# Quality Measures in Correctional Health Care

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The standards of health care in the prison population are expected to be equivalent for institutionalized and non-institutionalized populations (Asch et al., 2011; Mathis & Schoenly, 2008; Stern, Greifinger & Mellow, 2010; Wilper et al., 2009). Unfortunately, medical management of chronic illness, end of life, and palliative care varies from prison to prison and from state to state. While efforts have been made to develop standards of care in correctional health, success has been elusive and met with varying degrees of achievement (Binswanger, Krueger, & Steiner, 2009; Loeb & AbuDagga, 2006; Loeb, Steffensmeier & Myco, 2007; Mathis & Schoenly, 2008; Mitka, 2004; Raimer & Stobo, 2004; Stern et al., 2010). Nationwide, Texas and Missouri had been the only states to successfully implement quality, cost effective health care in the prison setting (Damberg, Shaw, Teleki, Hiatt, & Asch, 2011; Ha & Robinson, 2011; Raimer & Stobo, 2004).

Improving health outcomes in corrections will decrease the financial burden placed on individual states. If left unresolved, the cost of healthcare in prisons will continue to escalate and burden taxpayers and states further. However, establishing a humane minimum level of care for inmates and devoting the resources to finance care, is not a popular topic in the best of economic times, and providers are increasingly challenged to deliver quality care with fewer resources.

## Population

Statistics from the United States Bureau of Justice (2010) reported the United States (US) had an inmate population over 1.6 million prisoners as of December 31, 2010, with an imprisonment rate of 500 inmates per 100,000 U.S. residents. The demographics of the prison population have steadily changed over the past ten years as a result of sentencing guideline changes and longer prison sentences for both men and women. An effect of the tougher sentencing guidelines has resulted in inmates aging in prison and living with multiple chronic

illnesses (Binswanger et al., 2009; Ha & Robinson, 2011; Mathis & Schoenly, 2008; Wilper et al., 2009).

## Epidemiology

The prevalence of chronic disease in the inmate population is estimated to be 85% of individuals who are age 50 years or older. It is believed these individuals have three or more chronic conditions and an overall higher incidence in the inmate population as compared to the general population (Binswanger et al., 2009; Mitka, 2004; Talerico, 2003). The inmate population is estimated to be physiologically 10-15 years older compared to the general population and has higher rates of health related problem (Loeb & AbuDagga, 2006; Mitka, 2004; Talerico, 2003; Wilper et al., 2009).

Seventy-nine percent of inmates age 65 years and older were diagnosed with at least one chronic condition that leads to decreased physical function or disability. Diseases encountered in the 65 to 70 year old population included: arthritis, hypertension, heart disease, diabetes, respiratory diseases, stroke, or cancer (Mathis & Schoenly, 2008; Talerico, 2003). More common medical conditions faced by all age groups in the prison population included: hypertension, asthma, diabetes, arthritis, cancer, cervical cancer, depression, and hepatitis (Binswanger et al., 2009; Mathis & Schoenly, 2008; Talerico, 2003; Wilper et al., 2009).

## Purpose

Because quality of health care measures varied from state to state and each state measured health care outcomes differently. The researcher had questions: 1) how did the Oregon Department of Corrections measure health care outcomes in the correctional setting and; 2) how did the quality measures compare to findings completed by the Research and Development (RAND) Corporation in 2011. The purpose of this Clinical Inquiry Project (CIP) was two-fold.

The first objective was to evaluate the study participants understanding of how the Oregon Department of Corrections (ODOC) defined quality measures in the inmate population used by Oregon's correctional system (ODOC, n.d.). The second objective was to compare Oregon's quality measures to the RAND study (Damberg et al., 2011). Institutional Review Board (IRB) approval was obtained March 13, 2013 from Oregon Health and Science University (OHSU). The Oregon Department of Corrections approval to proceed with the proposed study was contingent upon OHSU, IRB approval. The researcher intended to benchmark Oregon's standards to comparison states identified in the RAND study (Damberg et al., 2011), helping to create a roadmap to improve quality of care for Oregon's prison population.

The policy of record for inmate health care was identified on the Oregon Department of Correction's website under Health Services Policy and Procedure (ODOC, n.d.). Nine chronic illnesses were paired with clinical practice guidelines and identified as Special Needs. The guidelines specified were clinical care expectations for the stated conditions with the exception of Serious Mental Illness, which was managed by ODOC Behavioral Services. The Special Needs (SN) for chronic disease was identified as: (a) asthma/respiratory, (b) diabetes, (c) HIV/AIDS, (d) hypertension/cardiovascular disease, (e) lipid disorders, (f) seizure disorders, (g) hepatitis C/chronic hepatitis, (h) hepatic cirrhosis, and (i) serious mental illness. According to the ODOC (n.d.), individuals with a chronic disease not identified in the ODOC clinical guidelines were required to have individual care plans developed by the provider.

