Surgical site infection rates and Post-discharge surveillance in the department of general surgery at Hadassah Ein-Kerem and validation of telephone surveillance

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Background
Rates of Surgical Site Infections (SSI) are viewed as an evaluation method of hospital performance, since a large part of risk infection is preventable by adhering to known and well based regulations.

One of the problems of following SSI is the release of the patients to their homes. It is held that SSI that appears up to a month after the surgery is attributable to the surgical procedure. In order to estimate the rate of SSI in the Surgery Department at Hadassah Ein Kerem I initiated a survey that was conducted during the hospitalization and in addition a telephone survey a month after the surgery.

Post-discharge surveillance for up to 30 days is necessary if accurate rate of infection following surgery is to be available, but the methodology has yet to be validated and standardized. Thus I conducted another study to validate the ability of the patients to diagnose infection in their own wounds by phone survey. My aims were to estimate the rate of SSI in the Surgery Department at Hadassah Ein Kerem, to validate post-discharge surveillance by telephone interview and to examine the role of this phone survey on the post discharge SSI rate.

Patients and methods
A prospective surveillance of 266 surgical procedures was conducted at general surgery departments at Hadassah Ein-Kerem Hospital from August 2007 through November 2007. The medical staff conducted a surveillance after the amount of SSI and in addition a Post-discharge surveillance for up to 30 days was conducted by telephone interview.

Another study was conducted to validate the phone survey. 263 patients were telephoned in order to ascertain the state of the wound using the same interview used at our rate of SSI study. The results of the phone interview were compared to a direct observation of
the wound by a surgeon, regarded as the gold standard, on the next day. The methodology was the same like the rate of SSI study.

**Results**

Of the 266 surgeries, 22 (8.3%) SSI detected by in-hospital surveillance. A post-discharge surveillance was done to 244 (91.7%) patients with no SSI during hospitalization. A post-discharge follow-up rate of 83% was achieved. The overall SSI rate was 16.8% (95% CI: (11.9-21.6)). There were 71%(95% CI: (58-83)) Superficial SSI, 13%(95% CI: (4-22)) Deep Incisional SSI and 13%(95% CI: (4-22)) Organ/Space surgical-site infections. 3% were not classified.

The incidence of SSI detected by in-hospital surveillance was 8.3%(95% CI: (4.9-11.5)) and the incidence of SSI detected by Post-discharge surveillance by telephone interview was 7.8% (95% CI: (4.1-11.5))\(^1\).

The study of the reliability of the phone survey revealed specificity of 90% and sensitivity of 66.7%. In a recalculation according to this datum the measure of the expected infection diagnosed by the surgeon in the department and after release is 12.8% and the measure of SSI expected after the release from the department is 3.4%.

Factors significantly associated with SSI were Creatinine>150 micromole/L, open surgery, contaminated or dirty wound and prolong duration of operation.

**Conclusion**

We can see that there is a wide range of estimations in the literature regarding the measure of SSI, resulting from a number of factors. In order to conduct a valid comparison, we must adapt the measurement method and the definition of infections to those conducted in other places and / or rely mainly on a long term comparison in the same place and with the same methods. In addition, in order to be able to compare this study to the NNIS I need a larger fixed sample over a continuous period of time.

The question of the necessity of a phone survey after release raises a dilemma. Since the phone survey has specificity of 90% and sensitivity of 66.7%, the phone survey causes an over diagnosis of SSI comparing to SSI rate diagnosed by the surgeon (15.5% comparing to 11.5%) however lacking follow up after release from the department will miss 1.9% of the SSI. Therefore we must consider improving this method or a unified forfeit of its use.

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1 The overall SSI rate is not the sum of In-hospital rate and post-discharge rate since the number of patients hospitalized is different from that number of participants in the phone survey.
References


