HB 905, HD 1

DATE: Wednesday, April 6, 2011
TIME: 2:45 p.m.

HB 905, HD1 RELATING TO DELIVERY OF GOVERNMENT SERVICES. HTH/

Requires the directors of Department of Health and Department of Human Services to collaborate with contracted health and human services providers to develop and update annually a health and human services delivery plan. Effective July 1, 2030. (HB905 HD1)

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
File:

Senate Committee on Health

Senate Committee on Human Services

Senate Committee on Ways and Means

April 6, 2011

Testimony of Loretta J. Fuddy, A.C.S.W., M.P.H.
Director of Health

HB905 HD1, Relating to Health

Department's Position: Comments and recommendations

Fiscal Implications: Unknown start-up costs, unspecified expenses depending on outcome of plans

Purpose and Justification: The Hawaii Department of Health expects net gains for the public as a result of collaborative planning with the Department of Human Services and contracted service providers.

As currently drafted, the planning process will occur amidst sweeping and simultaneous healthcare change: 1) ARRA HITECH's health information exchange, electronic medical records, and Medicaid incentive program; 2) ACA's health insurance exchange, payment reform, accountable care organizations, and Medicaid expansion; and 3) ICD-10 implementation. These changes will disproportionately impact the contracted providers HB905 HD1 compels to participate in the planning process.

Therefore the department respectfully recommends:

1) Removing or delaying the requirement for mandatory provider participation to allow them to focus on meeting pressing federal mandates, and/or
2) Pushing back the report due date from 2012 to 2014, when the first round of medical records, Medicaid expansion, and insurance exchanges are expected to come online. This will allow all parties the opportunity to assess how federal mandates have addressed gaps in service delivery, cost-effectiveness, and quality improvement; and permit DOH and DHS leadership needed time to re-orient their agencies.

Thank you for the opportunity to comment.

NEIL ABERCROMBIE
GOVERNOR

PATRICIA McMANAMAN
DIRECTOR

PANKAJ BHANOT
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
P. O. Box 339
Honolulu, Hawaii 96809-0339

April 6, 2011

MEMORANDUM

TO: Honorable Josh Green, M.D., Chair, Chair
Senate Committee on Health

Honorable Suzanne Chun Oakland, Chair
Senate Committee on Human Services

Honorable David Y. Ige, Chair
Committee on Ways and Means

FROM: Patricia McManaman, Director

SUBJECT: **H.B. 905, H.D. 1 - RELATING TO DELIVERY OF GOVERNMENT SERVICES**

Hearing: Wednesday, April 6, 2011; 2:45 p.m.
Conference Room 229, State Capitol

PURPOSE: The purpose of H.B. 905, H.D. 1, is to require the directors of the Department of Health (DOH) and Department of Human Services (DHS) to collaborate with contracted health and human services providers to develop, and update annually, a health and human services delivery plan.

DEPARTMENT'S POSITION: The Department of Human Services (DHS) supports the intent of this bill but requests deferral to allow the new administrations of the Department of Health (DOH) and Department of Human Services (DHS) to confer on the development of a health and human services delivery plan.

The discussion and careful consideration between the DOH and DHS of the components of an efficient and effective delivery plan will be more likely to lead to the development of a plan that will improve the efficiency, capacity and quality of health care services. This is critical to ensure that the provision of services to the clients of both departments is not adversely affected.

We would recommend that the effective date for this bill be changed to 2014 to allow the Department of Health and the Department of Human Services time to more effectively work together to ensure the development of a plan that will work and that will include the many changes taking place locally and nationally affecting health and human services.

We are also concerned about the possible fiscal impacts of this bill that would require staff and fiscal resources beyond what has been appropriated in the Executive Biennium Budget.

Thank you for the opportunity to provide testimony on this bill.

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Senate Committee on Health
Senator Josh Green, Chair
Senator Clarence Nishihara, Vice Chair

Senate Committee on Human Services
Senator Suzanne Chun Oakland, Chair
Senator Les Ihara Jr., Vice Chair

Senate Committee on Ways and Means
Senator David Ige, Chair
Senator Michelle Kidani, Vice Chair

Hearing on HB 905, Relating to Delivery of Government Services

2:45pm, Wednesday, April 6, 2011
Conference Room 229

Dr. Larry Burgess, Medical Director
Hoana Medical Systems, Inc.
828 Fort Street Mall, Suite 620
Honolulu, HI 96813

Testimony in SUPPORT of Proposed SD 1 to HB 905

Dear Chairs Green, Chun Oakland and Ige, and members of the committees,

Thank you for the opportunity to testify in support of the proposed SD 1 to HB 905, specifically Part III relating to a pilot of intelligent medical vigilance systems. My name is Larry Burgess and I am the Medical Director for Hoana Medical, Inc., the developer of the LIFEBED system. I am also a Professor of Surgery at the John A. Burns School of Medicine at the University of Hawai'i, as well as a practicing physician in the community. Additionally, I'm a retired Chief of Surgery at Tripler Army Medical Center. I address you today as Medical Director for Hoana Medical, Inc.

