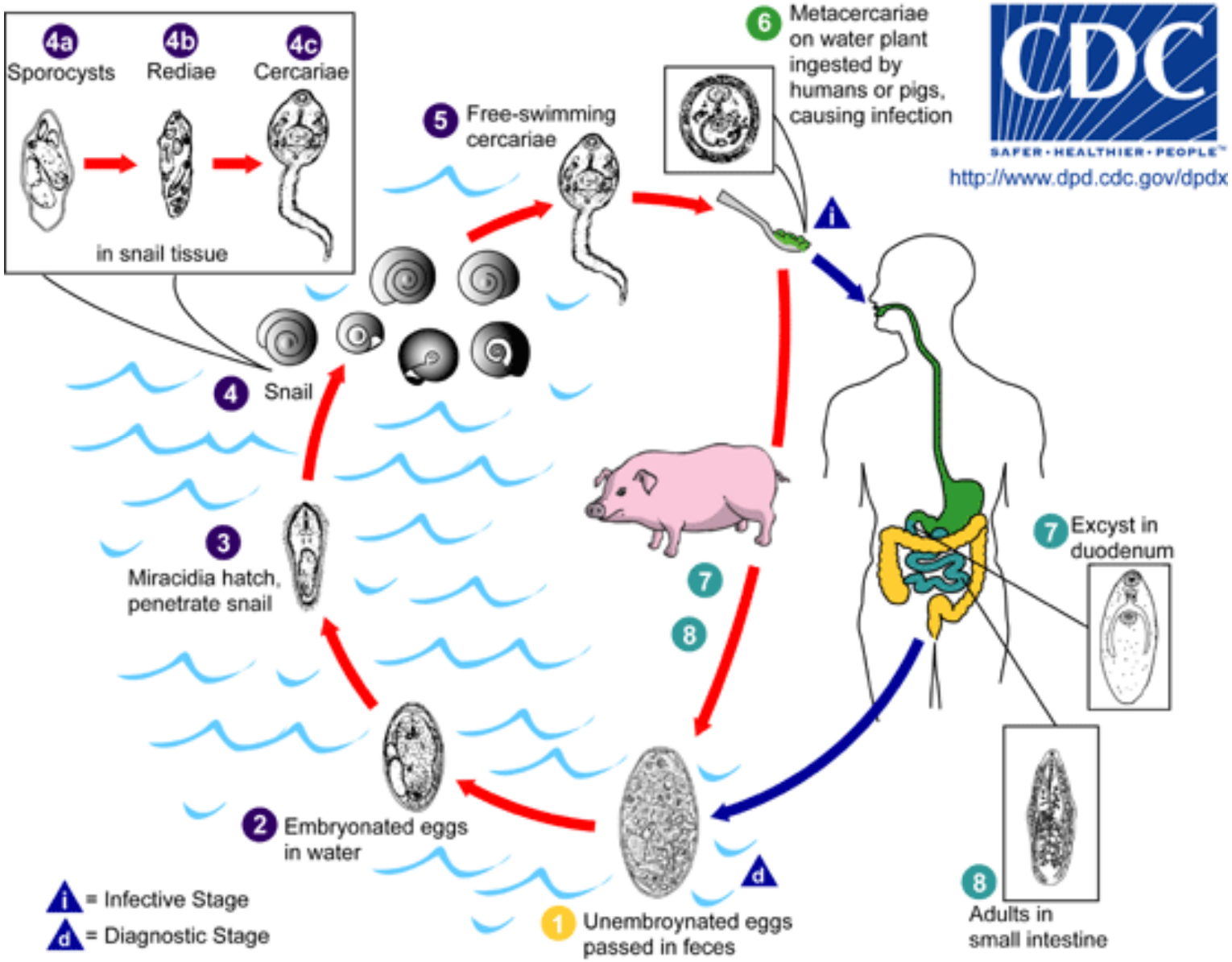
LUNG FLUKES:

- ***Paragonimus westermani***
- ***Paragonimus mexicanus & P. spp.***

Intestinal flukes

- **Fasciolopsis buski**
- **Heterophyes heterophyes**
- **Metagonimus yokogawai**
- **Echinostoma spp (self-reading)**

