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Public Health Administration



Brucellosis Control Program, Qassim

Surveillance Report 2013

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Introduction

Brucellosis, also known as "Undulant fever", "Mediterranean fever" or "Malta fever" is one of the common zoonotic diseases. It is an important public health problem in the Mediterranean region. Brucellosis is a systemic infection and may present in many atypical forms, varying from mild to severe acute infections. It is transmitted to humans by direct or indirect contact with infected animals or their products (Al-Eissa, 1999; Cekanac, Mladenovic, Ristanovic, & Lazic, 2010; Centers for Disease Control and Prevention [CDC], 2012). The disease in humans may last for a few months but mortality is low (Sasan, Nateghi, Bonyadi, & Aelami, 2012).

Kingdom of Saudi Arabia (KSA) is one of the highly endemic countries with brucellosis in the world. Passive surveillance for brucellosis was established in 1986 (Mishkhas, Al-Sheikh, & Al-Nayel, 2006). During the last 10 years, brucellosis incidence ranged from 12.54 to 22.8 per 100,000 population (Figure 1). Figure 2 shows the number of brucellosis cases in KSA during the year 2013. Qassim, an agricultural and animal husbandry region, is among the KSA regions with high brucellosis incidence (Figure 2).

Figure 1: Brucellosis Incidence per 100,000 Population, According to Year: Qassim Versus KSA, 2002-2013.