Each year thousands of preventable deaths and injuries occur in hospitals throughout the United States as the result of inadequate safeguards for alerting hospital staff in time to avoid these occurrences. These incidents place a heavy and unnecessary burden on our healthcare system, not to mention the families of these patients and the communities where they live and work. The healthcare industry is well aware of these patient safety issues and has taken proactive measures to identify and resolve these issues more effectively. Queen's Medical Center, the largest private hospital in the State of Hawai'i and a leading medical referral center for the Pacific basin, is one example of an institution that has proactively implemented programs and intelligent medical vigilance systems like the LIFEBED to enhance patient safety.

The LIFEBED system uses a unique and innovative technology designed to alert hospital nursing staffs of any abnormalities or changes in a patient's heart rate or respiration rate without the need to connect the

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patient to sensors or monitors. It also alerts nurses whenever a patient is attempting an unattended bed exit, thus allowing them to prevent patient falls that often lead to additional injuries and extended hospital stays.

Intelligent medical vigilance systems can detect many abnormalities or potential falls in their early stages, making it an invaluable safety tool for alerting nurses well before these conditions lead to more serious complications or even death. We feel that conducting a pilot study of intelligent medical vigilance systems is imperative for the State of Hawai'i for several reasons:

- First, and most important, intelligent medical vigilance systems save lives and prevent injuries. This has been proven in clinical trials as well as standard installations in hospitals such as Queen's Medical Center. In a 2010 utilization study at Queen's Medical Center, LIFEBED use reduced the patient fall rate by 40% over the initial baseline and continued ICU transfer rate reduction of 18%.
- Second, the current shortage of hospital nurses in the State continues to grow, adding to the stress and workload of our already overburdened healthcare workforce. Intelligent medical vigilance systems improve working conditions and morale for nurses by providing constant automated vigilance and enabling nurses to intervene early and successfully to save lives.
- Third, rising healthcare costs are a huge burden to society, and hospitals need new, intelligent medical vigilance systems such as the LIFEBED to lower costs without compromising the quality of patient care. By providing alerts that lead to early interventions, these systems help prevent many costly medical complications and injuries that lead to extended hospital stays. Considering that the cost for just one extra day in a hospital can exceed the cost of equipping a hospital bed with a medical vigilance system for an entire year, the savings for both the hospitals and insurance companies easily justify its use. In a 2010 utilization study conducted at Queen's Medical Center, LIFEBED use provided a cost savings return on investment (ROI) of 35.6%.
- Fourth, a pilot of intelligent medical vigilance systems would allow many more hospitals in Hawai'i to be able to implement this vigilance technology for their patients providing a much greater scale of cost savings and health benefits for the state as a whole.

Thank you for the opportunity to provide this testimony in support of the Proposed SD1 to HB 905. Considering both the patient safety and cost saving benefits associated with this technology, we fully support the intent of this bill to conduct a pilot of intelligent medical vigilance systems.

Aloha,

Larry Burgess, M.D.
Hoana Medical Systems, Inc.

828 Fort Street Mall, Suite 620, Honolulu, HI 96813

Tel: 808.523-5410 Fax:808.523-5480 info@hoana.com www.hoana.com

Senate Committee on Health
Senator Josh Green, Chair
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Hearing on HB 905, Relating to Delivery of Government Services

2:45pm, Wednesday, April 6, 2011
Conference Room 229

T. Heather Herdman, PhD, RN
Executive Director, NANDA International
Chief Strategic Officer, Hoana Medical, Inc.
828 Fort Street Mall, Suite 620
Honolulu, HI 96813

Short bio-sketch: I received my Bachelors in Nursing from the University of South Carolina (Columbia), and my Masters and PhD in Nursing from Boston College in 1991 and 1995, respectively. My most significant work experience has been in the area of patient quality, nursing-sensitive outcomes, and clinical judgment/critical reasoning in nursing. I am the Executive Director of NANDA International, a professional nursing organization that is highly focused on nursing's clinical judgment and impact of nursing on patient outcomes. As such, I have a distinct interest in technology that can provide objective data to nurses to improve their clinical judgment, and therefore improve patient outcomes. I am on several International Nursing Journal editorial boards, am the editor of one of the highest selling nursing textbooks, and speak nationally and internationally on clinical judgment, clinical reasoning, the impact of standardized nursing terminology on patient outcomes and patient safety. I am currently under contract to write a text on clinical reasoning and patient safety in nursing practice. I am also the Chief Strategic Officer of Hoana Medical, Inc.

Testimony in SUPPORT of Proposed SD 1 to HB 905

Dear Chairs Green, Chun Oakland and Ige, and members of the committees,

Summary: This testimony provides support for the Proposed SD 1 to HB 905, in particular Part III dealing with a pilot of intelligent medical vigilance systems to monitor patients in bed. My support is based on nurse staffing issues, and work environment factors required by nurses to ensure safe patient care. The critical report from the Institute of Medicine (IOM), "Keeping patients safe: Transforming the work environment of nurses" (2004), identified both the critical role that nurses play in promoting patient safety, as well as specific elements in the work environment that nurses need to provide good care.