The comparison states for this project (MO, NY, OH, TX, WA), were derived from quality measure questions identified in the RAND study and specified in Table 1 (Damberg et al., 2011). The researcher was unable to identify all quality indicators identified by ODOC and therefore data on whether Oregon met its own specified level of care policy were not available.

## Literature review

The researcher performed an extensive review of the literature between January and July 2012 to explore current literature available on disease management and quality of care delivered to inmates. The MeSH terms used were: care, delivery, delivery of health care, health, health policy organizational, organizational policy, policy, prisoners, prisons, public, and public policy. All articles pertaining to health care outside the US were excluded. The rationale for exclusion of literature on foreign health care for this review was due to the variations in health care delivery outside the United States. A total of 23 articles and five government websites were reviewed or accessed.

Four predominant topics surfaced as essential components in the delivery of health care in the correctional setting. The four prevailing issues were: (a) legal obligation of each state to provide health care to inmates, (b) ethical considerations when conducting research with prison inmates, (c) increasing prevalence of chronic conditions in an aging prison population, and (d) limited knowledge of current disease management guidelines and quality measures employed nationally in the prison setting. The researcher found one seminal article that addressed national quality measures used by state and federal prisons.

### Legal Obligation of States

In 1976, the United States Supreme Court decision *Estelle v. Gamble*, mandated all prisoners in the U.S. had a constitutional right to health care (United States Reports, 1976). The Supreme Court decision of *Estelle v. Gamble* ruled that prisoners' Eighth Amendment rights had been violated:

> As a part of that basic obligation, the State and its agents have an affirmative duty to provide reasonable access to medical care, to provide competent, diligent medical

> personnel, and to ensure that prescribed care is in fact delivered. For denial of medical care is surely not part of the punishment which civilized nations may impose for crime (p. 429)

In addition, the *Estelle v. Gamble* decision established that incarcerated individuals have three basic rights regarding healthcare: access to care, to receive care that is ordered, and professional medical judgment (Kellogg, 2009; Larkin, 2011; Mathis & Schoenly, 2008; Rold, 2008).

Prior to the *Estelle v. Gamble* decision, health care in American jails was essentially nonexistent. According to Rold (2008), the American Medical Association sponsored a survey of jails in 1972 and found 25% lacked medical facilities, 65.5% provided only basic first aid, 28% did not have a method for triaging acute patients and 11.4% lacked a provider on call. According to the literature, two factors must be present in order for a violation of an inmate's constitutional right to health care can occur. The two elements required are "deliberate indifference" and a "serious" medical need (Elger, 2008; Kellogg, 2009; Rold, 2008). Both elements were starkly absent prior to *Estelle v Gamble.*

A review of the literature referenced the landmark decision of *Estelle v. Gamble* consistently and frequently when defining the standard of health care in corrections (Binswanger et al., 2009; Elger, 2008; Ha & Robinson, 2011; Mathis & Schoenly, 2008; Raimer & Stobo, 2004; Wilper et al., 2009). However, three important elements were absent in the review of the literature: universal agreement on disease management for chronically ill inmates in the prison system; a standardized mechanism to deliver health care in an ethical manner; and lastly, implementation of a health care model that will meet the legal obligation of the Eighth Amendment.

**Ethics and Research with Prisoners**

In 1974, the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (NCPHSBBR) was created in response to public outcry over unethical research studies in the prison and non-prison population (Larkin, 2011; Institute of Medicine [IOM], 2006). Subsequently, the work of the NCPHSBBR led to the enactment of the National Research Act (1974) that established the "federal regulatory framework that protects all research subjects in federally funded or federally sponsored research studies. Special protections were added for vulnerable populations including pregnant women (1975), prisoners (1978), and children (1983)" (Larkin, 2011, page 18).

Current literature overwhelmingly supported the view of the health care provider as the conduit to ensure ethical care is delivered to all individuals institutionalized or not. What was absent in the literature was the framework to deliver a pre-specified standard of care in correctional health. In addition to providing health care, the provider was tasked with overseeing the inmates constitutional rights were actualized in relation to their health care needs. Unfortunately, ethics in correctional healthcare was poorly understood (Douglas & Goold, 2008; Pont, 2008; Chwang, 2010; Thomas, 2010; Perez & Treadwell, 2009). The literature on ethics and prison health care prior to 2006 was scant. In 2006, however, the Institute of Medicine (IOM) Committee on Ethical Considerations for Revision to Department of Health and Human Services Regulations for Protection of Prisoners Involved in Research issued a formal report and called for a change in the current constraints with prisoner research. The authors of the IOM report (2006) acknowledged that restrictions on prisoner research hindered advances to improve quality of health care inmates received. Following the 2006 publication of the IOM report, there was a shift in dialogue around the topic of research with inmates as participants, with a flurry of

scholarly articles written espousing and refuting the risk/benefit of research with prisoners as well as the fundamental ethical dilemmas in research with vulnerable populations (Chwang, 2010; Douglas & Goold, 2008; Elger, 2008; Elger & Spaulding, 2010; Obasogie & Reiter, 2011; Perez & Treadwell, 2009; Pont, 2008; Thomas, 2010).

