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Written Statement for AI Insight Forum: Workforce
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Thank you, Majority Leader Schumer and Senators Heinrich, Rounds, and Young, for inviting me to participate in this important conversation about the impact of artificial intelligence (AI) on the workforce. My name is Bonnie Castillo, I'm a registered nurse and the Executive Director of National Nurses United, the nation's largest union and professional association of registered nurses, representing nearly 225,000 nurses across the country.

Our members primarily work in acute care hospitals, where they are already experiencing the impacts of artificial intelligence and other data-driven technologies. The decisions to implement these technologies are made without the knowledge of either nurses or patients and are putting patients and the nurses who care for them at risk. AI technology is being used to replace educated registered nurses exercising independent judgment with lower cost staff following algorithmic instructions. However, patients are unique and health care is made up of non-routine situations that require human touch, care, and input. In my comments, I will demonstrate the risks that AI poses to patient care and to nursing practice and propose key legislative and regulatory steps that must be taken to utilize the precautionary principle – an idea at the center of public health analysis – in order to protect patients from harm.

AI and data-driven technologies have already been implemented at acute-care hospitals around the country.

The health care industry has been implementing various forms of artificial intelligence and other data driven technologies for a number of years. The nursing workforce is therefore uniquely situated to provide feedback and analysis on the impacts that these technologies have had on workers and on patients.

Technologies that have already been implemented include the clinical decision support systems embedded in electronic health records (EHRs), acute-care hospital-at-home and remote patient monitoring schemes, virtual acute-care nursing, automated worker surveillance and management (AWSM) and staffing platforms that support gig nursing, and increasingly, emerging technologies like generative AI systems.

Through our experiences working with and around these systems, it is clear to registered nurses that hospital employers have used these technologies in attempts to outsource, devalue, deskill, and automate our work. Doing so increases their profit margins at the expense of patient care and safety.

Many of these technologies are ostensibly designed to improve patient care, but in fact they track the activities of health care workers and are designed to increase billing of patients and insurers. Automated monitoring technology feeds into algorithmic management systems that make unreasonable and inaccurate decisions about patient acuity, staffing, and care with the goal of lowering labor costs. As a result, nurses and other health care professionals are expected to work faster, accept more patients per nurse than is safe, and reduce nurses' use of independent professional skill and judgment. Tracking nurses is designed to facilitate routinization—breaking the holistic process of nursing into discrete tasks—with the goal of replacing educated registered nurses exercising independent judgment with lower-cost staff following algorithmic instructions.

Employers generally assert that these powerful technologies are just updates of older technology that has long been in the workplace, such as treating computer-vision aided cameras the same as traditional security cameras, or EHRs as electronic versions of old paper medical records. However, these technologies are much more than modern iterations of well understood tools and are being introduced widely despite lack of robust research

showing safety, reliability, effectiveness, and equity. Rather, AWSM technologies pull vast and diverse data from an entire ecosystem of monitoring equipment and process this information through opaque algorithms that then make clinical and employment decisions. There is no current method for evaluating AI and no requirement for external validation; it is clear to nurses that AI technologies are being designed to be a replacement for skilled clinicians as opposed to a tool that many clinicians would find helpful.

A "nursing shortage" is often the justification for the deployment of this technology. However, the United States is not experiencing a nursing shortage, only a shortage of nurses willing to risk their licenses and the safety of their patients by working under the unsafe conditions the hospital industry has created. By deliberately refusing to staff our nation's hospital units with enough nurses to safely and optimally care for patients, the hospital industry has driven nurses away from direct patient care. When we add the complete failure by the hospital industry to protect the health and safety of nurses and patients during the Covid pandemic, many nurses have made the difficult decision to stop providing hands-on nursing care to protect themselves, their nursing licenses, their families, and their patients.

