-Conclusion
17. Conclusion

Epidemiological studies possess a significant role in the control of communicable diseases. The information gathered through such studies can form a strong foundation for the planning and implementing stages of the infectious disease control. The basic step in any epidemiological research consists of a proper understanding of the distribution of a particular disease in a specified population. Not much epidemiological data are available with respect to MRSA infections in India. Since the most important source of MRSA infections is the colonizers, it is essential to know the status of MRSA colonization in a specified community. Identification of the burden of MRSA colonization in a community can help in the initiation of decolonization measures among the carriers. Many studies have identified school children as the major colonizers who spread CA-MRSA infections. Same is the reason for the choice of school children in our study also as the subjects to figure out the MRSA nasal colonization status at Udupi taluk, Karnataka, India.

MRSA isolated from anterior nares of school children were characterized by determination of antibiotic susceptibility pattern, urease production, existence of pvl gene, SCC mec types and PFGE pattern. The risk factors for SA and MRSA colonization were also studied by using a standardized questionnaire. A few clinical isolates of MRSA were also characterized with the intention of finding out whether the MRSA colonizing the children and the one which causes disease belong to the same epidemiological type. The prevalence of MRSA nasal colonization among school children of Udupi taluk, Karnataka, India was very low (1.1%) during the
study period. Even though the rate was very low, those isolated strains are epidemiologically significant.

Most of them are highly virulent SCC mec IV-PVL positive CA-MRSA. PFGE pattern of few selected strains confirms that the isolates are the variant of classical EMRSA-15. They are very much similar to the reported Indian variant EMRSA-15 in their PFGE banding pattern. The epidemiological significance of that variant EMRSA-15 is their acquisition of \textit{pvl} and \textit{egc} genes which make them more virulent and deadly. More interestingly the clinical MRSA isolates are also of the similar types. This is an alarming piece of information. The pacifying fact here is the CA-MRSA isolates inhabiting this community have still not acquired any multidrug resistance genes. Thus there exists no threat to the therapeutic area. But it is necessary to take actions to prevent the spread of this virulent CA-MRSA by destroying them at the source itself. This can be achieved by decolonizing carriers using mupirocin ointment. Quarantining and decolonizing the carriers identified by conducting regular screening programmes for inpatients in hospitals will also be a good measure to prevent the spread of CA-MRSA infection.

17.1 Limitations of the study

There are few limitations in this study. Due to unavailability of the baseline data on the prevalence of MRSA colonization from this part of the country, the sample size was calculated based on a hospital based study conducted elsewhere. In this context, the low number of MRSA carriers identified in this study when compared to non-carriers limits the use of logistic regression model to study the association of colonization with the proposed risk factors. Genotyping of all the
isolates by PFGE and SCC mec typing would have given a better understanding of the epidemiological type of MRSA in this area.

17.2 Recommendations for future expansion

The study can be extended with more number of samples from other taluks of Udupi district to know the exact prevalence of MRSA colonization in Udupi district. MRSA colonization in other areas in the human body like axilla and groin can also be included while screening. Selecting identified MRSA colonizers from the community as cases, a case control study can be conducted to ascertain the actual risk factors. More detailed molecular typing of MRSA is possible by including PFGE, MLST or spa typing for all the isolates. More clinical isolates of MRSA can be collected and characterized to know the epidemiological type of MRSA causing infections in this area.