

A STEP FORWARD IN CONTAMINATION CONTROL

Darlene Cambio, R.N., Operating Room Supervisor, Imperial Room Supervisor, Imperial Point Hospital, Fort Lauderdale, Florida.

One of the most innovative new items on the market for the control of bacteria and dust in the Operating Room is the new "Dycem Contamination Control Screen" manufactured by Dycem Plastics Ltd., Bristol, England, and distributed by IPCO Hospital Supply, New Jersey. This mat is made of an inherent, tacky, non-slip plastic material which can be custom made to fit wall-to-wall in an operating room entry hall. It has been laboratory proven to reduce the amount of bacteria and dust at the entrance of the O.R. more effectively than any other mat on the market because:

1. Personnel and equipment must cross over the mat as it is wall to wall.
2. The mat can be made long enough to effectively remove the contamination from shoes and wheels.
3. The high friction property of the mat strips the contamination of shoes and wheels and holds it until the mat is cleaned with a detergent solution.
4. If shoe covers are worn, it does not remove them as do some stickier mats.
5. Dust and lint can be readily seen on the blue colour of the mat, thus indicating when cleaning of the surface is necessary.
6. Cultures taken of the equipment on personnel's feet, both before and after walking over the mat will prove the active collection of bacteria.

My first introduction to this floor mat was at the A.O.R.N. in Miami, March, 1976. Since the hospital where I work is located in a highly humid area where bacteria grow rampant, I was extremely interested in this new type of control and wanted to try it.

Since this operating room has been opened, Sentry Mats have been used for dust control. Sentry Mats consist of layers of adhesive sheets, contaminated layers being removed when necessary. The cost study which I made to justify the change was based on 20 working days per month, and peeling one or two layers of the mat per day, depending on the traffic flow.

Sentry Mats (covering 24 sq. ft)

Cost per year	\$1,308.00 (one layer per day)
	\$2,616.00 (two layers per day)
Average cost per year	\$1,967.00

Dycem Mats (covering 100 sq.ft.)

Cost per year	\$1, 194, 00 (2 ea. 4' x 12 1/2)
Annual Savings	\$ 773.00

(This mat is guaranteed to last one year and has been known to last longer, dependent upon the amount of traffic and the size of the O.R.)

These prices are based on a Dycem Screen 4 times the size of a Sentry Mat.

This study was presented to our Cost Containment Committee and literature describing the anticipated better bacteria and dust control to the O.R. and Infection Control Committees. It was agreed that this new Dycem Screen merited a try.

It was recommended by the manufacturer that at least a 12ft. length of the mat be used for effective control of the footborne contamination. Following a two-week trial of six 2ft. x 4 ft. sections, I suggested that better results could be obtained if the mat could be supplied in a continuous sheet of 4ft. x 12¹/₂ ft. This I felt would overcome the problem of the small sections becoming displaced under heavy traffic conditions.

The manufacturer agreed to this modification and on September 18, 1976 the new Dycem Screens were delivered and I believe our hospital was the first in the U.S.A. to install this new types of contamination control screen.

The dust collecting properties of the screen were immediately visible and we began to wonder if the bacteria collecting qualities were equally effective. If so, it might allow us to eliminate the use of shoe-covers.

Before doing any testing, the screen was cleaned thoroughly, following manufacturer's instructions. The surface of the screen was washed with a Quaternary (ammonia based) detergent and dried with a wet vacuum. We then wiped the surface of the screen with a 70% alcohol solution to remove any possible wax which might have been deposited there from stretcher wheels, as this would reduce the efficiency of the screen.

Our standard daily procedure is to wash the screen at two or three hour intervals, with detergent solution, the underside of the screen and the floor being washed and dried at the end of the day. The screen is wiped with alcohol at least once a week to remove the wax polish.

The screen was now ready for testing without shoe-covers.

Without shoe covers, cultures were taken before stepping on the mat and another culture taken after walking across the mat, but before stepping off the mat itself. Two trials were taken. Test #1 was taken one hour after cleaning. Test #2 was taken three hours after cleaning.

RESULTS

Test #1- Before stepping on mat:

Colonies too numerous to count

Predominant Organisms:

Staph Epidermis
Sarcina Species
Bacillus Subtilis

**Test #2- After walking on mat:
(One hour after cleaning)**

34 Colonies:

11 Staph Epidermis
9 Sarcina Species
14 Bacillus Subtilis

Test #2- Before stepping on mat:

Colonies too numerous to count

Predominant Organisms:

Staph Epidermis
Steph Aureus
Flavobacterium
Bacillus Subtilis

**Test #2-After walking on mat:
(Three hours after cleaning)**

180 Colonies:

109 Staph Epidermis
20 Steph Aureus
11 Bacillus Subtilis
40 Sarcina Species

In discussing the results with our pathology Department, it was decided that our physical set-up would not permit us to eliminate the use of shoe-covers as there is a public hallway just outside of the double doors to the operating rooms; however, we did agree that if a hospital was physically arranged so that personnel could enter a dressing area and change (wearing one pair of shoes for surgery only) and pas on through another door into the O.R. suite, there would be no need for any type of show covering. This would eliminate a costly item making the Dycem Screen even more desirable.

