# Orthopaedic Clinic: A Satire

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## Abstract

*Background:* Healthcare professionals aim to provide every patient with the time necessary to make a successful diagnosis and offer treatment options. As the demand for seeing more patients rises, so does the need for tools to make clinical visits more efficient. One of the most easily fixed issues is the time required to login to computers for collecting patient information, which can result in many hours lost in collective physician time. We propose use of a novel vibrating mousepad to save time by preventing computers from automatically logging off.

*Methods:* In half of a clinic-day, with 16 patient visits, we placed a vibrating mousepad on each designated computer. As a control, another computer was logged into before each patient visit.

*Results:* The computer designated to the vibrating mousepad successfully avoided re-login for 13 of 16 patient encounters (81.3%). Of the three unsuccessful events, two resulted from the mouse falling off the pad and one resulted from user error. Average login time was 11 seconds, including time spent typing and waiting for the screen to load to access imaging and electronic medical record programs. Annually, these results reflect potential time and financial savings per physician, respectively, of 7.3 to 17 hours and $3672 based on median salary of orthopaedists.

*Conclusions:* The vibrating mouse pad is an efficacious cost and time saving tool in busy orthopaedic clinics, allowing providers to increase their quality and quantity of care to the community.

## Introduction

Seeing patients in clinic is an important aspect of orthopaedic care. Whether a new patient visit or postoperative follow-up, we continue to hold ourselves to a standard to provide each patient with the time necessary for diagnosis and treatment options. A Medscape survey[1] in 2011 of orthopaedic surgeons found that most spent between 9 and 12 minutes per patient.[1] In 2016, this increased to 9 to 16 minutes per visit.[2] Although this a step in the right direction, there is still room to improve. By granting more efficiency to the clinic system, we allow ourselves to provide both quality and quantity of patient care to the community.

At our institution, several strategies have been successfully introduced to increase clinic efficiency, such as standardized radiograph order forms, pre-clinic radiographs, and well trained personnel. However, slow computers and long wait times for password logins have posed an insurmountable threat to clinic flow thus far.

Although the electronic medical record made communication, documentation, and ordering systemically easier, it is not without imperfections. One of the most easily fixed short-fallings is the inefficiency of computer login time. This time spent logging into a computer has resulted in significant collective loss of physician time. These hours could have otherwise been spent seeing patients and improving documentation. The aim of this article is to present a novel strategy for saving time and increasing productivity in an orthopaedic clinic by keeping the computer mouse active and preventing the physician's account from logging off.

## Methods

A Google search was performed for vibrating mouse pads. There were no commercially available vibrating mouse pads readily accessible on the internet. We then came across the Lulla-Vibe Vibrating Mattress Pad (Munchkin, Van Nuys, CA), with an average price of $20 on Amazon.[3] The pad requires four AA batteries. To activate the pad function, a large "On" button is squeezed. The mouse can then vibrate on the pad, preventing a computer from logging off (Figure 1).

In a clinic half day, with 16 patient encounters, we placed the mouse on an active vibrating mouse pad between each clinic patient encounter. As a control, another computer was allowed to log-off between patient encounters, requiring a physician log in for each encounter. All computers tested were enclosed in a designated, private,

well-furnished physician work room. We then measured the frequency of successful encounters where a physician work computer did not require re-entry of password.

To assess the average time that orthopedic physicians at our institution spend logging in to a computer in a given day we measured the time spent logging in to a computer after each patient encounter in a clinic day. Start time was defined as when the provider began typing to log into the computer. End time was defined as when the provider was able to access the patients' EMR and imaging software.

**Figure 1.** The vibrating device, which is placed next to the mouse to prevent the computer from automatically logging off owing to inactivity.

## Results

Of the 16 patient visits, our control computer was automatically logged out after every patient encounter. The computer designated to the vibrating mouse pad successfully avoided re-entry and login for 13 of 16 patients (81.3%). Of the three unsuccessful events, two were the result of the mouse falling off the pad, and one was a result of user error (ie, forgetting to turn the pad on between patient encounters).

The average time to log back in to a clinic computer was 11 seconds. This was measured during the clinic day. This includes time spent typing and time spent waiting for the screen to load to access imaging and EMR programs. Multiplied by a total of 32 visits for a full clinic day, this resulted in 352 seconds (5.9 minutes) spent per day.

With an average login wait time of 11 seconds per patient, time spent logging in at this rate for a 100 patient clinic day would result in 18.3 minutes per day of login waiting time. To control for variations in clinic schedules and patients seen per day by a physician, the calculated time spent logging in for 100 patient visits would be 1100 seconds (18.3 minutes).

## Discussion

Finding ways to improve clinic efficiency is an ongoing struggle. Several attempts at improving efficiency have been successfully implemented in the past; however, few have addressed the time a physician spends for login to a computer. Our study has investigated a novel strategy for reducing time spent in clinic caused by logging into computers. Use of the vibrating mousepad resulted in an 81.3% success rate at preventing re-entry of password into computers at physician work areas.

In the current study, other avenues for keeping the physician work computer open were explored, such as rubber banding an electric toothbrush to the mouse. However, this was quickly abandoned once we realized the time spent securing the toothbrush to the rubber band overshadowed the time spent logging in. We also considered addressing the "lock out" time set by the University Information Technology services. However, we spent several minutes investigating this endeavor, for which many institutions pre-set lock out times on physician work computers for patient privacy.

Our results indicated a conservative average time of 18.3 minutes spent logging in per 100 patient visits, which would result in savings of 14.9 minutes per 100 visits. (Calculated by 18.3 minutes divided by 100 visits, multiplied by the noted success rate of 0.813.) Estimating that the average orthopaedic surgeon at our institution sees between 60 and 140 patients per week in clinic, the vibrating mouse pad has the potential to save between 7.3 to 17 hours in annual time savings per physician (at 49 weeks of work per year). With the reported median income of an orthopaedic surgeon at $216 per hour,[4] the vibrating mousepad could save an orthopaedic-surgery clinic up to $3672 per year per physician, which would more than offset the cost of four AA batteries. Keeping in mind that these upper estimates are for an orthopaedic surgeon seeing 140 patients per week, the potential benefits could be much higher for a busier orthopaedist.

The limitations of this study include a small sample size. Only one orthopaedic resident was measured to assess login time. In addition, the average 11 second log in time may vary substantially with differing quantities of patients seen in clinic, time spent per patient, and use of a computer in a patient room. More commercially accessible and cheaper vibrating mousepads may also be available that did not meet our search criteria. This study also did not take into account the longevity of four AA batteries, which may be cost prohibitive in some institutions. Finally, this study did not account for the noise pollution produced by vibration of the mousepad in a physician work area, which may be offensive to some providers. Results of further

long-term studies, with larger sample sizes of patients and providers may help illuminate the potential benefits in time saving when using this technique.

## References


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