According to Elger (2008), the available literature on United States correctional health care was limited to single ethical issues due to contradictory conclusions made by the U.S. courts. Elger contended the literature discussed ethics and correctional health care in generalities and solely in the context of barriers to research. The research process aimed at vulnerable populations in the US was cumbersome and served as a deterrent rather than a mechanism to improve quality of care. As a result, sparse evidence-based literature was available to support improved health care for inmates (Chwang, 2010; Elger, 2008; Perez & Treadwell, 2009; Pont, 2008; Thomas; 2010).

A glaring omission in the discussion on research and ethics in correctional health was a lack of attention toward the reasoning behind research with prisoners. A review of the literature revealed an overall lack of universal standard of care guidelines for use in the inmate population. As a result, standard of care guidelines were inconsistently applied in correctional health. Care of inmates was expected to be comparable to that of the general population; however, given the nature of health care in prison and the safety needs of correctional and health care staff, the goal may not have been a realistic expectation. Furthermore, implementation of standard of care guidelines was at the discretion of each prison and, as noted before, varied from state to state.

**Aging and Living with Chronic Illness in Prison**

As defined in the literature an “older inmate” was an individual age 50 to 55 years or older (Bishop & Merten, 2011; Loeb & AbuDagga, 2006; Loeb & Steffensmeier, 2006; Loeb et

al., 2007; Mathis & Schoenly, 2008; Mitka, 2004; Raimer & Stobo, 2004; Stern, Greifinger & Mellow, 2010; Talerico, 2003; Williams et al., 2010). The rationale for using age 50 as opposed to age 55 was not well-defined. What was known was the inmate population was physiologically 10 to 15 years older than their chronological age (Loeb & AbuDagga, 2006; Loeb et al., 2007; Mitka, 2004; Talerico, 2003).

It was estimated 85% of prisoners greater than 50 years of age had three or more chronic conditions, and the prevalence of chronic disease was suspected to be higher in the inmate population as compared to the general population (Binswanger et al., 2009; Mitka, 2004). An aging prison population living with multiple co-morbidities underscored the need to aggressively manage chronic illness and implement universal quality of measure outcomes in the prison population (Loeb & AbuDagga, 2006; Loeb et al., 2007; Mitka, 2004; Talerico, 2003). Barriers to achieving these needs included: (a) a lack of uniformity and consensus in disease management across all U.S. prisons, (b) states' rights to determine the management of preventative care, as well as chronic diseases and the resulting diversity in management; (c) available state fiscal resources; and (d) inconsistencies in regard to implementation of standard of care guidelines and quality measurement in U.S. correctional health care. Mathis and Schoenly (2008) contended inmates received health care that was congruent with current standards of care established by American Diabetes Association, as well as the American Heart Association. There was a lack of clarity as to the consistency in national implementation of these guidelines or if the application of the standards was specific to the prisons cited in the article. Overwhelmingly, authors argued standards of care in correctional health were inconsistent in delivery and minimal at best (Binswanger et al., 2009; Loeb & AbuDagga, 2006; Mitka, 2004; Wilper et al., 2009).

Unfortunately, medical management of chronic illness, end of life, and palliative care varied from prison to prison, and from state to state. While efforts were made to develop standards of care in correctional health, success was elusive and met with varying degrees of achievement (Binswanger et al., 2009; Loeb & AbuDagga, 2006; Loeb et al., 2007; Mathis & Schoenly, 2008; Mitka 2004; Raimer & Stobo, 2004; Stern et al., 2010). Texas was the only state to successfully implement quality, cost effective health care in the prison setting (Ha & Robinson, 2011; Raimer & Stobo, 2004).

**Standards of Care in Prison**

Multiple factors influenced the quality of health care inmates received. The standards of health care in the prison population were expected to be equivalent for institutionalized and non-institutionalized populations (Asch et al., 2011; Mathis & Schoenly, 2008; Stern, Greifinger & Mellow, 2010; Wilper et al., 2009). There was no answer to the question of what the universal standard of care in the prison system across the country should be (Binswanger et al., 2009; Loeb & AbuDagga, 2006; Mitka 2004; Wilper et al., 2009). Secondly, there was a question of how such guidelines and quality measures would, or could be implemented (Binswanger et al., 2009; Loeb & AbuDagga, 2006; Mitka 2004; Wilper et al., 2009).