The quality of patient care has been shown to suffer when staffing levels are poor (Lichtig, Knauf, & Milholland, 1999), demonstrating that when there are not enough nurses to provide care, patient safety suffers. The research link between staffing levels and patient outcomes is so strong that legislative efforts to mandate minimum staffing levels have been successful in several states and are underway in others. Unfortunately, the current nursing shortage suggests that finding nurses to fill gaps in staffing may not be easy (Berliner & Ginzberg, 2002). **Therefore, aspects of nursing other than staffing levels need to be addressed to adequately assure that hospitalized patients receive safe care**. Some of the environmental factors that can impact patient safety include health care technology that can provide objective information to nurses to prevent unanticipated events, including death due to failure to rescue. I

strongly believe that medical vigilance systems like Hoana's LifeBed meet this need, providing data about changes in heart rate or respiratory rate, as well as bed exits, allowing understaffed hospitals to assess patients, prevent accidental falls and deaths, and reduce overall costs.

The nursing shortage has led to decreased capacity for vigilant monitoring of patient deterioration. Equally important is how we currently care for patients on a general care floor (GCF). Periodic vital signs every 4 to 8 hours cannot detect sudden changes in a patient's status between readings; developing changes could still include a normal interval vital sign reading in the early to mid-stages of an evolving trend. Even if vital signs are obtained more frequently, gaps will still exist and worsening trends may be missed. Moreover, epidemiologic analysis of the timing of crisis calls in hospitals has demonstrated clustering of emergency calls at times of RN shift reports and routine assessments, suggesting that episodes of patient deterioration have been unrecognized and accumulating during shifts, with lack of recognition until the final rounds or handoff of patient care to the next shift. (Jones 2005, DeVita 2006). This recognized problem of interval vital signs, as pointed out by JCAHO, is coupled with the fact that intensive care and telemetry units are frequently overburdened with admissions, where the main need is vigilance monitoring as opposed to intensive care or monitoring for arrhythmias. This drives the cost of medical care higher.

Intelligent medical vigilance systems like LifeBed serve as an adjunct to, not a replacement of, professional nurses. They are intended to improve patient safety and hospital bed utilization by providing continuous, non-contact, noninvasive, real-time monitoring of heart rate, respiratory rate, and early detection of bed exit. It allows a more rapid response by providers to patients at risk of catastrophic events and outcomes.

LifeBed utilization has resulted in the timely recognition of emerging cardiopulmonary and respiratory events, improved patient outcomes, significant cost avoidance with a return on investment of 130%, and improvements in patient and nursing satisfaction.

A statewide pilot of intelligent medical vigilance systems like the LifeBed would provide nurses with important data to prevent patient injury from failure to rescue, unidentified respiratory failure, falls and other potentially life threatening conditions, result in the prevention of over 2,000 accidental deaths, over 20,000 accidental injuries, and an overall cost saving of approximately $31 million to the state of Hawaii.

Research support for my position is appended to this testimony.

Thank you for the opportunity to provide this testimony in support of the proposed SD 1 to HB 905. Considering both the patient safety and cost saving benefits associated with this technology, I fully support this bill and hope you will do the same.

Aloha,

T. Heather Herdman, PhD, RN
Hoana Medical Systems, Inc.

Nursing Shortage: Currently, a shortage of approximately 126,000 RNs exists in the U.S. This shortage is expected to increase to 808,000 by the year 2020 (both figures from US Dept. of Health and Human Services, 2002). A recent study of nurse-patient ratios concluded "...each additional patient per nurse (after 4) is associated with a 7% increase in both patient mortality and deaths following complications ..." (Aiken et al, 2002, pp. 1987). Given the rising acuity of hospitalized patients, the aging U.S. population, and the current and projected nursing shortage, improving technological support for nursing staff is essential. PIMA-3 demonstrated that continuous vigilance monitoring enhanced patient-centric care with increases in direct and indirect nursing care and documentation of those activities.

When nurses are assigned too many patients, their ability to quickly and adequately respond to patient needs and to provide safe and quality care diminishes. Thus, the premise of nurse-to- patient staffing ratios is a simple one: by establishing minimum staffing standards, nurses are afforded a more manageable patient assignment. As such, they are better able respond to patient needs and patient care and safety is improved. Evidence shows that non-compliance with nurse staffing ratios can be dangerous and deadly to patients. Research has demonstrated too many cases in which patients have been harmed, for example by medication errors, falls, or other preventable adverse events such as failure to rescue, when nurses are assigned patient loads that exceed minimum staffing standards.

Additionally, there is a growing number of research studies that have found a positive correlation between nurse staffing and patient safety and care quality, including research conducted by the federal Agency for Healthcare Research and Quality, the Joint Commission, and most recently, a study led by Linda Aiken, a professor at the University of Pennsylvania, School of Nursing, which concluded that improved nurse staffing results in better patient outcomes, including lower mortality rates, and improved nurse retention.