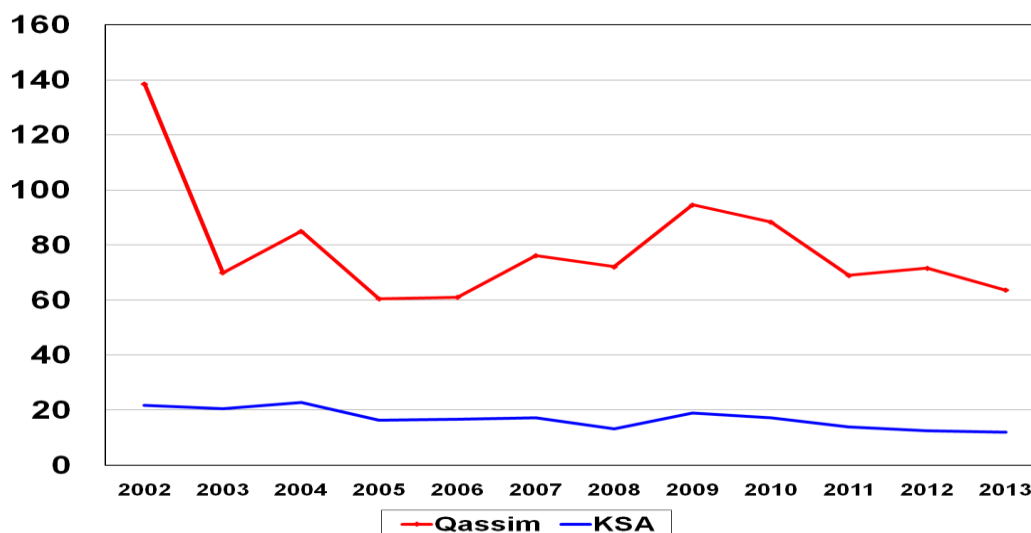
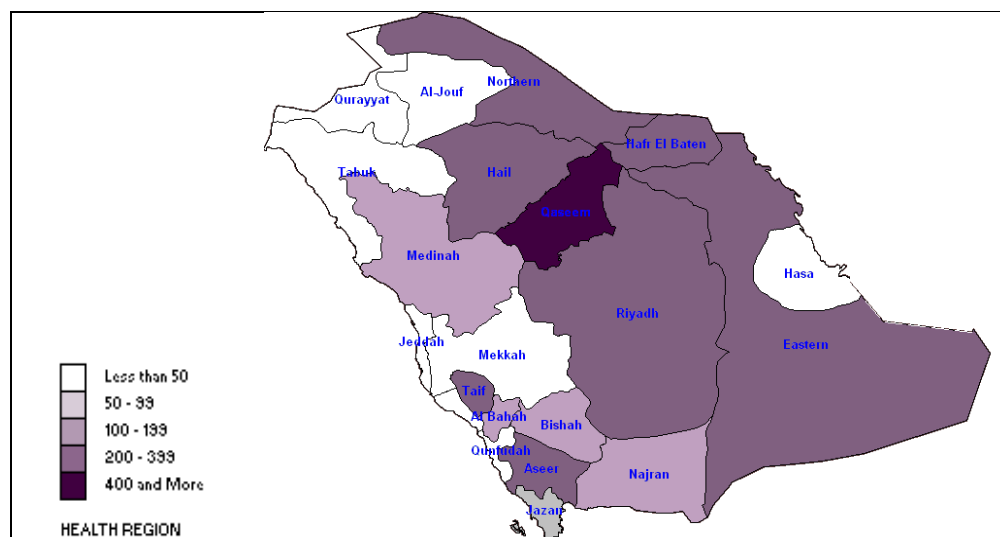