Except for a small handful of states, there are sufficient numbers of registered nurses to meet the needs of the country's patients, according to a 2017 U.S. Department of Health and Human Services report on the supply and demand of the nursing workforce from 2014 to 2030.[1] Some states will even have surpluses. The report identifies an inequitable distribution of nurses across the country, rather than a nationwide shortage. In fact, there are 1.2 million RNs with active licenses that are not working as RNs across the United States, and the exodus of RNs from the hospital bedside is ongoing.[2]

AI and data-driven technologies are negatively impacting nursing practice and limiting the use of nurses' professional judgement. This is putting patients and nurses at risk.

Registered nurses have extensive education and clinical experience that enables us to provide safe, effective, and equitable patient care. These standards of nursing care can only be accomplished through continuous in-person assessments of a patient by a qualified licensed registered nurse. Every time an RN interacts with a patient, we perform skilled assessments and evaluations of the patient's overall condition. These assessments are fundamental to ensuring that the patient receives optimal care. Health care is not one-size-fits-all. Nurses must be able to alter expected treatment plans based on the unique circumstances of the patient and the patient's wishes and values and to use their experience and nursing judgment to provide the best course of care. Indeed, we are ethically and legally required to do so. We should not be pressured by management to conform to decisions made by algorithms that are prone to racial and ethnic bias as well as other errors that arise when one applies information that may apply to a population but not to individual patients.

We are already experiencing the degradation and devaluation of our nursing practice through the use of technologies that have been implemented in recent years. For example, health care employers are using EHRs to replace RN judgment by automating the creation of nursing care plans and assigning patient acuity levels. RNs develop the nursing skill and judgment necessary to accurately evaluate a patient and create an effective care plan

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[1] Health Resources and Services Administration. 2017. "National and Regional Supply and Demand Projections of the Nursing Workforce: 2014-2030." U.S. Department of Health and Human Services. https://bhw.hrsa.gov/sites/default/files/ bureau-health-workforce/data-research/ nchwa-hrsa-nursing-report.pdf.
[2] NNU has several recent reports on the industry-created staffing crisis and the failure to provide a safe and health work environment. See Protecting Our Front Line: Ending the Shortage of Good Nursing Jobs and the Industry-created Unsafe Staffing Crisis available at: https://www.nationalnursesunited.org/protecting-our-front-line-report; Workplace Violence and Covid-19 in Health Care: How the Hospital Industry Created an Occupational Syndemic available at: https://www.nationalnursesunited.org/sites/default/files/nnu/documents/1121_WPV_HS_Survey_Report_FINAL.pdf; and Deadly Shame: Redressing the Devaluation of Registered Nurse Labor Through Pandemic Equity available at: https://www.nationalnursesunited.org/campaign/deadly-shame-report.

through education and experience in the clinical setting. That human skill and judgment cannot be replaced by an algorithm without serious consequences for safe patient care.

The highly skilled work of a registered nurse, by its very definition, cannot be automated. When hospital employers use technology to override and limit the professional judgement of nurses and other health care workers, patients are put at risk. In fact, patients have already been harmed by AWSM systems, including at least four deaths in the VA health care system linked to errors made by Cerner's electronic health records.[3]

One example that illustrates this risk can be found in efforts to decrease the incidence of sepsis, a complication from infection that carries a high degree of mortality.[4] One AI Early Warning System (EWS) analyzed patient data with the goal of identifying patients with a substantial risk of developing sepsis. The EWS was widely implemented at hundreds of hospitals throughout the country.[5] However, when this sepsis EWS underwent external validation, researchers found that the program missed over 67% of sepsis cases.[6] The authors of this study concluded of the EWS that "it appears to predict sepsis long after the clinician has recognized possible sepsis and acted on that suspicion."

Employers are also using AI to side-step vital RN-to-RN communication during patient hand-off and transfer of duty and to automate patient assignments. Patient transfers are one of the most dangerous points in a patient's care. Disruptions in communication can lead to life-threatening errors and omissions. Our nurses report that AI-generated communication leaves out important information while overburdening nurses with information that is not essential, forcing nurses to waste precious time searching medical records for information that could have been completely and accurately communicated during a brief person-to-person interaction. The use of AI to automate patient transfers has resulted in patients being sent to the wrong level of care because an RN was not involved in comparing the patients' needs with the resources available on the unit. This automation has also resulted in situations where patients were transferred to a room, and the RN did not know that they were there.