Fasciolopsis buski



Egg *Fasciolopsis buski*

130-150 µm long by 60-90 µm wide

Adult *Fasciolopsis buski*

20-75 mm long

Fasciolopsiasis

Water chestnuts

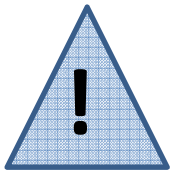
vector (Planorbidae)

Fasciolopsiasis Diagnosis & Management

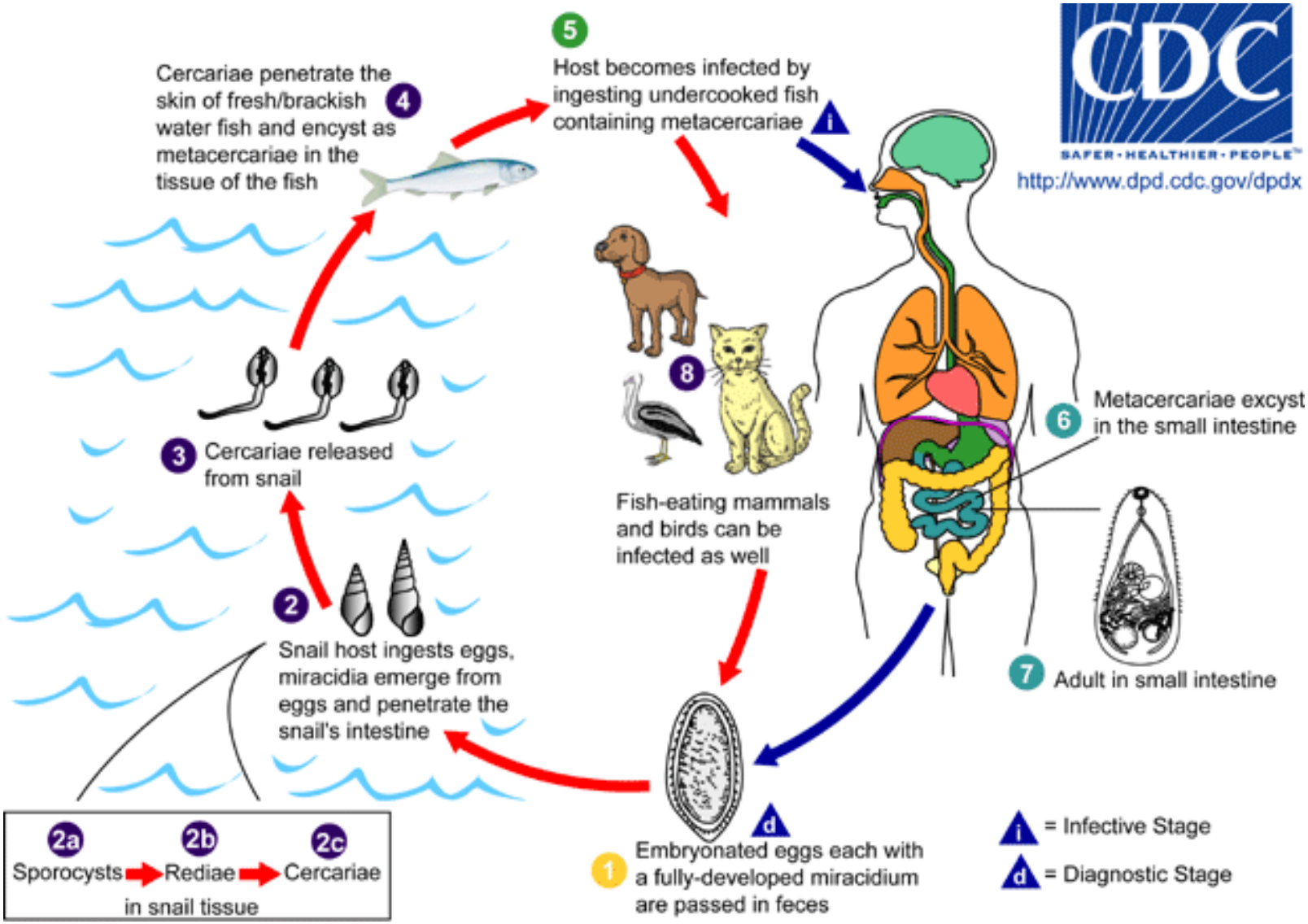
DIAGNOSIS:

- **Faecal examination: Stoll's dilution, formalin-ether concentration, direct smear, Kato**
- **Distinguishing from Fasciola eggs is difficult**

MANAGEMENT:

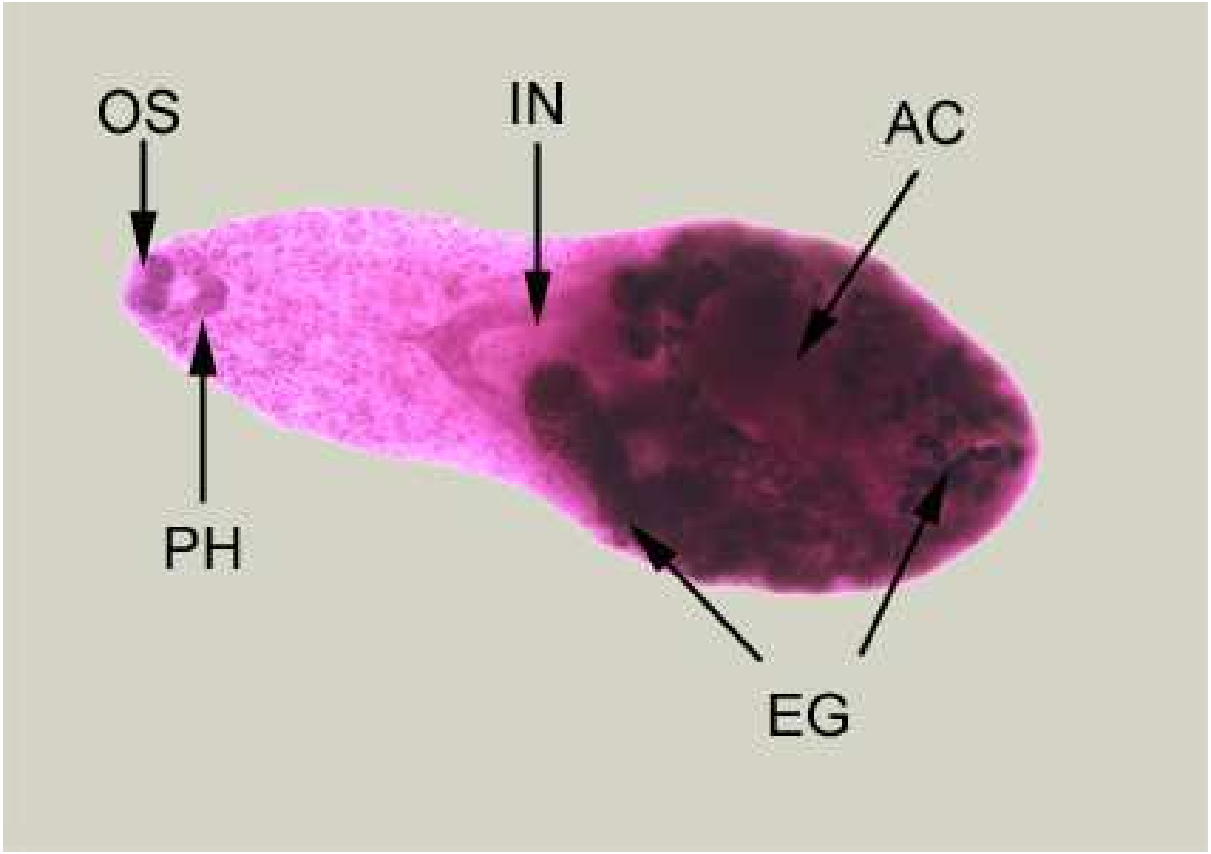
- **Drug of choice: Praziquantel (15mg/kg)**
-  **Risk of exacerbating obstruction or acute toxaemia with treatment !**