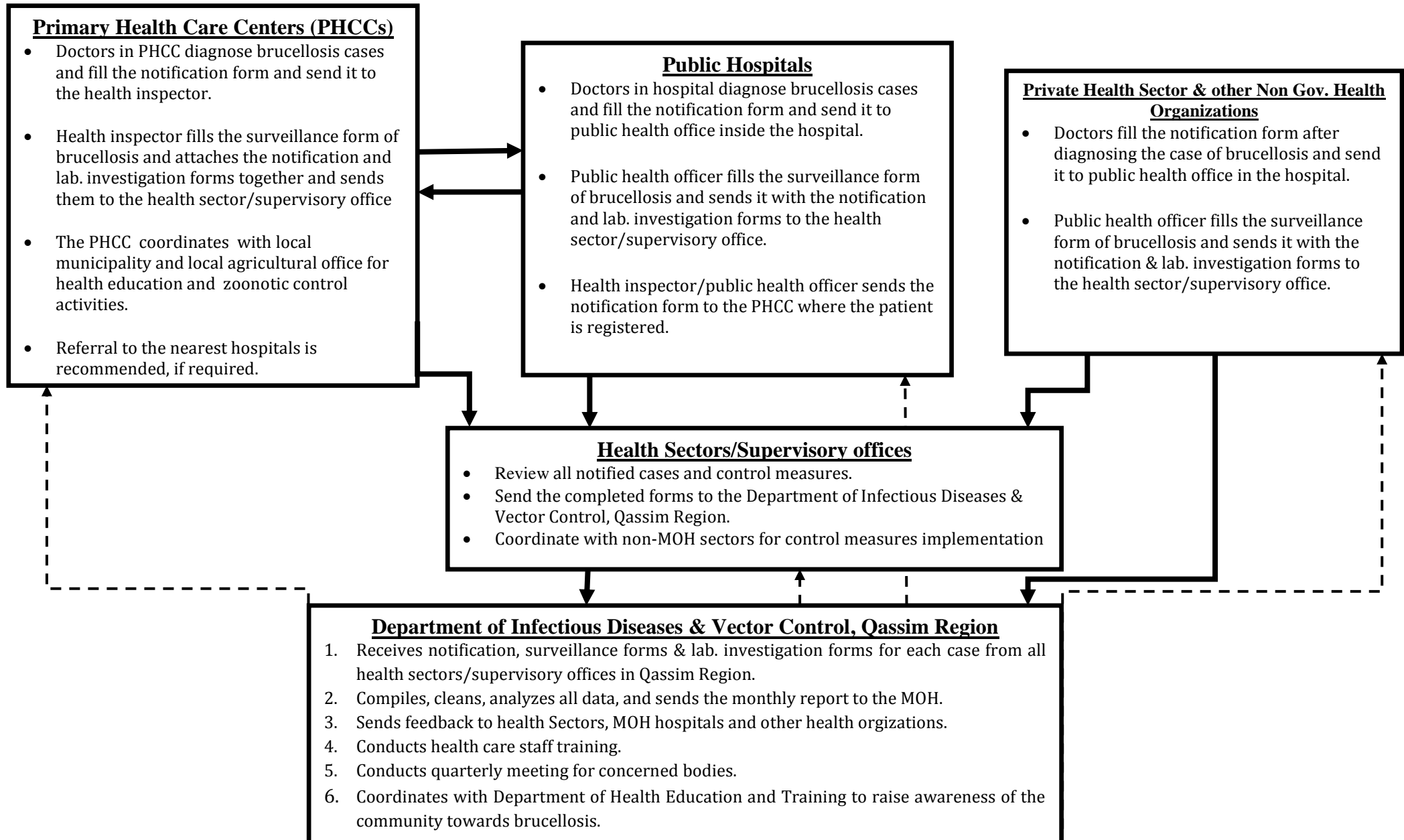