Several trends in hospital use and staffing patterns have converged to create potentially hazardous conditions for patient safety. High patient acuity levels, coupled with rapid admission and discharge cycles and a shortage of nurses, pose serious challenges for the delivery of safe and effective nursing care for hospitalized patients. While systematic national data on trends in the number of hours worked per day by nurses are lacking, anecdotal reports suggest that hospital staff nurses are working longer hours with few breaks and often little time for recovery between shifts.

Thousands of patients die each year due to compromised patient safety in hospitals in the United States, with an estimated 195,000 patient deaths annually due to medical errors; 75% of these are reportedly due to failure to rescue on general care floors (Health Grades Inc, 2004). The Joint Commission (JCAHO) reports that between four to 17% of inpatient admissions have critical events such as cardiopulmonary and respiratory arrests and vital sign changes, with warning signs preceding events by an average of six to eight hours (JCAHO, 2008). In response to these concerns, JCAHO's 2008 National Patient Safety Goal #16 mandates hospitals to "improve recognition and response to changes in a patient's condition." Requirement 16a requires that "the organization selects a suitable method that enables health care staff members to directly request additional assistance from a specially trained individual(s) when the patient's condition appears to be worsening."

The difficulty in early recognition of critical events has been attributed to the growing shortage of registered nurses (RNs), coupled with increasing administrative demands for their time.

The Extent of the Nursing Shortage

Nursing is the largest health care profession in the United States. According to the National Council of State Boards of Nursing, there were nearly 3.4 million licensed registered nurses (RNs) in 2006.Nurses and advanced practice nurses (nurse practitioners, nurse midwives, clinical nurse specialists, and certified registered nurse anesthetists) work in a variety of settings, including primary care, public health, long-term care, surgical care facilities, and hospitals. Approximately 59 percent of RN jobs are in hospitals. A federal report published in 2004 estimates that by 2020 the national nurse short- age will increase to more than 1 million full-time nurse positions. According to these projections, which are based on the current rate of nurses entering the profession, only 64 percent of projected demand will be met. A study, published in March 2008, uses different assumptions to calculate an adjusted projected demand of 500,000 full-time equivalent registered nurses by 2025. According to the U.S. Bureau of Labor Statistics,

about 233,000 additional jobs for registered nurses will open each year through 2016, in addition to about 2.5 million existing positions. Based on these scenarios, the shortage presents an extremely serious challenge in the delivery of high quality, cost effective services, as the nation looks to reform the current healthcare system. Even considering only the smaller projection of vacancies, this shortage still results in a critical gap in nursing service, essentially three times the 2001 nursing shortage.

Nurse staffing and mortality

Nursing staff mix reflects the strength of registered nurse care in the dose of nursing and is usually calculated as the proportion of nursing care provided by registered nurses of all nursing care provided. These two categories of nurse staffing variables have been found to have an inverse relationship (r=0.47, $p<0.0001$). Eleven studies included at least one measure of nurse staffing. Ten included a measure of nursing staff mix and four included a measure of nursing dose. Three studies included a measure of both categories.

Seven studies found that a higher registered nurse staff mix was related to lower patient mortality. Hartz and colleagues found that a richer registered nurse staff mix was one of the two strongest predictors of lower patient mortality. Several years later, Manheim *et al.,* found that hospitals that employed higher numbers of registered nurses per admission had lower 30-day mortality. Around the same time, Farley and Ozminkowski found that higher ratios of fulltime equivalent registered nurses per inpatient day were associated with lower risk adjusted mortality. Five years later, Schultz reported similar findings of an inverse relationship between registered nurse hours per patient day and risk adjusted hospital mortality rates. More recently, Needleman *et al.,* examined relationships between indicators of nurse staffing and failure to rescue or death after complication. They found that higher proportions of registered nurse hours were associated with lower failure to rescue rates for medical patients, and that higher hours of care provided by registered nurses were associated with lower failure to rescue rates for surgical patients. Around the same time, Aiken and colleagues studied the association between patient□to□nurse ratios and surgical patient mortality. They found that each additional patient per registered nurse increased the likelihood of dying within 30 days of admission by 7%. In a Canadian study, Tourangeau *et al* found that hospitals with a higher registered nurse staff mix had significantly lower mortality rates. Specifically, they found the mean risk adjusted 30 day mortality rate for acute medical patients was 15% but that a 10% increase in registered nurse staff mix caring for acute medical patients was associated with five fewer deaths in 1000 discharged patients. Finally, no evidence of a richer registered nurse staff mix and lower patient mortality was found in three studies.

