



Getinge Assured SafeStep ATP Monitor

Monitoring hand hygiene

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With the Getinge Assured SafeStep ATP Monitor

The importance of hand hygiene in the healthcare environment is a well-known fact. Proper hand hygiene disrupts the transfer of germs and microorganisms to patients, healthcare workers, and environmental surfaces.

The Getinge Assured SafeStep ATP Monitor detects Adenosine Triphosphate (ATP), the universal energy molecule found in all animal, plant, bacterial, yeast, and mold cells. Hygiene monitoring based on ATP is a simple method that can be used as part of a hand washing monitoring and training program. With a SafeStep ATP system, results are obtained in real time, providing on-the-spot feedback during training or as part of a random monitoring program.

Infection Control and Environmental Services managers responsible for training hand hygiene find ATP results clearly demonstrate the importance of proper hand washing. By scientifically measuring ATP, staff can easily see that with proper hand washing, lower ATP levels can be obtained, thus reducing the potential spread of unwanted organisms or germs. When ATP is picked up by the tip of the test swab and brought into contact with the unique luciferase/luciferin reagent in the test swab tube, energy is emitted in direct proportion to the amount of ATP present.

The test swab is then placed in the Getinge Assured SafeStep ATP hand held device. The device measures that energy in the form of light, which is quantified by using Relative Light Units (RLUs), and displays the level of contamination present in just 15 seconds. The greater the level of ATP, the higher the RLU value, the dirtier the hand.

How ATP measurement is used

1. As a training tool to demonstrate the effectiveness of good hand washing techniques.
2. As a monitoring tool to measure the efficacy of hand washing by swabbing clean hands immediately after washing (before hands come into contact with anything).

Data suggests that an 89% average reduction in ATP levels is achievable following effective hand washing. Measuring this improvement requires two samples: one before and one after cleaning (*as shown in Table 1*). The following experiment explains the process.

Experiment

Twenty workers were selected. Before hand washing, the palm of the dominant hand was swabbed using the test swab detection devices and measured with the Getinge Assured ATP Monitor. Workers then washed their hands, according to World Health Organization guidelines, using plain (non-antimicrobial) soap and water for 40 to 60 seconds and dried with a single-use paper towel. The palm of the dominant hand was again swabbed and measured.

A pass/fail limit of 60 RLU was used. If the result was higher than 60 RLU, the worker was asked to rewash his/her hands for retesting. A fail result required re-training of proper hand washing procedures. For daily routine monitoring or random monitoring, setting a single pass/fail limit of 60 would only require a single swabbing device per employee.

Testing Procedure

1. Take the test swab out of the tube and swab area of interest (Fig. 1).
2. Place the test swab into the tube (Fig. 2). In an upright position, hold the swab tube firmly and use the thumb and forefinger to break the snap valve by bending the bulb forward and backward (Fig. 3). Squeeze the bulb twice, expelling all liquid down the swab shaft. Saturate the swab tip in liquid by gently shaking for 5 to 10 seconds (Fig. 4).
3. Insert the Test Swab tube into the Getinge Assured SafeStep ATP Monitor hand held device (Fig. 5). Close and press the OK button. In 15 seconds the device will display the amount of ATP detected (Fig. 6).
4. The Getinge Assured SafeStep ATP Monitor hand held device can be synced to your computer and the reading is downloaded to the software program provided. The downloaded data can be used to produce detailed reports, as a part of the facility's QA system, providing testing history on the effectiveness of the cleaning procedures.



Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6

Results

Proper hand washing procedure resulted in an average 89.2% reduction in ATP levels. The RLU value after hand washing was almost always below 100 RLU and below 60 RLU in most cases.

Getinge recommends setting a realistic pass/fail limit depending upon individual circumstances; e.g., patient contact risk, frequency of hand washing, and type of soap/sanitizer used. Soaps vary in their effectiveness in reducing ATP levels. Before introducing an ATP hand washing program we recommend testing soap effectiveness by measuring the ATP levels on hands before and after a thorough correct hand washing procedure.

Getinge encourages management to duplicate the study outlined in this document with hospital staff, as a means of effective training and continuous improvement.

Note on Naturally Occurring ATP

As a living organ, skin has naturally occurring levels of ATP that are not attributed to dangerous microorganisms and bacteria that pose a health threat. Thus it is impossible to eliminate all ATP from skin cells and achieve a zero "0" RLU result. Also, because of differences in skin characteristics from person to person, there is no universal baseline for ATP levels on hands after washing.

Ordering Information

Getinge Assured

SafeStep ATP Hand Held Device with Software

SafeStep Test Swabs

Order Number

61301606628

61301606629

Contact Getinge to Order

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Table 1 ATP Reduction After Proper Hand Washing Procedure

Worker	Pre-wash RLU	Post-wash RLU	Percent Reduction	Result	Pre-wash Retest RLU
1	51	7	86.3%	Pass	—
2	573	88	84.6%	Fail	21
3	612	23	96.2%	Pass	—
4	42	21	50.0%	Pass	—
5	818	245	70.0%	Fail	61*
6	432	19	95.6%	Pass	—
7	406	23	94.3%	Pass	—
8	966	112	88.4%	Fail	14
9	186	24	87.1%	Pass	—
10	368	72	80.4%	Fail	15
11	295	24	91.9%	Pass	—
12	668	130	80.5%	Fail	81*
13	157	28	82.2%	Pass	—
14	384	16	95.8%	Pass	—
15	180	30	83.3%	Pass	—
16	296	20	93.2%	Pass	—
17	761	36	95.3%	Pass	—
18	1655	34	97.9%	Pass	—
19	196	25	87.2%	Pass	—
20	227	27	88.1%	Pass	—
Average	464	50	89.2%		

**Retraining of hand-washing procedure required*



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