Objective
To evaluate the necessity of a coordinated leptospira surveillance in Bangladesh through a systematic review.

Introduction
Fever is a top cause of morbidity in all age groups in Bangladesh and often classified as fever of unknown origin (FUO) in absence of any pathognomonic sign (1). Bangladesh with its long monsoon, frequent flooding, stagnant water, high temperature, humidity and largest density of animal and human population serves as an ideal place for zoonotic transmission of Leptospirosis (2). As an eminent cause of fever in urban and rural Bangladesh causing hospitalization (4, 6). A study conducted in two hospitals in Dhaka showed 18% of the dengue-negative patients were positive for leptospirosis (5). Other studies have showed that 2-44% of febrile outpatients had leptospirosis in Bangladesh (4, 6). Furthermore, fever or FUO causes an average of 6.3 work days loss among Bangladeshis (1). Moreover, case fatality rate was higher in leptospirosis (5%) than dengue (1.2%) (5). All these epitomize the necessity of a coordinated leptospirosis surveillance in Bangladesh. A battery of serogroups such as Sarmin, Mini, Australis, Icterohaemorrhagiae, Cynopteri, Autumnalis, Shermmani, Javanica, Djasiman, Pyrogenes, Sejroe, Celledoni and Pamana were found in Bangladesh. However, study suggested undifferentiated serovars may be circulating in Bangladesh which resulted in underreporting of Leptospirosis burden (4).

Methods
We searched three different data bases- PubMed, Web of Science and Google Scholar using the search term Leptospira OR “Weil’s disease” AND Bangladesh which yielded 9, 11 and 2590 articles respectively. We screened the titles first for relevance and later abstracts. Two articles were written in Russian language and the texts were inaccessible. These two articles were not reviewed along with other articles that did not discuss the evidence of leptospira infection in Bangladesh. Five articles met our criteria and were finally chosen for review.

Results
Leptospirosis was evident in different geographical locations of Bangladesh such as south-eastern, central and north-western part with different landscapes such as highland, plain land and flood prone areas. It was distinctly frequent during bridging period of later winter, start of monsoon, and after monsoon (3-6). Leptospirosis was an eminent cause of fever in urban and rural Bangladesh causing hospitalization (4, 6). A study conducted in two hospitals in Dhaka showed 18% of the dengue-negative patients were positive for leptospirosis (5). Other studies have showed that 2-44% of febrile outpatients had leptospirosis in Bangladesh (4, 6). Furthermore, fever or FUO causes an average of 6.3 work days loss among Bangladeshi (1). Moreover, case fatality rate was higher in leptospirosis (5%) than dengue (1.2%) (5). All these epitomize the necessity of a coordinated leptospirosis surveillance in Bangladesh. A battery of serogroups such as Sarmin, Mini, Australis, Icterohaemorrhagiae, Cynopteri, Autumnalis, Shermmani, Javanica, Djasiman, Pyrogenes, Sejroe, Celledoni and Pamana were found in Bangladesh. However, study suggested undifferentiated serovars may be circulating in Bangladesh which resulted in underreporting of Leptospirosis burden (4).

In animal, leptospirosis was common in high yield and pregnant dairy cattle. Farmer’s education level, semen source, farm placed at peri-urban area, farm size and employee number were the driving force of leptospirosis at farm level. Serovar Hardjo was found in dairy cattle which confirms the presence of leptospirosis in animal population (7). The allied evidence of leptospirosis in other species as well as risk factors, dynamics of transmission, human animal interfaces, environmental drivers and disease impact can only be generated through a well-established surveillance system. Thus the need of establishment of an immediate surveillance is highlighted to mitigate the risk and disease burden human.

Conclusions
Our review shows that current study findings do not provide conclusive evidence regarding leptospirosis transmission, circulating serovars and impact in human. Thus a well-coordinated surveillance should be accommodated in the routine surveillance in Bangladesh to alleviate disease risk and morbidity.

Keywords
Leptospirosis; Surveillance; Bangladesh

References

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