What was missing from the literature was a mechanism to garner consensus from correctional health care providers or funding government agencies concerning the priority and context of the guidelines and quality measures to evaluate outcomes. In order for standard of care guidelines to be successfully implemented nationally, there needs to be consensus among all health care providers regarding priority health care needs of the inmate population.

Asch et al. (2011) and Stern et al. (2010) attempted to identify quality measure indicators for use in the prison setting. Stern and fellow researchers implemented a series of roundtable

meetings to evaluate "big-picture issues in correctional health." A panel of national experts was queried about their perception of "patient safety" and "challenges in contracting for correctional health care services." The goal of the study was to begin discussion on improving quality of care in corrections. Definitive standards were not formally adopted; however, a positive impact of the study was to open dialog and establish a starting point in developing standard of care guidelines.

Asch et al. (2011) also convened a panel of nine clinical experts in the field of correctional health. The goal of the study was to develop quality indicators to evaluate quality, and access to care. According to Asch et al. (2011), the development of the quality indicators was a success; however, the challenge occurred in the implementation process. An overwhelmingly agreed upon barrier to implementing the quality indicator measures was the absence of randomized controlled studies to support evidence-based practice in correctional health. Another significant barrier was the harsh conditions of the prison environment.

A single article discussed the trend of contracting out prison health care. In 2004, thirty-two states had contracted with Prison Health Services (PHS) a for profit company to provide health care services in the penal system. Bedard & Frech (2009) criticized PHS for being a privately held for profit company that failed to demonstrate positive health care outcomes for inmates and whose only interest was monetary gain. The authors stated that while contracting out prison health care was in fact a viable option, they cautioned against the use of for-profit-only companies. An alternative recommendation was the incorporation of non-profit companies as a solution to deter greed.

Two states, Texas and California, documented attempts to overhaul prison health care. Litigation resulting in the placement of their primary sources of funding into receiverships prompted the impetus for changes in the Texas and California prison systems (Ha & Robinson,

2011 Raimer & Stobo, 2004; Wilper et al., 2009). In 1994, Texas became the first state to implement a successful model of managed care into a healthcare model that improved the healthcare outcomes of the prison population. A class action lawsuit filed in 1974 by inmates, against the prison system for alleged constitutional right violations and inadequate health care was the incentive for health care reform in the Texas prison (Raimer & Stobo, 2004). After a lengthy litigation process, the U.S. District Court appointed a receivership in 1980 "to oversee and monitor compliance" of the Texas prison health care system. The result was a significant decrease in healthcare costs for the state of Texas and improved healthcare outcomes for the inmate population (Raimer & Stobo, 2004).

**RAND Study**

The California Department of Corrections and Rehabilitation (CDCR) and the court-appointed federal receiver recruited the RAND Corporation in 2009 to identify current quality measures employed by the CDCR and make recommendations identifying quality measures essential for improving health care in California's prison population (Damberg et al., 2011). The RAND Corporation is an independent, nonprofit research institution (RAND, n.d.) created in 1948 to explore the multifaceted challenges our society is confronting. The RAND study (Damberg et al., 2011) was a summary of quality measures being used by five states and one federal Bureau of Prisons (BOP) correctional systems.

In an effort to ascertain current quality measures used nationally, the RAND study (Damberg et al., 2011) performed a survey of six correctional health care systems across the US and identified quality measures currently implemented in the following correctional facilities:

- The federal BOP
- The Missouri Department of Corrections

- The New York Department of Correctional Services
- The Ohio Department of Rehabilitation and Correction
- The Texas Department of Criminal Justice (University of Texas Medical Branch)
- The Washington State Department of Corrections

The six correctional facilities identified in the RAND study (Damberg et al., 2011) were based on opportunistic sampling and had a comparable inmate population to that of California. Researchers developed quality measures after completing a Medline literature search of peer-reviewed published studies, a Google Internet search, review of publicly available documents describing quality measurement, and recommendations by RAND corporation clinical experts (Damberg et al., 2011). The RAND clinical expert panel was comprised of individuals with expertise and knowledge of correctional health quality measures currently implemented in prisons nationwide. Subsequent data collection included one-hour phone interviews with four identified key informants from the six correctional systems.

Quality measurement appraisals focused on performance indicators previously identified by RAND clinical experts (Asch et al., 2011). Correctional facilities are required to monitor quality measures in order to meet accreditation requirements. The RAND clinical experts identified two types of measures: *explicit* and *implicit*. Explicit measures were thought to yield more meaningful, evidence-based clinical outcomes data. Explicit measures differed from treatment guidelines, prevalence measures, policies, and standards as these types of measures evaluated system compliance and patient needs rather than clinical outcomes and quality improvement (Damberg et al., 2011). Explicit measures defined by the RAND study (Asch et al., 2011; Damberg et al., 2011) were: (a) evidence-based, (b) well-defined eligible populations, (c) specific measurement criteria, (d) clear and definitive measurements, such as "percent of

patients with a diagnosis of diabetes who had 2 or more HbA1c tests in the past 12 months" (Damberg et al., 2011, p. 126).