Job satisfaction cannot be overlooked when considering the nursing labor supply. Nursing staffs' concerns about staffing levels and working conditions are likely to affect current nurses' commitment to remain in direct patient care. These concerns may also affect willingness to enter the nurse workforce in the future. Evidence from surveys and focus groups of nurses and former nurses, as well as early evidence of nurses' response to staffing changes, suggests a cost tradeoff between resolving the nursing shortage with higher wages and resolving the shortage by increasing nurse to patient ratios. Nurses have expressed concerns about patient load, inadequate staffing to handle the acuity of patients, inadequate time with patients, and inadequate time for required paperwork.

There are several reasons why demand for nursing is likely to increase in the future. Among them are the aging of the population, increased survival of people who are ill or have disabilities, and organizational changes in the health care industry, including the waning influence of managed care on providers' employment of nurses. Increases in the elderly population and in the number of persons with disabilities and chronic illness, and changes in the health care system will result in higher demand for all types of nursing staff in the future.

A 2004 report by the Institute of Medicine raised serious concerns about the impact of hospital restructuring in the 1990s on nursing work environments and patient safety outcomes. The authors noted that typical nursing work environments are "characterized by many serious threats to patient safety" and suggested that these conditions are caused by organizational management practices, work design issues, organizational culture, and the way nurses are deployed in current inpatient settings. The report found that strong, visible nursing leadership was an important factor in creating a positive work

environment and a "culture of safety." The Institute of Medicine report also showed that many hospitals have inadequate numbers of nurses to provide safe patient care and that unsafe work practices pose threats to patient safety. Indeed, Aiken et al., and Tourangeau et al., linked nurse staffing adequacy to patient mortality. Nurse burnout played a major role in these studies of relationships between nursing work environments and patient outcomes.

Nursing work life characteristics also are related to the occurrence of less ominous patient outcomes, such as falls, nosocomial infections, and medication errors. Sovie and Jawad found that nurse staffing levels were significantly related to lower patient fall rates, better pain control, and fewer nosocomial infections. Whitman et al., also linked nurse staffing levels to decreased fall rates and medication error rate in intensive care units. These outcomes complicate patient progress, have a negative effect on their well-being, and can lead to untimely death.

A growing body of research, based primarily on state and hospital administrative data, has established a relationship between inadequate hospital nurse staffing and increased risk of adverse patient outcomes, including mortality. Prolonged shortages also might reduce the quantity of patient care, increase operating and labor costs, and decrease the efficiency and effectiveness of care provided. Looking ahead, recently published projections indicate large, demographically driven shortages developing in the next decade.

A majority of nurses interviewed and participating in research have indicated concern for the amount of time nurses have to spend with patients. Studies have linked nurses to the timely identification of complications that, if acted upon quickly, might prevent deterioration in patients' condition and even avoid preventable deaths. However there are gaps in perceptions measured and reported by physicians and CEOs who, despite the research to the contrary, still do not associate nurses with patient safety or might not understand the impact nurses have in detecting complications early before they worsen and threaten a patient's life. This disconnect is troubling and deserves further consideration by providers and hospital executives.

Unnecessary Deaths in Acute Care Hospitals: In the 1999 landmark report entitled "To Err is Human", the Institute of Medicine estimated that at least 44,000 and as many as 98,000 Americans die each year unnecessarily because of medical errors. In 2006, Health Grades Inc. released another report, which examined 40 million Medicare discharges from 2002-2004. This report estimated that medical errors account for roughly 250,000 preventable hospital deaths annually. The report also states that a majority of these preventable deaths are associated with failure to rescue and death in low mortality DRG's, patient conditions generally found on the general care floor (GCF). The GCF represents all the non-critical care beds within the hospital, an area that has been underemphasized in much of the ICU-focused research on preventable deaths in hospitalized patients. Until recently, the usual practice for assessing patient condition on the GCF consisted of periodic spot vital sign checks every 4 to 8 hours by the nursing staff, leaving huge opportunities for unrecognized deterioration (Evans et al, 2001). Eighty percent of GCF patients are not monitored by any electronic device, and those 20% that are being monitored for heart or respiratory rate conditions, are not monitored continuously (Akridge, 2005.)

Approximately 25% of those patients admitted to ICU who die, do so after discharge to a medical-surgical unit, and many of these patients have adverse events (Goldhill et al., 2005). Adverse events, or adverse incidents, are defined by Vincent et al., (2001) as "an unintended injury caused by medical management rather than by the disease process and which is sufficiently serious to lead to prolongation of hospitalization or to temporary or permanent impairment or disability to the patient at time of discharge". The average ICU readmission rate in both North America and Europe is approximately 7% (range 4–14%) (Rosenberg and Watts, 2000), and readmissions occur more frequently in the evening and at night (Metnitz et al., 2003). According to Metnitz et al (2003), patients may be readmitted as a result of premature discharge or an adverse but related incident, they have a longer hospital stay and greater risk of dying (Rosenberg and Watts, 2000) either in intensive care or after transfer. Several risk factors for readmission that were present at ICU discharge have been identified, including: age, gender, number of organ failures at the first admission, respiratory support/mechanical ventilation and use of multiple vasoactive medications (Metnitz et al., 2003). Respiratory and cardiac conditions were the main reasons

for patients being readmitted, with respiratory and heart rate abnormalities identified as the most consistent predictors of ICU readmission (Johnstone, Rattray, & Myers, 2007).