This removal of human communication puts both nurses and patients at risk. At one member's hospital in Michigan, the AI system's failure to relay basic information, such as the patient being positive for Covid or the patient having low white blood cell counts, have resulted in nurses needlessly exposing themselves to the virus or immunocompromised patients being placed on Covid or flu units.

We have grave concerns about the fundamental limits on the ability of algorithms to meet the needs of individual patients, especially when those patients are part of racial or ethnic groups that are less well represented in the data. Nurses know that clinical algorithms can interfere with safe, therapeutic health care that meets the needs of each individual patient. While clinical algorithms may purport to be an objective analysis of the scientific evidence, in fact their development involves significant use of judgment by their creators and creates the opportunity for creator bias—from conflicts of interest, limited perspective on the lives of racial minorities, or implicit racial bias—to be introduced into the algorithm.

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[3] Rodriguez, S. (2023, March 21) VA Admits Oracle Cerner EHRM Issues Contributed to 4 Veteran Deaths. EHR Intelligence, Adoption and Implementation News. https://ehrintelligence.com/news/va-admits-oracle-cerner-ehrm-issues-contributed-to-4-veteran-deaths. Accessed October 28, 2023.

[4] Leng, Y., Gao, C., Li, F., Li, E., & Zhang, F. (2022). The Supportive Role of International Government Funds on the Progress of Sepsis Research During the Past Decade (2010-2019): A Narrative Review. *Inquiry : a journal of medical care organization, provision and financing*, *59*, 469580221078513. https://doi.org/10.1177/00469580221078513.

[5] Wong, A., Otles, E., Donnelly, J. P., Krumm, A., McCullough, J., DeTroyer-Cooley, O., Pestrue, J., Phillips, M., Konye, J., Penoza, C., Ghous, M., & Singh, K. (2021). External Validation of a Widely Implemented Proprietary Sepsis Prediction Model in Hospitalized Patients. JAMA Internal Medicine, 181(8), 1065-1070. https://doi.org/10.1001/jamainternmed.2021.2626.

[6] Schertz, A. R., Lenoir, K. M., Bertoni, A. G., Levine, B. J., Mongraw-Chaffin, M., & Thomas, K. W. (2023). Sepsis Prediction Model for Determining Sepsis vs SIRS, qSOFA, and SOFA. JAMA Network Open, 6(8), e2329729-e2329729. https://doi.org/10.1001/jamanetworkopen.2023.29729.

Even under optimal conditions, clinical algorithms are based on population-level data and are not appropriate for every patient. In addition, the way clinical algorithms are implemented, regardless of how they are created, often inappropriately constrains the use of health care professionals' judgment, which can worsen the impact of a biased algorithm. It is essential that the use of race or ethnicity in clinical algorithms is scrutinized, including whether race or ethnicity are serving as proxies for other factors that should be identified explicitly. However, it will not be possible to eliminate the use of judgment or the need for individual assessment in care decisions. These judgments should be made at the bedside between the patient and their health care provider, not by a committee based on population-level data.

The deployment of artificial intelligence should be subjected to the Precautionary Principle test.

Nurses believe that we must approach any change in health care using the precautionary principle; the proposition that, as Harvard University Professor A. Wallace Hayes explains, "When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause-and-effect relationships are not fully established scientifically."

The deployment of artificial intelligence should be subjected to this precautionary principle test, especially when it comes to patient care. Policymakers must ensure that the burden of proof rests on healthcare employers to demonstrate that these technologies are safe, effective, and equitable under specific conditions and for the specific populations in which they are used, before they are tested on human beings. It is imperative that the usage and process of deployment be as transparent as possible, and that issues of liability are discussed early and often. As nurses, we believe it is unacceptable to sacrifice any human life in the name of technological innovation. Our first duty is to protect our patients from harm, and we vehemently oppose any risk to patient health or safety and quality of care inflicted by unproved, untested technology.