Figure 2: Notified Cases of Brucellosis by Region: KSA, 2013. N= 3,254

The Department of Infectious Diseases & Vector Control in Qassim Region is responsible for prevention and control measures for brucellosis. All levels of health care facilities including public or private sectors are responsible for reporting human brucellosis cases on weekly basis, with a total of 242 notifying sites. All physician-diagnosed brucellosis cases are notified to the Ministry of Health (MOH) following a well established surveillance system. The following diagram (Figure 3) summarizes the chain of brucellosis notification and the control measures taken.

The purpose of this report is to describe the surveillance system for brucellosis and to summarize the epidemiological characteristics of the disease and main activities for controlling brucellosis in Qassim region.

Figure 3: Brucellosis Channels of Notification, Qassim Region



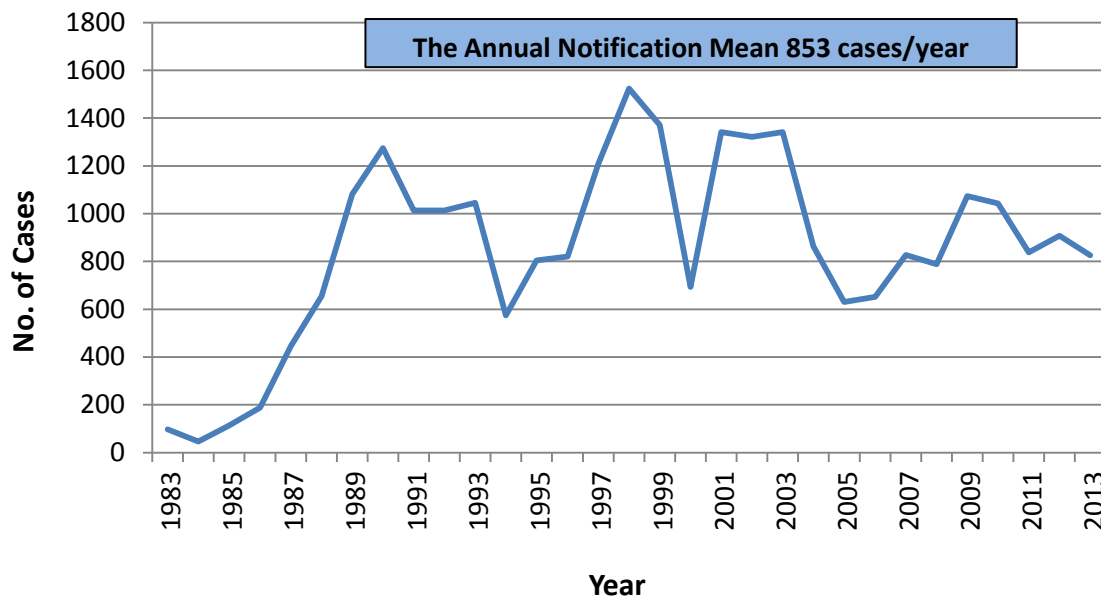
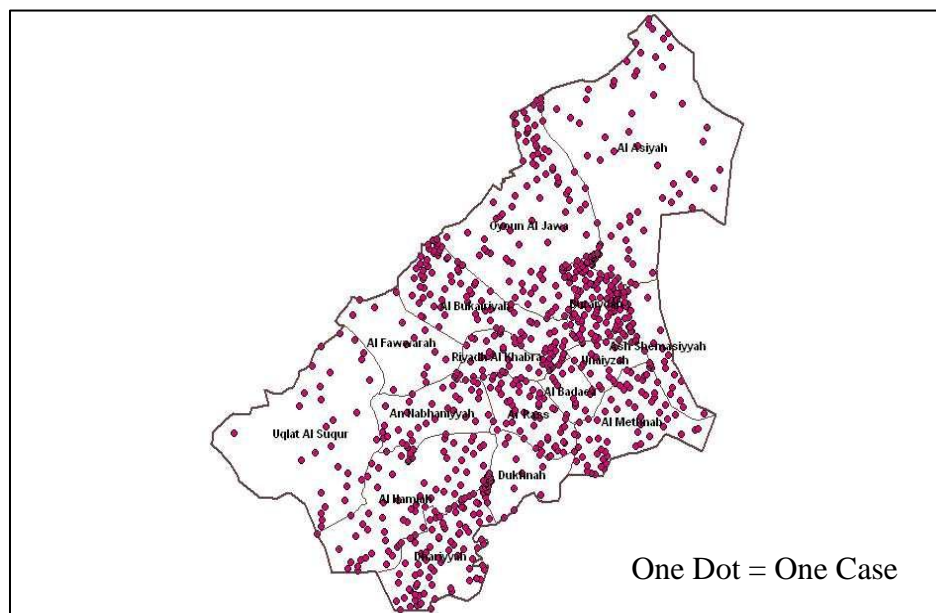
Epidemiological Features of Notified Brucellosis Cases: Qassim Region, 2013**Figure 4: Notified Cases of Brucellosis by Year: Qassim, 1983 – 2013. N= 25,603****Figure 5: Distribution of Brucellosis Cases by Health Sector: Qassim, 2013. N= 826**