Risks Associated with Under-Monitoring and Delayed Transfer: This recent research has demonstrated the risks of under-monitoring an increasingly ill population of patients on a typical GCF. For example, studies by Hillman (2001) and Buist (1999, 2004) have shown that GCF patients have abnormalities in heart and/or respiratory rates several hours prior to a critical cardiopulmonary event. Additionally, Young et al, (2003) found that a delay of greater than four hours in transferring a critically ill patient to the intensive care unit (ICU) was associated with significant increase in morbidity, mortality, and costs. With the current practice of checking on patients every 4 to 8 hours and a minimal percentage of patients being continuously monitored, these early warning signs can go unnoticed for hours and potentially lead to failure to rescue. By creating an automated system that measures continuously as compared to the traditional 'every-four-hours' (q4) vital signs check in practice today, and one that alerts care-givers of negative developments, the transfer time to the appropriate level of care can be reduced. This is the expected performance of the LifeBed system.

A study by Hodgetts et al (2002) showed that delays in diagnosis are a contributing factor in preventable in-hospital cardiac arrests. These delays could be reduced if an automated vigilance system provided rapid, accurate, and precise reporting of patient abnormalities to nursing staff. The development of a non-invasive, no-contact vigilance system would thus decrease preventable adverse clinical outcomes, by providing early warning of conditions that affect either heart rate and/or respiratory rate, or could lead to patient falls. Morse (2002) discusses the importance of decreasing the number of patient falls as a way to increase the quality and safety of hospitalization.

Failure-to-rescue has been cited as the number one cause of preventable hospital deaths (HealthGrades, 2005, 2006, 2007). The authors utilized AHRQ patient-safety indicators to examine all Medicare recipients in the sample, and determined that failure-to-rescue accounted for a majority of preventable deaths. This finding was confirmed using Veteran's Health Administration data (Rosen et al, 2005). These findings can be directly tied to decreased vigilance by over-extended providers. Clearly, more RNs are needed, and those that are currently working need adjunctive measures to improve vigilance on the general care floor. Earlier warning enables earlier assessment and improved outcomes (Buist 2004, Cummins 1991, 1992).

References

Aiken, L. H. (2002). Superior outcomes for magnet hospitals: The evidence base. In M.L. McClure & A. S. Hinshaw (Eds.), *Magnet hospitals revisited: Attraction and retention of professional nurses*. Washington, D C: American Nurses Publishing.

Aiken, L. H., Clarke, S. P., Cheung, R. B., Sloane, D. M., & Silber, J. H. (2003). Educational levels of hospital nurses and surgical patient mortality. *JAMA, 290*(12), 1617-1623.

Aiken, L. H., Clarke, S. P., Sloane, D. M., Sochalski, J. A., Busse, R., Clarke, H., et al. (2001). Nurses' reports on hospital care in five countries. *Health Affairs, 20*(3), 43-53.

Aiken, L. H., Havens, D. S., & Sloane, D. M. (2000). The magnet nursing services recognition program: a comparison of two groups of magnet hospitals. *AJN, 100*(3), 26-35.

Aiken, L. H., Sloane, D., Lake, E. T., Sochalski, J., & Weber, A. L. (1999). Organization and outcomes of inpatient AIDS care. *Medical Care, 37*(8), 760-772.

Aiken, L. H., Smith, H. L., & Lake, E. T. (1994). Lower medicare mortality among a set of hospitals known for good nursing care. *Medical Care, 32*(8), 771-787.

American Nurses Credentialing Center (2003). The Magnet Hospital Recognition Program. Retrieved 10/4/04 from: http://www.nursingworld.org/ancc/magnet/faqs.html

Berliner, H. S. & Ginzberg, E. (2002). Why this hospital nursing shortage is different. *JAMA, 288*(21), 2742-2744.

Donchin, Y., Gopher, D., Olin, M., Badihi, Y., Biesky, M., Sprung, C. L., et al. (1995). A look into the nature and causes of human errors in the intensive care unit. *Critical Care Medicine, 23*(2), 294-300.

Goldstein, S. M. & Schweikhart, S. B. (2002). Empirical support for the Baldrige Award framework in U. S. hospitals. *Health Care Management Review, 27*(1), 62-76.

Greenfield, L. J. (1999). Doctors and nurses: A troubled partnership. *Annals of Surgery, 230*(3), 279-288.

Hinshaw, A. S. (2002). Building magnetism into health organizations. In M. L. McClure & A. S. Hinshaw (Eds.), *Magnet hospitals revisited: Attraction and retention of professional nurses.* Washington, D C: American Nurses Publishing.

Keenan, G. M., Cooke, R., & Hillis, S. L. (1998). Norms and nurse management of conflicts: Keys to understanding nurse-physician collaboration. *Research in Nursing and Health, 21*, 59-72.