Heterophyes heterophyes

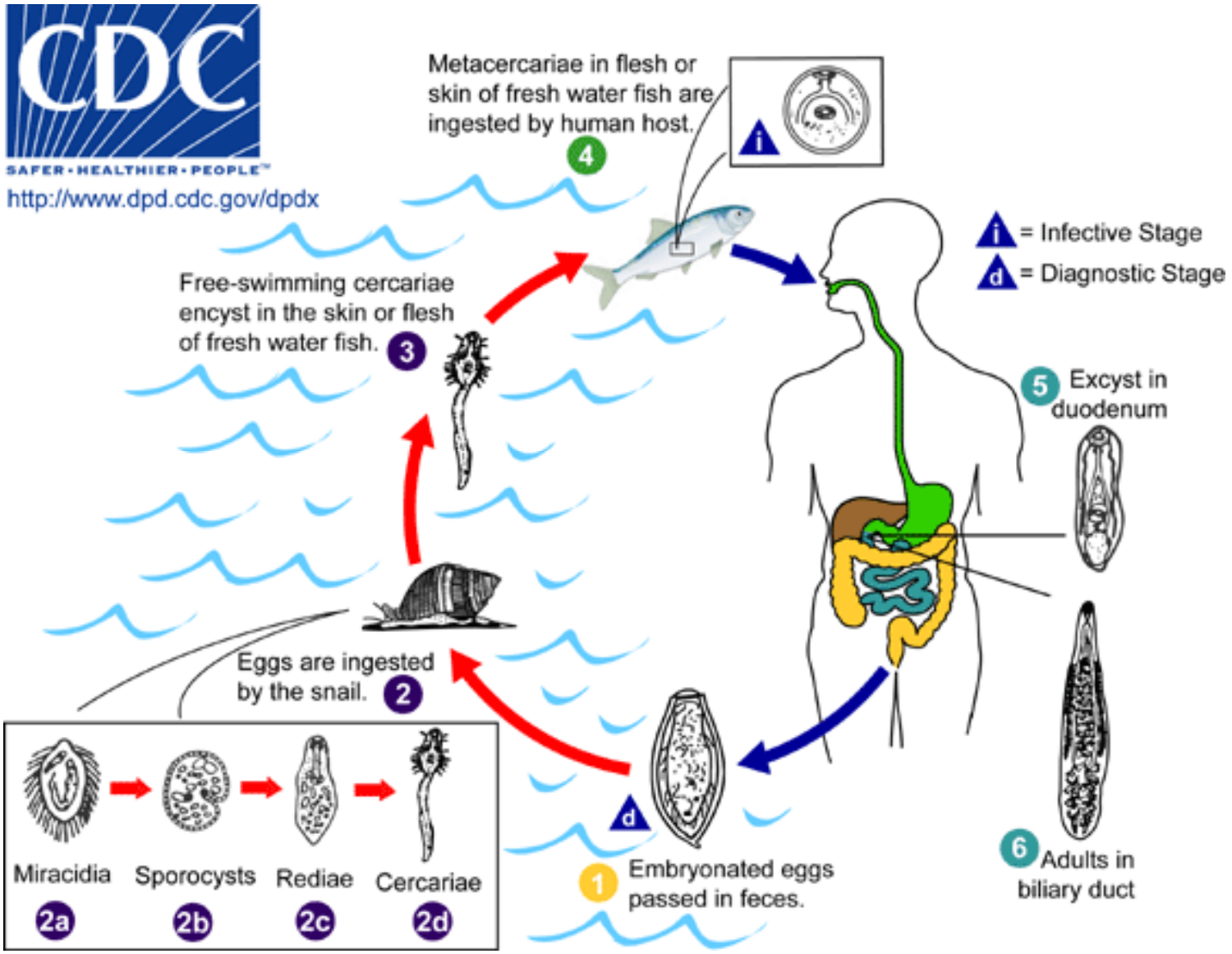


Adult of *H. heterophyes*.