Figure 6: Notified Cases of Brucellosis by Nationality: Qassim, 2013. N= 825

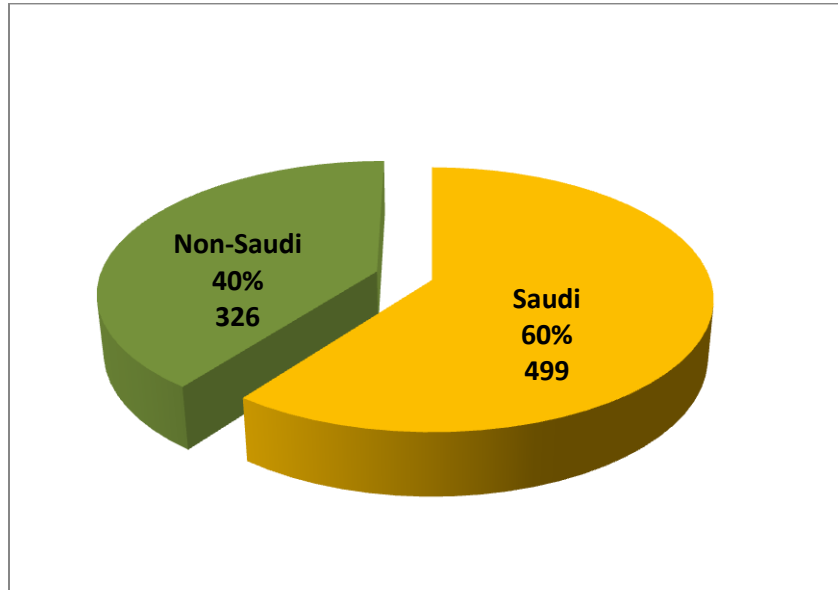
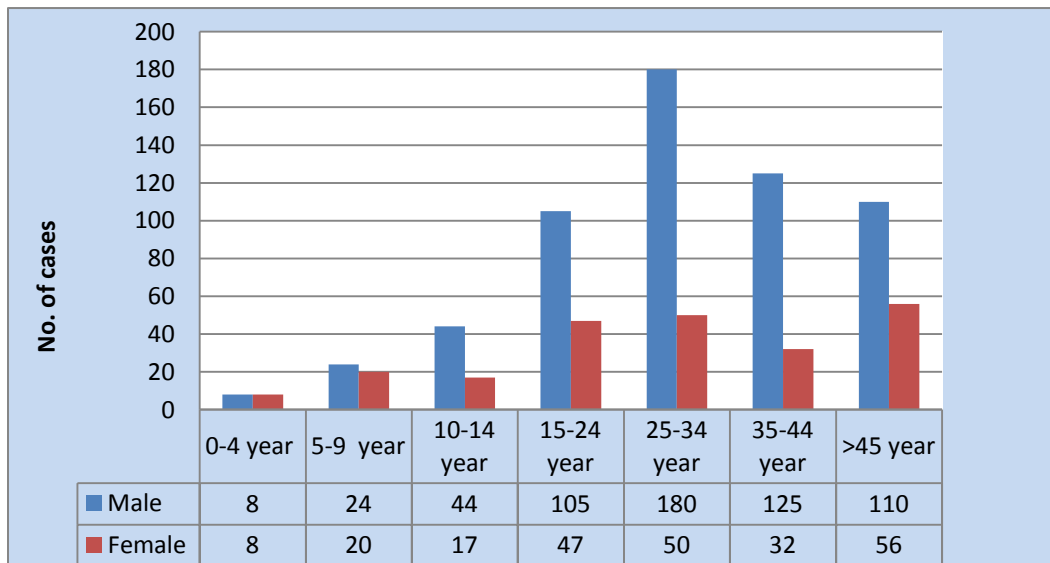


Figure 7: Notified Cases of Brucellosis by Gender and Age Group: Qassim, 2013. N= 826



Mean: 31year

Median: 30 year

SD ± 15.38

Figure 8: Notified Cases of Brucellosis by Gender: Qassim, 2013. N= 826

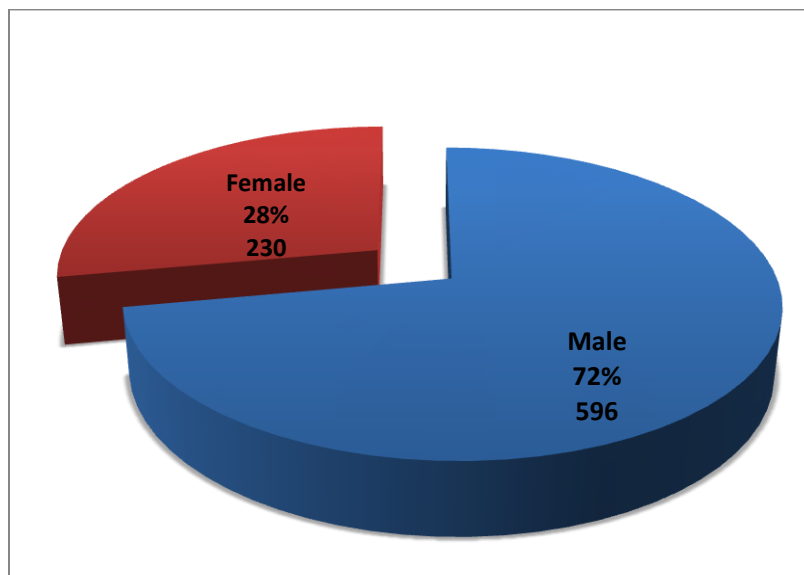


Table 1: Notified Cases of Brucellosis by Occupation: Qassim, 2013. N= 270.

