Engagement of key stakeholders for the development of a participatory surveillance system of equine pregnancy and perinatal loss in Northern Italy

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Equine pregnancy and perinatal losses (EPPL) have a significant impact on the equine industry, including international trade, animal welfare, and public health [1]. In Italy, data on the etiology and risk factors of EPPL are limited [2], with no effective up-to-date reporting system in contrast with other EU countries [3]. This study introduces EQUIPER, a community-based participatory surveillance system of EPPL in Italy, for breeders (B) and veterinarians (V). EQUIPER aims to monitor and make accessible to stakeholders data on incidence and risk factors of EPPL. EQUIPER services will actively support stakeholders to manage EPPL, through continuous educational programs, laboratory diagnostic support and integrating epidemiological data with machine learning predictive tools made accessible through a user-friendly dashboard. To engage stakeholders, the EQUIPER multidisciplinary team organized a voluntary EPPL training day in University of Bologna. During this event, a knowledge and practice survey on EPPL was conducted targeting breeders and veterinarians present during the training through two anonymous on-line multiple-choice questionnaires via Microsoft forms: one tailored for B (34 questions) and one for V (31 questions). Questionnaires were structured in 5 sections: (1) intention to participate to a surveillance system; (2) general information, demographic data, professional experience; (3) knowledge of EPPL; (4) practices adopted to prevent EPPL; (5) experiences and management of EPPL in the last 3 years. The knowledge domain categories were assigned to participants as follows: "*very knowledgeable*" (>75% correct answers), "*knowledgeable*" (>50%) and "*not knowledgeable*" (<50%). Statistical analyses were conducted using R. All participants completed the questionnaire real time (23 V and 37 B). Most respondents (96% V and 84% B) would like to actively participate in EQUIPER, however 16% B and 4% V expressed the need for more information to decide and none disagreed. Regarding EQUIPER services, about half of V (55%) expressed the need for economical and logistic facilitation to dispatch samples to laboratory, while B (51%) expressed the need for regular training courses about EPPL. Participants acknowledged the need for an app/web dashboard (37% B and 34% V) to access data on EPPL and for educational activities on the epidemiology of infectious diseases (34% V and 8% B). *Very knowledgeable* (16% B and 8% V), *knowledgeable* (32% B and 56% V) and *not knowledgeable* (51% B and 34% V) stakeholders were identified. Although aware of the principal causes of abortion, knowledge gap included also the capacity to identify signs of high-risk pregnancy and abortion, a particularly important gap for passive surveillance components. Abortions, placentitis, and dystocia are reported as main problems in mares over the past 3 years, with less than one-third of respondents having a management plan for these issues. This study lays the groundwork for the development and implementation of EQUIPER, a participatory surveillance system for EPPL in Italy. B and V expressed clear interest in EQUIPER services which are recognized as highly relevant by stakeholders. However, considering their crucial role as sentinels of EPPL, targeted continuing education programs are needed with programs including risk factors for EPPL and related prevention strategies.

Keywords: breeders, veterinarians, surveillance, abortion, horses.

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