Nothing about artificial intelligence is inevitable. How AI is developed and deployed is the result of human decisions, and the impacts of AI—whether it helps or harms health care workers and the patients we serve—depends on who is making those decisions. To safeguard the rights, safety, and wellbeing of our patients, the healthcare workforce and our society, workers and unions must be involved at every step of the development of data-driven technologies and be empowered through strengthened organizing and bargaining rights to decide whether and how AI is deployed in the workplace.

NNU urges the Federal Government to pursue a regulatory framework that safeguards the clinical judgment of nurses and other health care workers from being undermined by AI and other data-driven technologies. NNU recommends that Congress take the following actions:

> 1. **All statutes and regulations must be grounded in the precautionary principle.** NNU urges Congress to develop regulations that require technology developers and health care providers to prove that AI and other data-driven digital technologies are safe, effective, and therapeutic for both a specific patient population and the health care workforce engaging with these technologies before they are deployed in real-world care settings. This goes beyond racial, gender, and age-based bias. As each patient has unique traits, needs, and values, no AI can be sufficiently fine-tuned to predict the appropriate diagnostic, treatment, and prognostic for an individual patient. Liability for any patient harm associated with failures or inaccuracies of automated systems must be placed on both AI developers and health care employers and other end users. Patients must provide informed consent for the use of AI in their treatment, including notification of any clinical decision support software being used.

> 2. **Privacy is paramount in health care -- Congress must prohibit the collection and use of patient data without informed consent, even in so-called deidentified form.** There are often sufficient data

points to reidentify so-called de-identified patient information. Currently, health care AI corporations institute gag clauses on users' public discussions of any issues or problems with their products or cloak the workings of their products in claims of proprietary information. Such gag clauses must be prohibited by law. Additionally, health care AI corporations and the health care employers that use their products regularly claim that clinicians' right to override software recommendations makes them liable for any patient harm while limiting their ability to fully understand and determine how they are used. Thus, clinicians must have the legal right to override AI. For nurses, this means the right to determine nurse staffing and patient care based on our professional judgment.

3. Patients' informed consent and the right to clinician override are not sufficient protections, however. **Nurses must have the legal right to bargain over the employer's decision to implement AI and over the deployment and effects of implementation of AI in our workplace.** In addition to statutes and regulations codifying nurses' and patients' rights directly, Congress needs to strengthen workers' rights to organize, collectively bargain, and engage in collective action overall. Health care workers should not be displaced or deskilled as this will inevitably come at the expense of both patients and workers. At the regulatory level, the Centers for Medicare and Medicaid Services must require health care employers to bargain over any implementation of AI with labor unions representing workers as a condition of participation.

4. **Congress must protect workers from AI surveillance and data mining.** Congress must prohibit monitoring or data mining of worker-owned devices. Constant surveillance can violate an employee's personal privacy and personal time. It can also allow management to monitor union activity, such as conversations with union representatives or organizing discussions, which chills union activity and the ability of workers to push back against dangerous management practices. The federal government must require that employers make clear the capabilities of this technology and provide an explanation of how it can be used to track and monitor nurses. Additionally, Congress must prohibit the monitoring of worker location, data, or activities during off time in devices used or provided by the employer. Employers should be restricted from collecting biometric data or data related to workers' mental or emotional states. Finally, employers should be prohibited from disciplining an employee based on data gathered through AI surveillance or data mining, and AI developers and employers should also be prohibited from selling worker data to third parties.

Thank you again for inviting me to participate in this discussion. These comments are by no means an exhaustive list of concerns. National Nurses United looks forward to future conversations on this topic, and to working with Congress to ensure that the federal government develops effective regulations that will protect nurses and patients from the harm that can be caused by artificial intelligence and data-driven technologies in health care.