Occupation	Number	Percentage
Shepherd	66	24.4
Housewife	40	14.8
Student	37	13.7
Farmer	36	13.3
Clerk/office worker	25	9.3
Unknown	25	9.3
Jobless	13	4.8
Pre-school	10	3.7
Worker	10	3.7
Driver	8	3
Butcher	0	0
Total	270	100%

Figure 9: Notified Cases of Brucellosis by Mode of Transmission: Qassim, 2013.

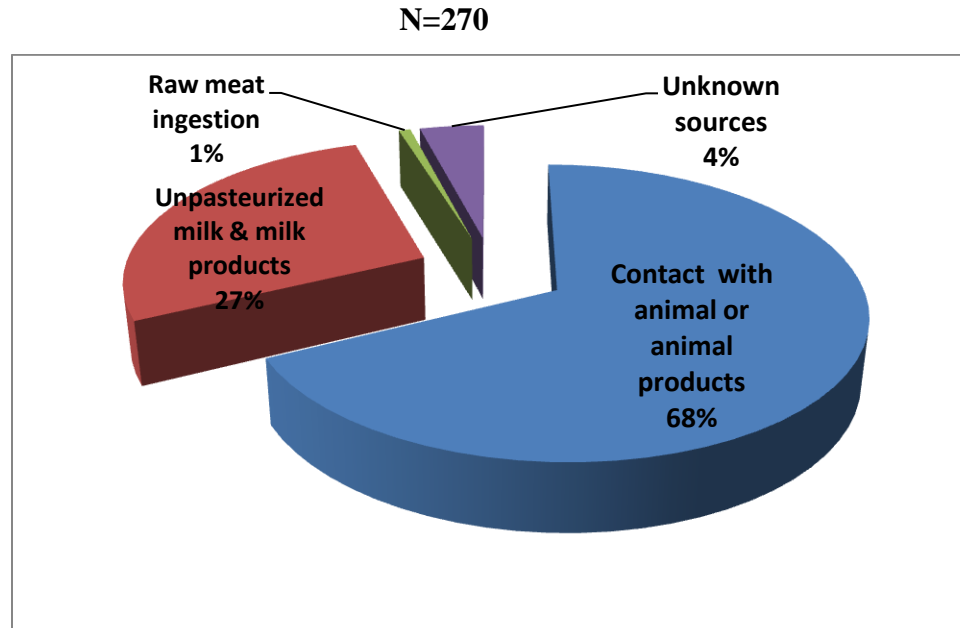
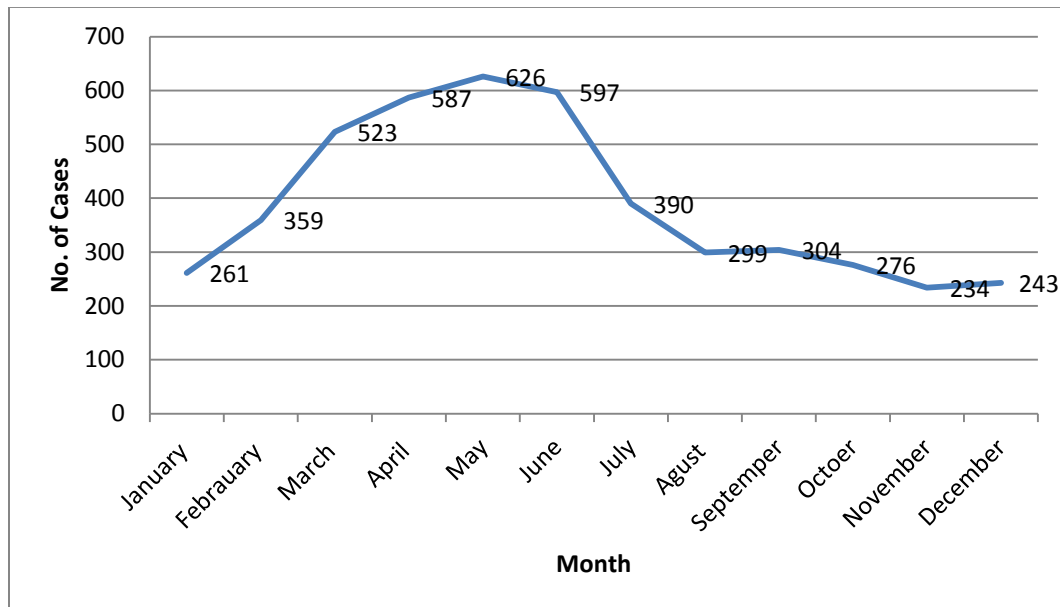