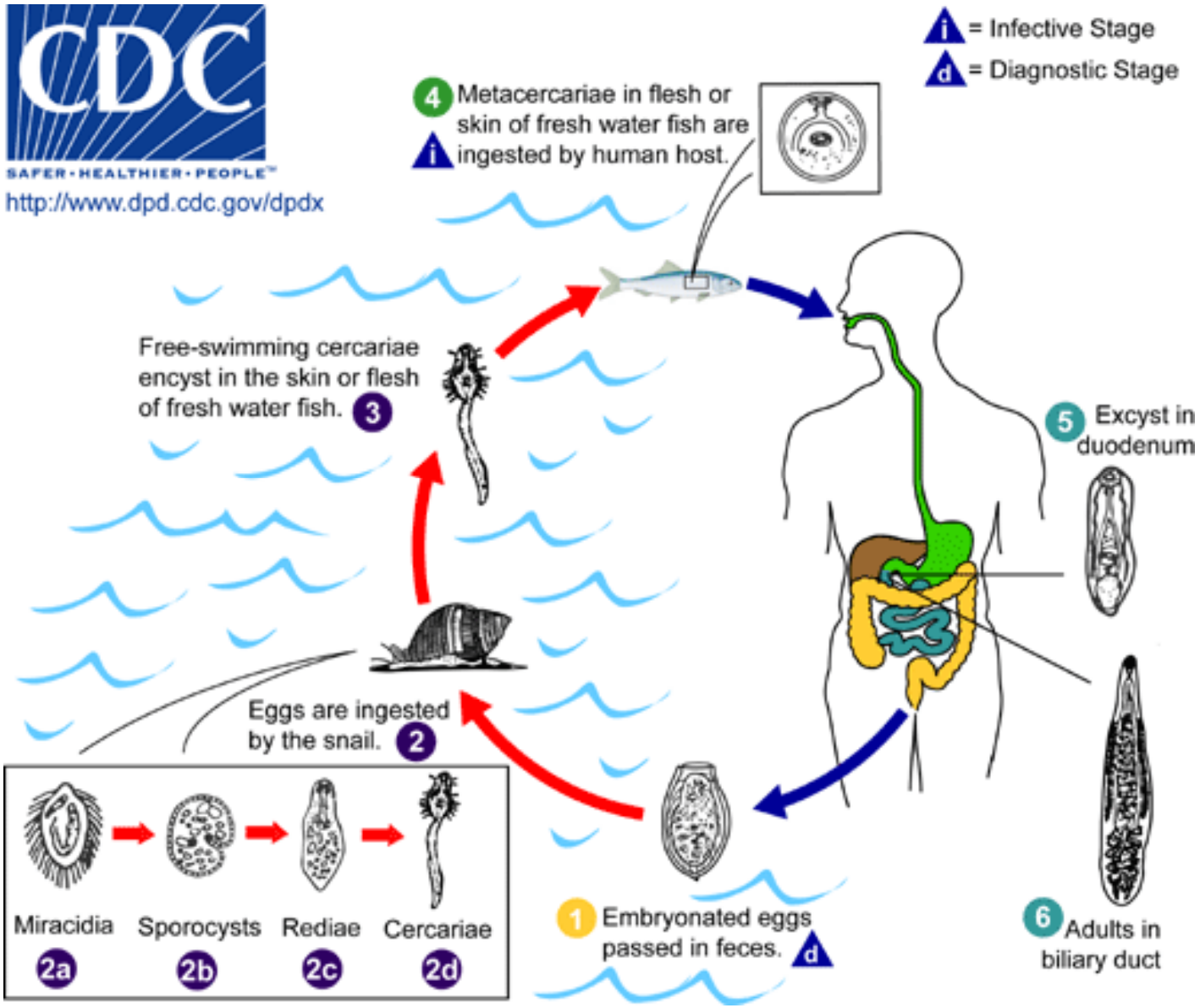
Oral sucker (OS), pharynx (PH), intestine (IN), ventral sucker, or acetabulum (AC), and eggs within the uterus (UT)



