Caregivers and Computers:
The Effect of Electronic Medical Records on Employment and Labor Relations in Nursing Homes

FINAL REPORT

Submitted to the Quality Care Oversight Committee
and
1199SEIU Training and Employment Funds

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1. EXECUTIVE SUMMARY

This executive summary highlights the central findings documented in our final report submitted to the Quality Care Oversight Committee and 1199SEIU Training and Employment Funds**.** These findings are based on a comprehensive evaluation of the New York State nursing home demonstration project, which took place over the past two and a half years and included multiple data sources. The primary purpose of this research was to examine the effects of electronic medical records (EMR) adoption on employment and labor relations in participating New York City area nursing homes. Our evaluation of the demonstration project provided us with a unique opportunity to examine some of the most critical workplace issues associated with the introduction of new technology in general and of EMR technology specifically. Our evaluation set out to examine the manner in which EMR adoption affects key workplace variables such as recruitment and retention, employee attitudes and perception, and work design. In addition, we examined the central individual and organizational level variables that affected employee acceptance of the new technology.

Our research design combined both quantitative and qualitative dimensions at two points in time—pre- and post-EMR implementation. For our quantitative evaluation, we used a quasi-experimental design that incorporates fifteen homes that received the technology and five control homes that did not. We designed a number of survey instruments that captured the central constructs examined in this evaluation across different categories of employees. Our response rate for the Time 1 (baseline) and Time 2 (follow-up) surveys stands at approximately 50 percent, with 1,241 completed surveys in the first wave and 1,276 completed surveys in the second wave. In addition to collecting individual-level quantitative data through surveys, we also conducted pre- and post-EMR implementation qualitative field visits to ten of the participating treatment nursing homes.

By almost every threshold measure, the New York nursing home demonstration project was a great success. The vendor, eHealth Solutions, successfully installed the technology in twenty homes. The electronic documentation rates in the vast majority of these homes are well over 90 percent. Strictly from the standpoint of the technology, the project met or surpassed virtually all threshold tests of success. Simply put, the demonstration project, judged on technical grounds, was a remarkable achievement.

Furthermore, from an organizational standpoint, which was the primary focus of our evaluation, our analysis largely supports the notion that the implementation of EMR technology has a great deal of promise. In assessing the effects of EMR adoption one year after implementation, the following key findings emerged:

- First, EMR did not affect the ability of the nursing homes to retain their employees; attrition (or turnover) rates were identical in the treatment homes and the control homes.
- Second, the adoption of EMR did play a positive role in the ability of the homes to attract new employees.

- Third, employees in nursing homes receiving the EMR technology reported a statistically and significantly lower level of workplace conflict one year following the adoption of the technology.
- Fourth, employees in treatment homes reported a statistically and significantly higher level of reported communication between employees and supervisors.
- Fifth, there is evidence in our research to suggest that a considerable number of frontline employees experienced time savings from their use of the EMR technology. Many of these employees reported allocating these time savings to resident care or other organizational tasks.
- Sixth, our survey data also suggests a reduction in observed medical errors and near misses, as reported by frontline staff.
- Seventh, alongside the overall positive effects associated with the introduction of EMR, we also found significant variation in organizational outcomes across the fifteen homes that received the technology. For example, although in general job satisfaction did not change significantly after the introduction of EMR, in some homes job satisfaction increased.

In addition to the effects of EMR on organizational and individual-level variables, we also examined some of the dominant factors that enhanced or hindered the acceptance of the EMR technology by frontline staff. Overall, four central themes emerged from our analysis of employee technology acceptance:

- First, the general level of EMR acceptance was relatively high. Thus, it appears that for the most part employee acceptance of the EMR technology one year after its introduction had met or exceeded general expectations.
- Second, although the overall level of technology acceptance was relatively high, there was variation across the fifteen nursing homes. In other words, not all nursing homes achieved the same level of employee EMR acceptance.
- Third, results from the statistical analysis of our survey data highlight the role of critical workplace variables such as job satisfaction, commitment, and trust, in predicting employee acceptance of EMR.
- Employee perceptions of their union leaders played an important role in explaining technology acceptance. Employees who had a more positive view of their union leaders were more likely to have a higher level of technology acceptance.

Our qualitative research in ten of the treatment nursing homes uncovered three overarching managerial strategies guiding the adoption of the technology, which we refer to as the *empowerment, efficiency,* and *command* strategies. Each of these strategies, which are described in detail in this report, had clear implications for the implementation process and the outcomes that are associated with it. Two findings from our study highlight the important role that organizational factors played in the adoption of EMR technology:

- First, nursing homes with different degrees of frontline staff empowerment also had varying levels of employee turnover over the course of the first year of EMR implementation.
- Second, our report highlights the link between organizational variables and the cost associated with the implementation of EMR technology. Nursing homes with higher levels of job satisfaction and discretion were found to have had significantly lower adoption costs, as measured by the number of service calls made to the technology vendor.

The report builds on the empirical findings and outlines a number of key lessons for technology adoption:

- The optimal use of EMR is largely a function of leadership and management strategy.
- The belief that the workforce in nursing homes is a barrier to successful EMR implementation is a myth.
- Union and employee participation in EMR adoption is important.
- Frontline staff perceptions of job security are also important.
- Staff acceptance of EMR technology can be influenced by the organization.

Finally, it is important to place our evaluation and findings in the broader public policy context. The American Reinvestment and Recovery Act, passed by Congress and signed into law by President Obama in February 2009, was designed to stimulate the American economy and help it recover from the deep economic recession that began in 2008. Title XIII of the Act consists of the Health Information Technology for Economic and Clinical Health Act, also called the HITECH Act. The objective of the HITECH Act is to encourage the adoption of electronic health records (EHRs), including EMRs, by providing incentive payments to physicians and healthcare institutions. (The principal difference between EHR and EMR is that EHR allows patients or residents to have access, within the limits of confidentiality, to their healthcare records.)

We strongly believe our research on the New York nursing home demonstration project contains findings that can help inform the policy makers who are shaping the criteria that will guide the allocation of billions of dollars under the HITECH Act.