Figure 10: Distribution of Brucellosis Cases by Months: Qassim, 2009-2013. N= 4,699



Comments

In the period 1983–2013, the total number of reported human brucellosis cases in Qassim Region was 25,603 with a mean annual 853 notified cases/year (Figure 4). The regional incidence of brucellosis is much higher than the national one. No definite reasons explain such difference. High cattle enzooticity and strong surveillance system could be the possible reasons.

Incidence is highly variable among Qassim health sectors. During 2013, it ranged from 0.7 to 42.4 per 100,000 populations. In general, rural and suburban sectors reported higher incidence of the disease; the highest incidence was of Dhareyah sector and the lowest was of Unaizah. However, the highest number of brucellosis cases was reported from Buraidah health sector (125 cases; incidence: 22 per 100,000) (Figure 5).

Figure 6 displays that 499 (60%) cases were reported among Saudis. All age groups were affected by the disease. Although most cases were in young adults, cases in children deserve special interest (Figure 7). Overall, the number of males was more than twice that of females, (male-to-female ratio of 2.5: 1) (Figure 8). However, among Saudis, the difference between males and females is minimal (55% and 45% respectively) while among non-Saudis, majority of cases (98%) were in males, as expatriates in the background population are mostly males. Furthermore, brucellosis in non-Saudis seems to be an occupational disease. Since in rural areas, men deal more often than women with animal husbandry, which increases exposure to *Brucella* organisms.

Further analysis of 270 cases revealed that almost a quarter (24.4%) of reported cases were shepherd by occupation (Table 1). Two-third (68%) of these 270 cases reported contact with animals as the main risk factor, while 27% of cases confirmed ingesting unpasteurized milk and milk products (Figure 9). Five percent of cases did not mention any specific risk factor. This again reflects the consequences of the high enzooticity of brucellosis, as possible casual contact could have happened and forgotten or various other risks may have been practiced and underestimated.

While brucellosis, in general, is much more common during summer than winter months in Qassim Region, notified human brucellosis is highest during the period between April and June (Figure 10). This coincides with the peak period for abortions and parturition among farm animals, and hence the highest level of occupational exposure of those attending the animals and consuming their raw milk.

Brucellosis continues to be highly endemic in Qassim region in spite of local control measures that included regular meeting of the regional multisectoral zoonotic diseases control committee. Through this committee, many control measures were conducted, augmented or attempted. These include annual regional anti-brucellosis day, school health education, communication with higher officials to strengthen central measures e.g., animal vaccination, animal screening and slaughtering infected herds.

To conclude, brucellosis is highly endemic in Qassim region. Unless it is controlled in animals, the disease will continue circulating in animal and human populations, resulting in negative economic and health consequences.

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