



Evaluation Study
Germ Pro's Persistent Action Plan
Effect on Hospital Acquired Infections

This trial of Germ Pro began in September of 2008 in a 51-bed Long-Term-Acute-Care facility, part of which is a 6-bed special care (ICU stepdown) unit. Patient admitting diagnoses included surgical wounds, respiratory failure, and CVAs. Average LOS was 30 days. August 2008 was a transition month when Germ Pro hand lotion was introduced, but before Germ Pro disinfecting was performed. Implementation of Germ Pro was predicted to reduce nosocomial infection rates by 25% within 3 months, compared to the prior 6 months.

Germ Pro Products, Inc. (www.germproproducts.com) provided their hand sanitizing lotion and surface disinfectant to the hospital at no charge for the study. Germ Pro also assisted before the start of the study with instruction of all staff regarding the Persistent Action Plan. Special emphasis was placed on use of the hand lotion among clinical staff. Housekeeping staff were given separate in-service programs to discuss details of the cleaning regiment, including a schedule for regular cleaning.

Housekeeping used the persistent surface disinfectant consistently during the evaluation period. All beds were disinfected initially and thereafter were terminally cleaned using Germ Pro. Any bed that had not been terminally cleaned in the previous 30 days was automatically cleaned during the first week of the month.

Staff was instructed to apply the hand sanitizing lotion at the beginning of the day and reapply every 3 to 4 hours. Compliance of use of the hand lotion during the study was similar to that reported in most handwashing studies. That is, when staff were consistently reminded and prompted, use went up. When other surveillance activities took precedence, lotion use went down. A paper survey of staff indicated that they were aware of the product and had no objections to its use. Some complained that the product was not conveniently available and additional dispensers were placed in hallways. Again, as with other hand sanitizing programs, this did not permanently increase use. Therefore, part of the success of this program is dependent on sustained attention to hand lotion use.

Hospital acquired infection (HAI) data were tracked daily and compiled monthly. During the study period, HAIs were monitored and counted as during the previous 6 months: all newly identified pathogens were counted whether they were drug resistant organisms or not; each new organism was counted even if it was part of a polymicrobial infection at a single site. However, an organism that was found in two different sites at the same time was counted only once.

This was a before and after historical comparison. When a static comparison was made between the six months preceding and the six months following use of GermPro, there was a 46% decrease in the infection rates. There was a 62% precipitous drop in HAIs during the first two months after the program was started compared to the previous six months. However, thereafter the rates were erratic (See time line, Figure 1 below). December had the highest infection rate while using Germ Pro, but this was still 25% lower than the 6-month average rate before Germ Pro.

A trend line suggested that there was decrease in HAIs that had started before the GermPro trial. Therefore a statistical trend analysis was conducted. The statistical test confirmed that there was a steady decrease over the year of 3%. However, as the time line shows, except in the transition month of August, Germ Pro rates did not exceed the lowest rate prior to the introduction of the program.

The decreased infection rates are encouraging, especially in the first two months of the trial. The thereafter might be attributed to lower compliance in staff use of the hand product. Staff turnover, part-time staffing by infection control and the lack of ability to mandate lotion use are all believed to contribute to the difficulty in maintaining the exceptionally low rates achieved during the early part of the study.

