Freshwater fish-borne parasitic zoonoses in Italy
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Background
Fish-borne parasitic zoonoses are widespread all over the world. In 2010 EFSA emphasized the need to define the risks for the consumers through epidemiological studies on fish-borne zoonoses, with special reference to those linked to the freshwater environment such as human opisthorchiasis by the metacercariae of liver flukes Opisthorchiidae and human diphyllobothriasis by the plerocercoids of the cestodes Diphyllobothrium spp. In order to identify the fish species and the lacustrine environments considered at risk for transmission of D. latum and Opisthorchis felineus to humans, a parasitological survey has been carried out in Northern Italy.

Methods
A parasitological survey on zoonotic parasites has been carried out in the period 2013-2015 on 1937 fish belonging to 14 species sampled from Como, Iseo and Garda Lakes in Northern Italy.

Results
Plerocercoids of D. latum have been found in European perch, pike and burbot in Iseo and Como Lakes. No metacercariae of O. felineus have been found in the fish examined. Fish from Garda Lake were all negative.

Conclusions
Our results show that European perch from Iseo and Como Lake is the species with higher risk for transmission to human, being often consumed raw as a traditional dish in local restaurants. O. felineus has not been found in Northern Italy unlike the Central Italian lakes where it is endemic. The application of the procedures provided by the EU Regulation 1276/2011 and the Decree of Italian Ministry of Health (2013) on the appropriate treatment for consumption of raw fish products is achieving some results as shown by the decreased occurrence of human cases due to fish parasites, as reported by several physicians. In addition the Italian Ministry of Health has produced specific recommendations to fill the gap in the EU legislation to address the risk of human opisthorchiasis due to the high resistance and the small dimensions of the metacercariae in fish.

Key messages:
- Fish-borne parasitic zoonoses are increasing worldwide
- The enforcement of the EU and Italian legislation contributes to reduce the occurrence of human cases due to consumption of raw fish