The RAND study (Asch et al., 2011; Damberg et al., 2011) defined implicit measures as an evaluative process of clinical judgment regarding appropriateness of care delivered. Implicit measures were based on clinical judgment and the "adequacy or appropriateness of delivered care" (Damberg et al., 2011, p. 126). Instead of specific outcomes, they measured process. The danger of implicit measures was the degree of subjectivity and lack of interrater reliability. The National Commission on Correctional Health Care (n.d.), an accrediting body in correctional health care, continues to use implicit type measures when evaluating outcomes in the correctional setting.

Quality measures in correctional settings varied greatly in terms of development, implementation, and evaluation (Damberg et al., 2011). Texas and Missouri were reported to have the most comprehensive, explicit quality measures in the RAND study (Damberg et al., 2011). Although the researchers in the RAND study clearly stated the findings in the study were not generalizable to all correctional health settings, the study provided a starting point for further exploration and research.

In 2006, the State of California appointed a receivership to assume the executive management of the prison medical system. The State of California failed to provide constitutionally acceptable medical care to the inmate population (Ha & Robinson, 2011). Unlike Texas, California's attempt to implement changes in the prison health care system was unsuccessful and was suspended indefinitely due to the state's looming economic crisis with a lack of funding to implement health care reform on a large scale (Ha & Robinson, 2011).

California was an example of correctional healthcare costs spiraling out of control and directly impacting the state economy. The cost of correctional healthcare in California was estimated to consume 11% of the state's budget (Raimer & Stobo, 2004; Kiai & Stobo, 2010). California pays $11,600 annually for each inmate per year, compared to Texas, which had more prison inmates and paid $2,920 per year for each inmate (Kiai & Stobo, 2010). It was the responsibility of each state to fund health care for inmates. The wide range in health care delivery costs between states was not well understood and warranted further research (DOJ, 2010). Patients frequently received care that was not congruent with the current standard of care due to the cost of providing care. The practice resulted in escalating financial costs being shifted to state and national budgets.

**Policy Implications**

State and legislative budgets are facing significant financial constraints and spending is scrutinized microscopically. Implementing quality measures in correctional facilities during these tough economic times can be perceived as a luxury and not a necessity. There was almost no research linking improved quality of health care in prisons with an overall decreased cost in correctional health care. Raimer and Stobo (2004) retrospectively evaluated the managed care model implemented in the Texas prison system. Implementation of the care model was not a deliberate attempt to manage chronic illness in correctional health; rather, the implementation of the managed care model was a result of a legal mandate to improve the quality of care in the Texas prison system. A side benefit of the legal mandate was improved health care in Texas prisons that was also cost-effective for the state. The article by Raimer and Stobo (2004) was the only article that identified a direct correlation, albeit retrospectively, between implementation of standard of care guidelines and a decrease in cost.

Currently, healthcare in the Oregon prison system is managed by the Oregon Department of Corrections. The ODOC was created in 1987 by the 64th Oregon Legislative Assembly under ORS chapter 423 (ODOC, 2011). The purpose of the ODOC is to oversee the custody and care of offenders who have been sentenced to 12 months or more in one of Oregon's 14 state and federal prisons (ODOC, 2011). Funding for the ODOC is comprised of three financial resources: General Fund, Federal Funds and Other Funds. The General Fund is dependent upon the Oregon Legislature for their financial resources and in the 2011-2013 legislatively adopted budget, funding was decreased from $1.5 billion to $1.36 billion for the biennium. Federal Funds are provided by the federal government. The ODOC saw a decrease in federal revenue by almost one-half. Allocated federal funds declined from $115 million in 2009-2011, to $ 8 million in the 2011-2013 budget (ODOC, 2011).

The number of inmates incarcerated in Oregon, as well as the nation, decreased for the first time since 2007 owing to a decrease in the number of individuals newly incarcerated. It is unknown if this trend will continue (United States Department of Justice [DOJ], 2010; ODOC, 2011; National Institute of Corrections, 2012). The sustainability of the ODOC budget in Oregon is dependent on the overall economic health of the state and national economy. In the 2011-2013 legislatively approved total budget, $1.36 billion was allocated to the ODOC and $1.32 billion was derived from state funds. Budgetary constraints placed on the delivery of correctional health care challenges providers to deliver quality, standard of care consistent with care in the general population (Mitka, 2004; Wilper et al., 2009).

