*Medical Memoranda***Disinfecting the Clinical Thermometer****RESULTS***Brit. med. J.*, 1965, 2, 1414

It is remarkable that, though the taking of patients' temperatures is a manoeuvre which is probably more widely and frequently practised than any other clinical examination involving the use of instruments, little study appears to have been made of methods of disinfecting clinical thermometers.

Papers published by, among others, Ecker and Smith (1937), Gershenfeld, Greene, and Witlin (1951), Frobisher, Sommermeyer, and Blackwell (1953), Wright and Mundy (1958; 1961) all describe laboratory methods whereby clinical thermometers were deliberately contaminated with known bacteria, and then the effectiveness of various disinfectants was tested by total immersion of the thermometer for varying times in the disinfectant undergoing trial. The importance of initial wiping of the thermometer to remove mucus and debris was stressed.

On the evidence produced in these papers it would seem that the acceptable method available to general practitioners is to keep a separate thermometer for each individual patient, these thermometers being suitably cleansed and disinfected between use, allowing the thermometers to be immersed in the disinfectant of choice for a period of several minutes at least. For the busy general practitioner, particularly if he has no ancillary help, this is a time-occupying procedure which he will wish to avoid, and in the majority of cases he may be able to do no more than wipe the thermometer after use with some disinfectant. Alternatively he may keep the thermometer in a container filled with disinfectant; this may be adequate provided the thermometer is well wiped after use and the container is kept filled with disinfectant, and unless he has cause to take the temperature of more than one patient in any one household.

With a view to establishing whether effective disinfection of clinical thermometers could be achieved merely by thorough wiping with cotton-wool soaked in various disinfectants, it was decided to carry out a series of tests in the home or surgery rather than wholly in the laboratory. To this end observations were made on patients with clinically septic throats to see if pathogens were transferred to the thermometer and whether various disinfectants prevented or allowed this.

METHODS

Patients with clinically septic throats were selected and tested as follows: first a bacteriological throat swab was taken. The thermometer was then dipped in a bottle of sterile bacteriological broth (bottle A), then inserted in the patient's mouth in the usual way, wiped with cotton-wool soaked in the disinfectant under test, and then dipped in a second bottle of broth (bottle B). The first broth bottle was used to see if any bacteria were present on the thermometer before use. The swabs and broth bottles were then sent to the laboratory. Altogether in a survey lasting four and a half years 157 patients were examined and 10 disinfectants tested.

Of the 157 patients 106 carried either one or two pathogens in their throats. The pathogens isolated were *Str. pyogenes* (Lancefield Group A) on 94 occasions, *Staph. aureus* on 11 occasions and *Str. pneumoniae* once. In addition *Staph. aureus* was present along with *Str. pyogenes* 10 times and *Str. pneumoniae* with the *Str. pyogenes* once. One or other of these three pathogens infected the thermometer eight times, once despite the use of Merocet, once despite tincture of Merthiolate, and twice despite soap and water. When no cleansing of any kind was carried out pathogens were found on the thermometer on four of seven occasions (see Table). Some disinfectants had other disadvantages: tincture of Merthiolate stained, tinct. iodi decolorata smelt unpleasantly, Savlon made the thermometer very slippery. Soap and water alone was not wholly effective. Seventy per cent. ethyl alcohol, Hibitane 2%, Milton (1 part in 10), Roccal, T.C.P., and Lyseptol were all satisfactory.

Effect of Disinfection on Pathogens Found on Thermometer

No. of Experiments	Disinfectant Used on Cotton-wool Swab to Wipe Thermometer	Pathogens Present on Throat Swab	Same Pathogen Carried Over on to Thermometer
11	None	7	4
12	70% ethyl alcohol	5	0
11	Milton 1/10 (chlorine 0.1%)	7	0
12	Hibitane (chlorhexidine 0.5% in spirit)	10	0
14	Roccal (benzalkonium chloride 1%)	10	0
15	Tinct. Merthiolate (thiomersal 0.1%)	8	1
13	T.C.P. (chlorine 0.4%, phenol 0.63%, iodine 0.11%, salicylic acid 0.045%)	11	0
12	Savlon (cetrimide 3%, chlorhexidine 0.3%)	9	0
13	Soap and water	8	2
12	Tinct. iodi decolorata	9	0
12	Merocet (cetylpyridinium chloride 0.025%)	7	1
20	Lyseptol (liq. cresol sap. 1.5%, aether solv. 25%, spt. meth. ind. to 100%)	15	0
157		106	8

COMMENT

From the other work mentioned earlier in the paper it would appear that, ideally, clinical thermometers should be thoroughly wiped after use and then immersed in a suitable disinfectant for a period of several minutes. In general practice where this is impracticable the thermometer should be thoroughly wiped after use with cotton-wool soaked in disinfectant.

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