Knaus, W. A., Draper, E. A., Wagner, D. P., & Zimmerman, J. E. (1986). An evaluation of outcome from intensive care in major medical centers. *Annals of Internal Medicine, 104*, 410-418.

Kohn, L. T., Corrigan, J. M., & Donaldson, M. S. (Eds.). (2000). *To Err is Human: Building a Safer Health System. Washington* D. C.: National Academies Press.

Kramer, M. & Schmalenberg, C. E. (2003), Magnet hospital nurses describe control over nursing practice. *Western Journal of Nursing Research, 25*(4), 434-452.

Lichtig, L. K., Knauf, R. A., & Milholland, D. K. (1999). Some impacts of nursing on acute care hospital outcomes. *JONA, 29*(2), 25-33.

McClure, M. L., Poulin, M. A., Sovie, M. A., & Wandelt, M. A. (2002). Magnet hospitals: attraction and

retention of professional nurses (the original study). In M. L. McClure & A. S. Hinshaw (Eds.), *Magnet hospitals revisited: Attraction and retention of professional nurses.* Washington, D C: American Nurses Publishing.

Page, A. (Ed.). (2004). *Keeping Patients Safe: Transforming the Work Environment of Nurses.* Washington, D. C.: National Academies Press.

Pronovost, P., Berenholtz, S., Dorman, T., Lipsett, P. A., Simmonds, T., & Haraden, C. (2003). Improving communication in the ICU using daily goals. *Journal of Critical Care, 18*(2), 71-75.

Reason, J. (!990). *Human Error.* Cambridge, UK: Cambridge University Press.

Scott, J. G., Sochalski, J., & Aiken, L. H. (1999). Review of magnet hospital research: Findings and implications for professional nursing practice. *JONA, 29*(1), 9-19.

Sochalski, J. (2001). Quality of care, nurse staffing, and patient outcomes. *Policy, Politics, & Nursing Practice, 2*(1), 9-18.

Sutcliffe, K. M., Lewton, E., & Rosenthal, M. M. (2004). Communication failures: An insidious contributor to medical mishaps. *Academic Medicine, 79*(2), 186-194.

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Senate Committee on Health
Senator Josh Green, Chair
Senator Clarence Nishihara, Vice Chair

Senate Committee on Human Services
Senator Suzanne Chun Oakland, Chair
Senator Les Ihara Jr., Vice Chair

Senate Committee on Ways and Means
Senator David Ige, Chair
Senator Michelle Kidani, Vice Chair

Hearing on HB 905, Relating to Delivery of Government Services

2:45pm, Wednesday, April 6, 2011
Conference Room 229

Dr. Patrick Sullivan, CEO
Hoana Medical Systems, Inc.
828 Fort Street Mall, Suite 620
Honolulu, HI 96813

Testimony in SUPPORT of Proposed SD 1 to HB 905

Dear Chairs Green, Chun Oakland and Ige, and members of the committees,

Thank you for the opportunity to provide testimony in support of the proposed SD 1 to HB 905, specifically Part III relating to a pilot of intelligent medical vigilance systems. My name is Patrick Sullivan and I'm the CEO of Hoana Medical, Inc., the developer of the LIFEBED system. I'm also the inventor of the technology, which was spun-out of Oceanit, after about five years of research & development with the U.S. military.

Thousands of preventable deaths and injuries occur in hospitals throughout the United States as the result of inadequate safeguards for alerting hospital staff in time to avoid these occurrences. The healthcare industry is well aware of these patient safety issues and is taking steps to identify and resolve these issues. Queen's Medical Center for example has been proactively implementing programs and intelligent medical vigilance systems such as the LIFEBED to enhance patient safety.

The LIFEBED system uses a unique and innovative technology to alert hospital nursing staffs of any abnormalities or changes in a patient's heart rate or respiration rate without the need to connect the patient to sensors or monitors. It also alerts nurses whenever a patient is attempting an unattended bed exit, thus allowing them to prevent patient falls that often lead to additional injuries and extended hospital stays. Given that periodic nursing surveillance is anywhere from every two to six hours, medical vigilance systems help find patients in distress during these windows, making it an invaluable safety tool for alerting nurses well before these conditions lead to more serious complications or even death.

February 16, 2011

The Honorable Senators and State Representatives
415 South Beretania Street
Honolulu, HI 96813

Dear Honorable House and Senate Members of the Humans Services/ Health and Ways and Means Committies:
CHUN OAKLAND, FUKUNAGA, KIDANI, RYAN, SHIMABUKURO, Dela Cruz, Ige, Ihara

RE: Urging the Legislature to support SB925 and include
Appropriations for Maui County.

I am writing to urge the state Legislature to support Early Identification (EID) and Healthy Start (HS) Home Visitation services on the neighbor islands of Lanai, Maui and Molokai. These services are critically important to our neighbor islands for finding at risk families and helping to provide their newborns, infants and toddlers a Healthy Start in life.