To effect change in Oregon's delivery of healthcare in the prison system, the ODOC, current healthcare providers, and legislators need to perceive the evaluation of quality measures as a financially viable benefit. There is much that is unknown regarding costs in correctional

health. The downstream effect of ignoring escalating health care costs in Oregon prisons will result in larger portions of the state budget consumed by the ODOC and inmates whose chronic illnesses are poorly managed.

The challenges of changing a large bureaucratic entity are not underestimated. The Federal Bureau of Prisons housed federal prisoners in 93 locations including Oregon (DOJ, 2010) and continues its attempts to control the rising cost of healthcare in the federal prisons. According to the DOJ (2010), the actual cost of health care delivery was unknown and varied from prison to prison. Barriers identified in delivering standards of care of healthcare in the federal prison continues to include: (a) inmates not receiving preventative healthcare, (b) lack of electronic health record, (c) a need for telemedicine, and (d) establishing a system to evaluate chronic disease management.

**Implications for the DNP**

The advance practice nurse with a DNP possesses the requisite skill and knowledge to evaluate quality of care measures currently used in correctional health care and barriers to their implementation. Unfortunately, several factors hinder the progress of implementing quality measures. A review of the literature supported the belief that numerous factors contributed to the inconsistent use of quality measures nationally: inadequate and insufficient evidence-based research in the inmate population; limited knowledge on the application of quality measures in correctional health care; unknown cost of implementing quality measures in the inmate population; legal and ethical barriers to carrying out research with prisoners; independent state by state management of allotted health care dollars with lack of incentive, unless legally obligated, to improve prison health care.

The DNP has the unique perspective of understanding the intricacies involved in providing direct care, implementing evidence based medicine and evaluating outcomes both clinically and financially. It is imperative that quality measures be implemented in the correctional systems, consistent with the current standard of care in the non-institutionalized individual due to the legal and ethical obligations. Improving health outcomes in corrections will decrease the financial burden placed on individual states. If left unresolved, the cost of healthcare in prisons will continue to escalate and burden taxpayers and states further.

## Setting

### Describe project setting

The project setting was at one of the correctional health systems in the State of Oregon. The site was chosen because the researcher has an established working relationship with the facility.

#### Function of the setting.

The stated function of the health care services provided by the Oregon DOC was to provide health care to Oregon's 14,000 prisoners across the state. The care was expected to be timely, appropriate, and consistent with community standards of care (ODOC, n.d.).

### Organizational/systems or individual or population readiness to change

The ODOC was dependent upon the state legislature for fiscal funding. During the project time period, Oregon was experiencing deep financial and budgetary constraints due to the national economic decline. Despite the current economic climate, readiness for change was evident in the overwhelming interest expressed by the Health Service Managers on the topic of quality measures in correctional health care.

## Anticipated Barriers, Facilitators, Challenges

### Barriers

The researcher was concerned regarding the difficulty of identifying and recruiting good study participants who were willing to talk to the researcher honestly about the limitations or lack of quality indicators, or practices in the correctional facility. The concern was unfounded as study participants freely discussed their concerns regarding the provision of appropriate care, inmate grievances, the challenges of providing care in a correctional setting, and staff retention concerns.

### Participants/population

Study participants for the CIP were Registered Nurses (RN) who delivered care in the Oregon correctional setting. The proposed study participant population was targeted to include providers, nurses and administrators who delivered care in the Oregon correctional setting and correctional facility administrators. However, RN's were the only study participants who volunteered for the study. Identified study participants could decline participation in the study. The researcher included a back-up plan if fewer than three study participants volunteer to participate in the study, but it was not needed.

### Size and rationale

The researcher planned a convenience sample of 3-9 study participants at Oregon's DOC. A convenience sample of eight RN's agreed to an interview with the researcher. The study participants who participated had intimate knowledge of quality measures used in Oregon's correctional facilities.

### Recruitment plan

The Health Facilities Manager at one of Oregon's correctional facilities made the initial contact with study participants and, once they indicated interest, the researcher contacted them in

person. The purpose of the researcher's CIP was clearly outlined. The researcher conveyed to potential interviewees that study participation was strictly voluntary. If the participants wished to participate, the researcher scheduled a one hour face-to-face interview with the participant at a time that was mutually convenient.

**Protection of participants**

Participants were assured of confidentiality and voluntary participation in the interview. Participants were encouraged to ask questions about the study and once all questions were answered, the participant signed the consent form if they were willing to proceed with the interview. The researcher de-identified the data by removing names and any identifying information and assigned an identification (ID) number to each participant. The data was stored separately in the researcher's password protected computer. Access to identifying information was restricted to the principal investigator and co-investigator.

**Intervention OR Implementation Procedure**

No intervention or implementation was done.