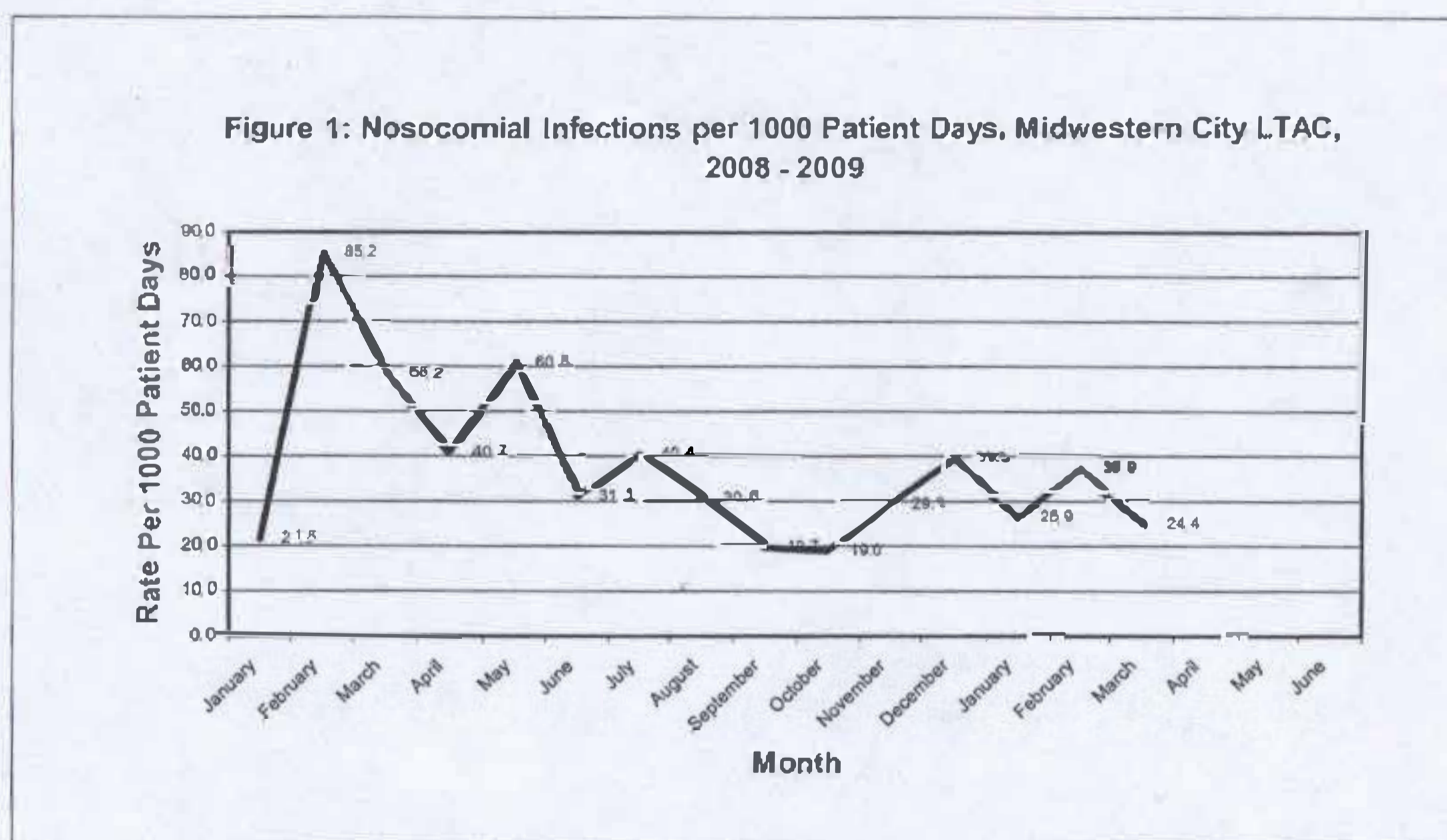
Since multi-drug resistant organisms (MDRO) have become a serious concern in all hospitals, a detailed analysis compared MDRO infection rates for the 6 months of Germ Pro use to the 6 months before Germ Pro use. The results were very impressive except for ESBLs.

A. baumannii	78.2%	reduction
C. difficile	65.6%	reduction
MRSA	57.1%	reduction
VRE	37.1%	reduction
ESBL	320.0%	increase
Total MDRO	48.4%	reduction
All Infections	46.3%	reduction

The total reduction of MDROs is very important, but other actions specific to ESBLs will need to be examined.

A separate study was conducted to verify that the hand sanitizing lotion had persistent action. Two clinicians washed their hands. One applied Germ Pro while the other did not. Afterwards they immersed their hands in a non-pathogenic solution to inoculate their hands. Both proceeded to conduct their usual duties for the next four hours. At the end of this time period both participants pressed their hands into an agar plate. At 48 hours, the plate from the Germ Pro user showed no growth while the other plate grew the test organism. Two other plates were inoculated by the study participants. Silver dressings were placed on these plates. At 48 hours, the Germ Pro plate showed growth inhibition that was better than the silver-coated dressings.

Additional research must be conducted to verify the speculation that hand lotion use is a primary factor in HAI rate decrease. A concurrent experimental design comparing similar units should be conducted to separate the effects of Germ Pro from other extraneous variables that may have contributed to the decrease in rates. However, on the assumption that the initial rates can be sustained with improved use of the hand lotion, the plans are to continue the Germ Pro program.



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