Before funding cuts, EID and the Healthy Start program helped ensure that Maui County's children had a safety net to protect them from possible maltreatment, thus reducing expensive interventions for the state in the future.

The islands of Oahu and Hawaii already have up and running recipient programs and so does Maui County because the need is there. Without state support, the existing services on the neighbor islands will not be able to continue running on dwindling non-profit agency emergency funds.

Lanai, Maui and Molokai are in dire need of funding support to expand and secure early childhood intervention and education programs through EID and Healthy Start. Thank you for your attention to this important issue.

I have worked in the Heathy Start program, here on the island of Lanai and have helped many young families. Because of funding cuts I had lost my position as Healthy Start homevisitor and the many families that I was working with was sad because of the lack of programs offered on Lanai for these young children. Parents were able to get developmental help for their children. Learn activities to keep their children on their developmental milestones to prepare them for preschool. Parents were able to learn better skills of disciplining their children, in teaching children the right thing to do instead of hitting or yelling at them the way they were taught growing up, preventing child abuse and neglect.

A Mom from the Philippines said that she was greatful for being able to participate in Healthy Start Program when it was available on Lanai. Mom never knew that she could work with her child from infant, or even talk to her child while still in the womb. As she had 2 children before coming into the Healthy Start program, this Mom noticed the difference between her children born in the Philippines and her child now. Mom says that she is really doing well in school and really loves to learn and able to get along with other children. Mom feels that her child is really exceling in school thanks to the help of our program. Because Healthy Start was able to help Mom get the skills she needed to teach her child.

Healthy Start Program is very imprortant especially here in Hawaii and especially on the Tri-Islands of Maui, Lana'i and Moloka'i
where rescources and programs are already so limited.

I feel that it's really important to work with Parents with very young children....the children are so impressionalbe..... the future of Hawaii.
Doing a lot of prevention now in helping familes and children....it will save dollars for the future of Hawaii.

I've also noticed some of the families that I have worked with in the past. Because of funding cut, the families had to be told that we no longer had a program and no other program was available. These children's behaviors have gotton worst and parents are referred to more critical programs because now the children are older, the children are behaving unruly, having difficulties in school, the parents experiencing more stress in their daily lives.

So please Support SB925 and Please Keep Heathy Start Funding and Please Include Maui County.
Your Consideration is greatly appreciated.

Respectfully,

Leonora Etrata
P.O. Box 630002
Lanai City, HI 96763
808-559-6483
nora@mfss.org

February 23, 2011

The Honorable Senators and State Representatives
415 South Beretania Street
Honolulu, HI 96813

Dear House and Senate Members,

RE: Letter of Strong Support for SB 925

Thank you for allowing me this opportunity to convey to everyone the importance of the funding for the Healthy Start Program. Because of the positive impact it has made to so many families, I am requesting this program be restored to the island of Maui & State wide. I was a former Home Visitor in the Healthy Start Program on the island of Maui. Personally, I have never experienced what this program brought to families compared to other programs. Unfortunately, when Maui lost the funding for the Healthy Start Program, many of the families I worked with was left with no support & critical information for their well-being. One parent had a history of child & psychological abuse and she was determined to break the cycle & not put upon her toddler what she went through. In this case it sadden me very much as I was the one who broke the cycle by not being able to provide her & her family the support & education they so willingly accepted. I wonder if her toddler have any behavior concerns that's out of the ordinary; is she mimicking her parents when they argue; is mom's self-esteem at the level it was prior to the demise of the Healthy Start Program. Every so often she contacts me as there isn't anyone else she can turn to, trust, & receive information that helped her family.

Another parent I worked with was experiencing emotional abuse from her partner & with a newborn baby things were at a breaking point for her. She had very unrealistic expectations of her baby & expected her baby to know when she was tired & needed to sleep during the night, & when to be quiet so she could do chores. Through the Healthy Start Program she received counseling for her emotional abuse & post-partum depression, & there was someone who was by her side when she required help with medical professionals. In addition, this mom received critical information & education regarding child development and she was finally at a point where she understood-babies cry for a reason & this could mean her baby is either hungry, sick, needed a clean diaper, or just wanted to be cuddled. Similar to the other parent just as progress is being made her program was terminated due to the end of Healthy Start on Maui.

The stories I shared is just a few & I hope you will be able to restore the Healthy Start Program on Maui and State wide so families such as the ones I described can live a healthy & happy life, & most importantly raise healthy children who will succeed in whatever they pursue. It would be extremely frustrating and sad to hear families that could have benefited from Healthy Start and wasn't, and is now in prison, lost custody of their child, or the most devastating would be to hear of a child's death.

The Healthy Start Program does work for families & they're willing to participate & improve the lives of their families. Unfortunately not everyone in Hawaii comes from a healthy & functional family unit, Healthy Start is definitely the link that will enable families to better their lives. Thank you for this opportunity & I hope your decision will be to restore the Healthy Start Program State wide.

Sincerely,

Renee Morris
Kahului, HI