

## SHORT NOTE

### BACTERIOLOGICAL SURVEY IN ANTARCTICA

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*Staphylococcus aureus* is widely distributed on the skin, etc., in normal subjects, and it is reported that 19 to 65 per cent of normal adults in the United Kingdom harbour this organism in the nose (Miles and others, 1944). *S. aureus* is responsible for a wide variety of diseases, ranging from boils to pneumonia. The importance of *S. aureus* as a disease-producing organism is increasing as more of these organisms are becoming resistant to penicillin and other newer antibiotics.

The presence or absence of *S. aureus* on the skin may be influenced by a variety of factors, including the transfer of organisms from one individual to another by contact and also by environmental factors, such as temperature and isolation.

The conditions at an Antarctic station are suitable for studying the possible effects of isolation in a cold environment on the distribution of *S. aureus* over the skin. Cross infection can be determined as there are many varieties of *S. aureus* that can be identified by phage typing.

An investigation was carried out at Stonington Island (lat. 68° 11' S., long. 67° 00' W.) during 12 months of 1967-68. Stonington Island was used as a sledging base for various field parties which operated in the Marguerite Bay area of the Antarctic Peninsula mainly during the summer months of 1967-68. The only contacts were aircraft visits from neighbouring British stations from September 1967 onwards.

The 13 members of the station were swabbed in the nose, axilla, perineum, umbilicus and palms at intervals of approximately 1 month. The swabs were diluted in peptone water, and mannitol salt agar plates were inoculated. After 48 hr. they were sub-cultured on to agar slopes and all gram-positive cocci were tested for coagulase by the slide technique. All doubtful results were checked using a tube method. The positive cultures were preserved at room temperature (5°C) until they were phage typed the following year at the Cross-Infection Laboratory of the Central Public Health Laboratory, Colindale, London.

A new selective medium (Baird Parker's) was also used for a trial. It allowed growth of other bacteria apart from *S. aureus* but the colonial appearance of *S. aureus* is typical, black colonies surrounded by an opaque zone. The medium, however, is expensive and it deteriorated quickly after preparation.

Only three men were found to be carriers and the yield of positive isolations was low as is seen in Table I. On phage typing, the three carriers were shown to have distinct strains: DP (53/83A/85+), McA (81) and DH (52/80).

The three carriers showed no signs of skin abnormality; the three strains identified were shown to be fully penicillin sensitive.

There is no evidence from this small series for any transmission of organisms from one subject to another, confirming earlier observations by Sladen (1965). The number of positive cultures is lower than would be predicted. However, it would be premature to conclude that these results were influenced by environmental factors, since the technique used may well have been responsible for the failure to cultivate *S. aureus* more frequently. As stated above, the swabs were diluted in peptone water, and this procedure could have reduced the likelihood of obtaining a positive culture. On occasions, also, an overgrowth of coagulase-negative staphylococci (which are non-toxic) may have masked the presence of *S. aureus*.

Nevertheless, the apparently low rate of carriers is very striking, and it is to be hoped that further studies will be carried out to confirm or refute these findings.

I should like to express my thanks to the Cross-Infection Reference Laboratory of the Central Public Health Laboratory at Colindale, to the National Institute for Medical Research (Hampstead Laboratories), the British Antarctic Survey and all volunteers for their co-operation in the project.

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TABLE I. POSITIVE AND NEGATIVE SWABS THROUGHOUT YEAR

	1967										1968		
	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
RW	—	—	—	—	—	—	—	—	—	—	—	—	—
McA	—	N	—	—	—	—	Absent from station						
RB	—	—	—	—	—	—	—	—	—	—	—	—	—
DP	—	P	N	—	—	—	P	P	—	—	—	—	—
GS	—	—	—	—	—	—	—	—	—	—	Absent		
LW	—	—	—	—	—	—	—	—	—	—	Absent		
CM	—	—	—	—	—	—	—	—	—	—	—	—	—
WD	—	—	—	—	—	—	—	—	—	—	—	—	—
DH	—	—	—	N	N	—	N	N	Absent				
JN	—	—	—	—	—	—	—	—	—	—	Absent		
McL	—	—	—	—	—	—	Absent						
RE	—	—	—	—	—	—	—	—	—	—	Absent		
JC	—	—	—	—	—	—	—	—	—	—	—	—	—

Key: — No *S. aureus* isolated; N Nose; P Perineum.

## REFERENCES

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