## Measures/Outcomes & Data Collection

As part of this objective the following demographic variables were collected to help identify the characteristics of study participants: (a) licensure, (b) degree, (c) education, (d) years in practice, (e) years in correctional health, and (f) prison location. The researcher interviewed study participants in Oregon's DOC healthcare system for their perception. The study questions used were modified from the RAND study (Damberg et al., 2011) and used a semi-structured interview guide to prompt questions regarding quality measures currently utilized in the prison system (Appendix A).

**Sources/Processes/Procedures**

- The researcher scheduled one hour face to face interviews with eight participants who had knowledge of the Oregon State Prison health system.
- The researcher conducted the interview with identified key study participants, taking notes during the interview.
- The researched summarized the key points and clarified them at the end of each interview with the participant to ensure accuracy of information collected.
- The researcher transcribed verbatim data obtained during the interviews into a word document on the researcher's computer and shredded the original notes.
- Data was de-identified and coded chronologically by number when transcribed into a word document.

**Coding to identify themes**

The researcher transcribed all interviews to analyze and coded them for quality indicators reported to be used with an Oregon state prison facility. The researcher searched for thematic codes identified by the participants as a quality measure. Important themes that emerged in the interview were coded. Names for descriptive codes were created. After the data was coded and organized, it was possible to write an overall summary of what was learned from the interviews.

## Outcome Evaluation

The results of this clinical inquiry project are divided into three sections, including a brief summary of the demographic information collected on the participants (See Table 2), the thematic analysis that answered the questions (See Appendix B) initially formulated by the researcher, and a comparison between the data gathered through this clinical inquiry project with the national RAND study. The researcher interviewed a convenience sample of eight registered nurses. The interviews took place at one of Oregon Department of Corrections thirteen

correctional facilities in a quiet, private office, with the door closed to ensure confidentiality. The purpose of each of the interviews was to evaluate the study participants understanding of how the Oregon Department of Corrections defines quality measures in the inmate population. The educational background of the study participants included four nurses who held a Bachelor of Science in Nursing, and four with an Associate Degree in Nursing. The number of years practicing as an RN in a correctional setting ranged from six months to eight years with a mean of four and a half years. Years practicing as a registered nurse ranged from one to twenty years with a mean of twelve years (See Table 2).

Subsequently, the researcher then began the process of identifying common themes by frequency using a basic content analysis. A formal qualitative analysis was not performed. Following are the key findings and themes that emerged from the interview questions relating to quality of health care measures.

**How is Quality of Health Care Measured?**

The study participant's response to questions one and three are discussed collectively. Both questions addressed each participant's understanding of how the ODOC is currently measuring quality of health care for inmates:

- Question one: Tell me your understanding of how Oregon DOC is currently measuring quality of health care for inmates?
- Question three: Tell me about the quality measures that are being tracked that you either know about from your own experience or have heard about from co-workers.

All participants identified that quality of health care was being measured for inmates incarcerated in the ODOC and there were predominantly two methods of evaluation. Continuous Quality Improvement (CQI) was identified as the primary method used to evaluate quality of

health care measures followed by Special Needs (SN). Threaded through the above identified quality measures were underlying content sub-themes relating to inmate grievances, and barriers to providing care.

**Continuous quality improvement.**

The CQI process, as defined by study participants, were generated as a result of grievances filed by an inmate, or were the result of an adverse event that occurred and resulting in potential/actual harm to an inmate, or employee of the ODOC: "quality measures are determined by the amount of grievances and complaints made by inmates. If they're happy, there are fewer lawsuits and torts. Determined by inmate's perception of health care they are receiving or not receiving."

An example given of a CQI measure initiated as a result of an inmate grievance was the use of a glucose meter that had been used by all inmates during the process of medication distribution inside the facility; commonly referred to as the "pill line" by the inmates and health care staff, "glucometers were not being cleaned between patient use and having blood on machine. Now glucometers are cleaned in between each inmate use by the "decon" team." The decon team are inmates who are specially trained in cleaning bodily fluids and hazardous waste. Another CQI measure was initiated as a result of harm to a correctional officer:

> A new measure was implemented after there was an incident with the sharps container. The sharps container fell off the cart; a CO [Corrections Officer] helped to pick-up syringes and was poked with a lancet. As a result, a new policy/QM [quality measure] was implemented to keep sharps containers inside the cart.

**Special needs.**

The study participants identified SN as an additional method to evaluate quality of health care measures within the ODOC. The SN measures identified by study participants were chronic physical and mental health conditions that included: hypertension, asthma, infectious disease, hepatitis C, mental health disorders, suicide risk, hyperlipidemia, diabetes, seizures, cardiovascular disease and HIV. The following statement summarized the study participants overall definition of SN:

> Special Needs are guidelines that meet national guidelines. They are a retrospective audit to see if we are meeting guidelines. They were done two times last year, and one time this year. SN case manager pilot program with funding is in the process of being implemented to evaluate whether SN outcomes are being met. SN consists of diabetes, hypertension, cardiac, lipids, asthma, respiratory disorders, seizures, HIV and hep C.