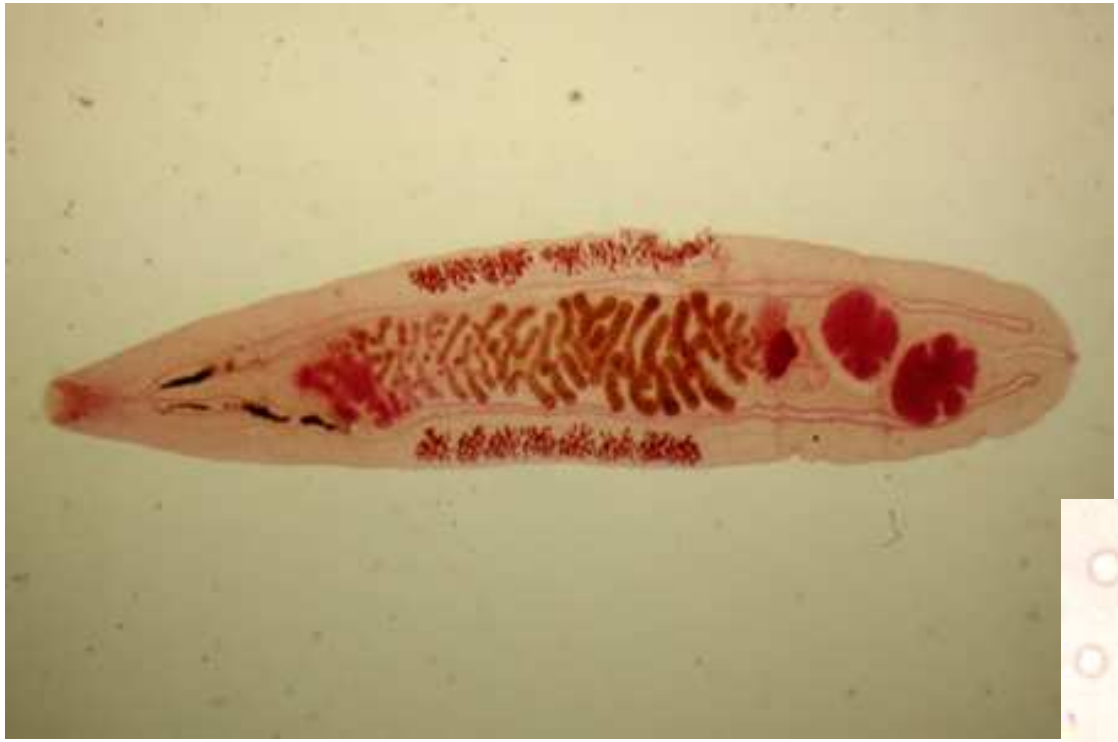
Chlonorchiasis



Opisthorchiasis



O. felineus – adult



O. viverrini – egg

An intrahepatic bile duct of a rabbit infected with *Clonorchis sinensis*.

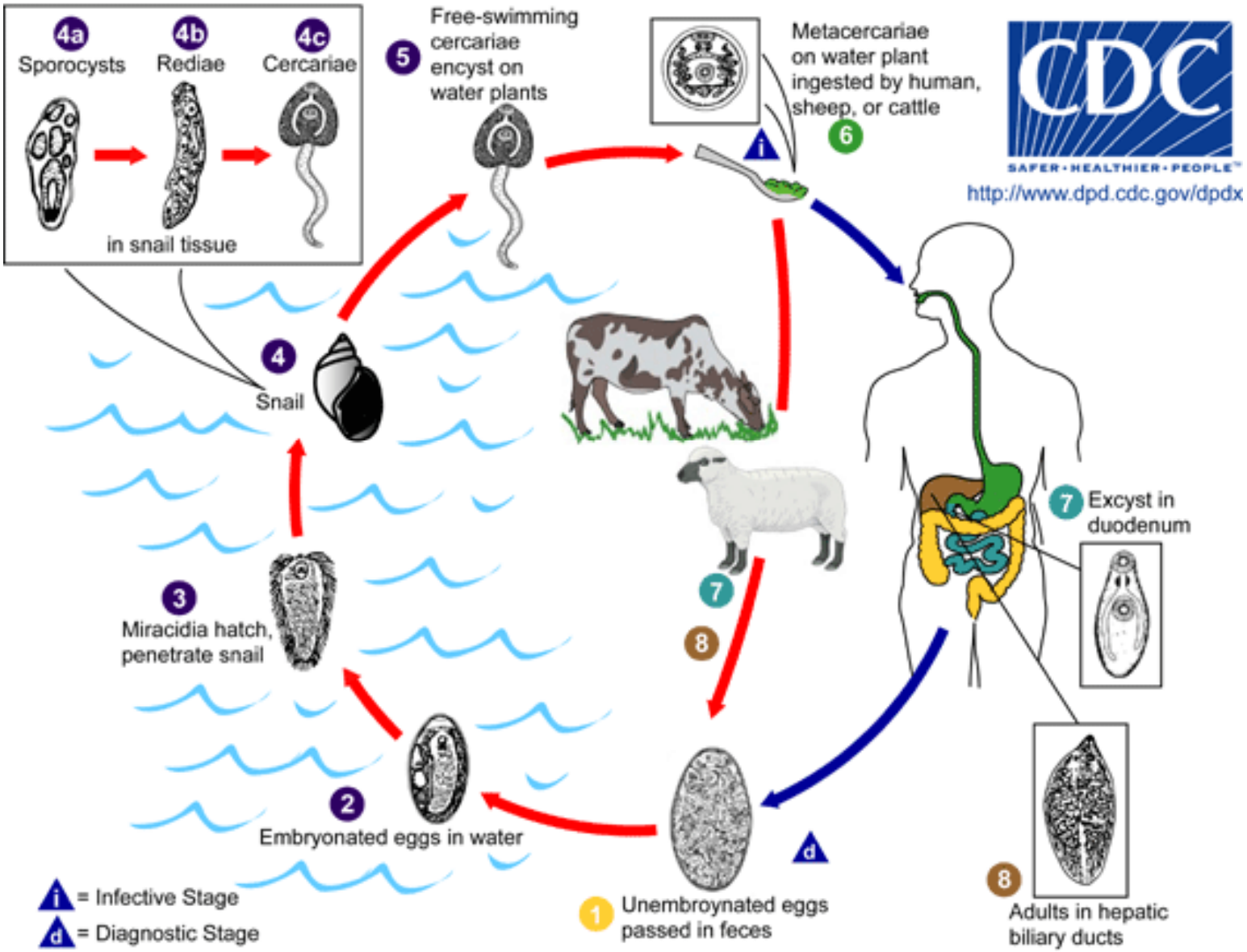
Opisthorchiasis & clonorchiasis Epidemiology

O. felineus	*O. viverrini*	*C. sinensis*
Europe in animals	Asia	Taiwan, Hongkong, China
Man infected by eating raw fish	Man infected by eating raw fish	Man infected by eating raw fish

- **Prevalence & intensity of infection increase with age and is higher in males**

Cholangiocarcinoma

Fasciola spp



Fascioliasis Cycle

F. hepatica	Def. host: sheep	Temperate &sub-tropical climate (South Europe, Middle-East, Central/ South America, Africa	Vector: snail F. *Lymnaeidae*
F. gigantica	Def. host: mainly cattle	South-East Asia & Africa	Vector: snail F. *Lymnaeidae*

- Both species can co-exist
- Cysts are ingested by humans and excyst in duodenum then migrate through intestinal wall to the bile ducts. Eggs are produced after 3-4 m
- May live many years
- High humidity, moderate T°c & rainfall favour transmission

Fascioliasis

Water cress

Fossaria truncatula

F. hepatica adult

F. gigantica adults
up to 75 mm

F. hepatica egg

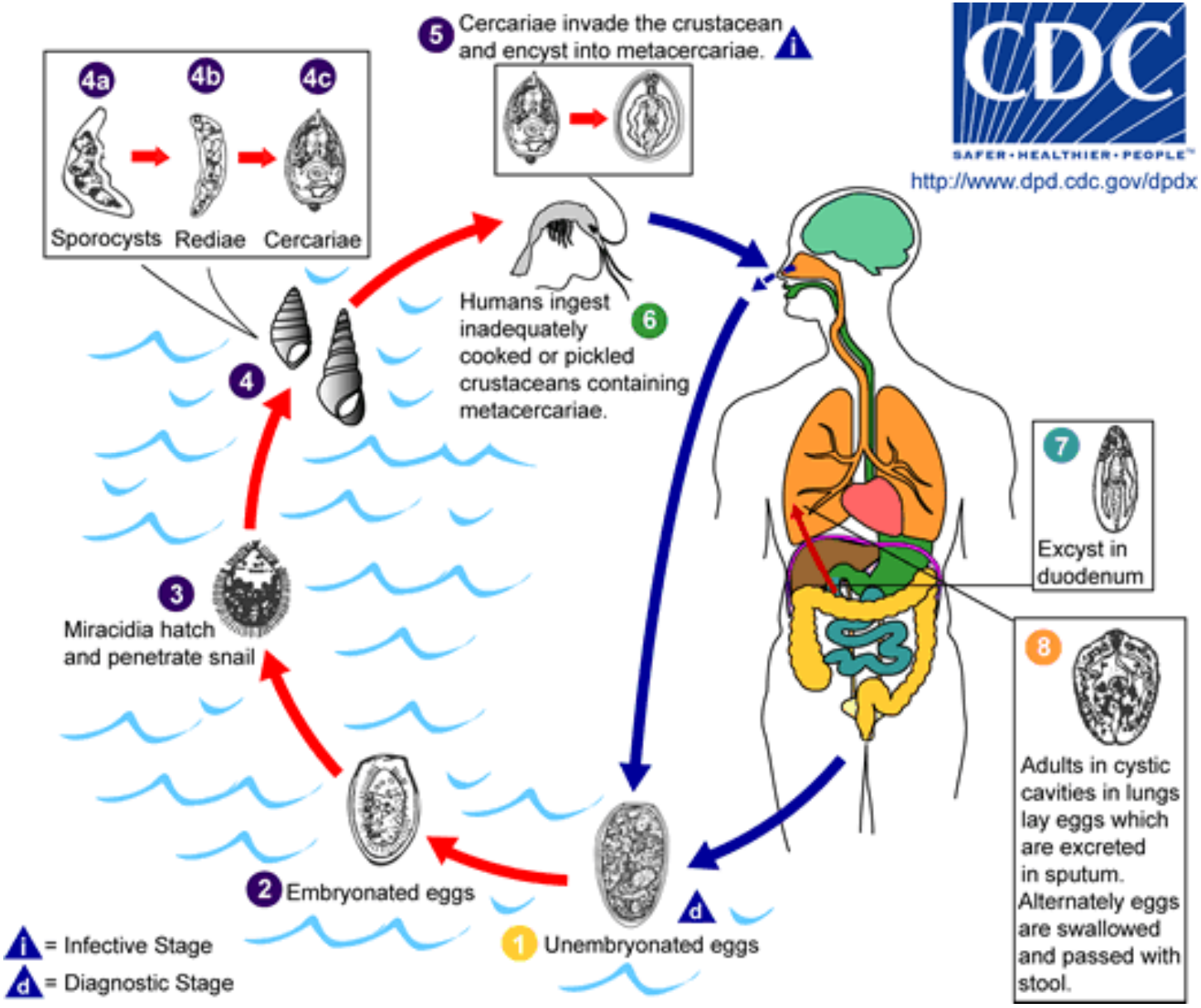
130-150 µm long by 60-90 µm wide

LUNG FLUKES Paragonimiasis

- **Agents:**

Paragominus westermani P. miyazakii P. skrjabini P. heterotremus	ASIA
P. africanus P. uterobilateralis	AFRICA
P. mexicanus P. ecuadoriensis	LATIN/SOUTH AMERICA

Paragonimus spp.



Paragonimus westermani

Adult (18-20 mm)

Egg (80-120 µm)

Table 83.1 -- Sources of common food-borne trematodes and affected organs in man
From Manson's Tropical Diseases, 22nd edition

Fresh water food as sources of infection	Trematodes	Habitat in man
Fish	*Clonorchis sinensis*	Biliary system
	Opisthorchis viverrini	
	Opisthorchis felineus	
Crab and crayfish	*Paragonimus* spp	Pleural cavity and lungs, occasional brain invasion
Water plants	*Fasciola hepatica*	Liver and biliary system
	Fasciola gigantica	
	Fasciolopsis buski	Small intestine
Snails, clams fish and tadpoles	Echinostomes	Small intestine
Various species of fish, shrimps, insect	*Heterophyes* spp	Small intestine
Larvae and other aquatic foods	*Haplorchis* spp	
	Metagonimus spp	
	Stellantchasmus spp	