Study participants identified barriers that hinder the completion of the SN. Barriers identified were: (a) insufficient nursing staff education; (b) a lack of continuity in care when an inmate is transferred between correctional facilities; (c) time constraints of the provider.

Participants identified insufficient training for nursing staff as a contributing factor to the delay in completing Special Needs.

> There is an inability to maintain nursing staff long term. It takes a year to grasp correctional health care and tracking demographics and if inmates are getting the health care they need. Having to train staff and not be able to fill in the gaps. Management is aware of the needs.

The response summarizes content themes conveyed by the study participant's regarding the pervasive nursing staff shortage, inadequate resources, and the need for on-going educational training for nurses.

Study participants identified continuity of care between correctional facilities as a habitually fragmented process, "for example, orders get missed for hep C. If they came from another facility like X and the inmate may not be seen for several months, or the inmate may not show for a scheduled appointment." Inmates are transferred between correctional facilities for many reasons. Attention to safety and security measures remains the chief priority of the correctional officer responsible for the transport of prisoners between correctional facilities. The health care needs are a secondary consideration:

> There are different priorities between nursing staff and correctional staff. Inmates are also transferred to OSP [Oregon State Penitentiary] from another facility without their chart or medical information or chart will be with CO's [correctional officers]. Nurses are frequently not aware of medical conditions that need attention when inmates are transferred from another facility.

The incongruity in the priorities of the correctional officers, and health care staff results in a disjointed transition of custody and health care. As a result, the health care needs of an inmate may be overlooked, or lost to follow-up care.

Lastly, participants identified the time constraint of the provider, and the acute care needs of the inmate as a barrier to completing the SN form. An inmate may have an office visit scheduled for a SN; however, the time is spent addressing an acute health care problem and the SN visit is delayed, or not rescheduled, "if an inmate has complaints of back pain, it gets

addressed, whereas SN are lacking or inconsistently filled out. Or filled out improperly, or the inmate had a diagnosis for SN and never seen for the SN."

**Who is Responsible for Measuring Quality of Health Care?**

Question two: Who has the responsibility for implementing quality health care measures within your institution?

Participants identified that all health care staff are responsible for measuring quality of health care:

> Dr. X ultimately is responsible. There is a trickle-down effect. Dr. X oversees all medical care in the DOC. He is the CMO [Chief Medical Officer]. There is a pyramid effect. Next are the committees, then Health Services Manager. There is also the JCAHO [Joint Commission on Accreditation of Healthcare Organizations] equivalent in corrections that oversees quality measures in corrections [National Commission on Correctional Health Care]. Nurses and physicians do the day-to-day monitoring. They are at the ground level evaluating if the measures are working or not.

Overall, the accountability for monitoring and initiating quality measures was identified as the responsibility of all employees of the ODOC.

**Quality Measure Usefulness**

Question four: Tell me about how useful these measures you have mentioned are for determining the strengths and areas for improvement within the ODOC health care system?

Study participants reported quality of health care measures as useful, provided the staff was informed of the process, and purpose of the measures. Two of the study participants reported implementing quality of health care measures created more work:

> Some are useful. For example, when you monitor and know outcome, like changing the blood sugar monitoring time. Blood sugars had been checked at 1700 and rechecked at 1900, now waiting until 2030. The change in monitoring time now gives a more accurate reading of patient glucose levels after medication administration. However, it created more work for the DOC [Department of Corrections] employees as they have to check inmates an additional time during the evening shift.

The overall accountability for the implementing quality measures was described as the responsibility of the CMO and the Health Services Manager for each correctional facility. Measuring quality of health care was perceived as useful when the outcome was disseminated to nursing staff and had a meaningful context, "very useful if you have the correct and complete information. If not, it results in starting the process over. It does help if you educate nurses on importance of obtaining quality measure information."

**Quality Measures for Future Consideration**

Question five: Tell me about a time where you observed that the DOC did not measure quality of health care and explain why you think that happened?

Study participants identified two quality of health care measures to be considered for future evaluation: (a) appropriate nursing management of health care needs across correctional facilities in Oregon; (b) monitoring of the Therapeutic Level of Care (TLC) decision making process. Appropriate triage of inmate health care was the responsibility of the RN. Two study participants identified the nurse protocol as a tool to guide the decision-making process for appropriate care in the absence of a provider on-site, "patient may have symptoms listed and rx [prescription] is given. Is it appropriate to the protocol? Need to indicate in the chart what protocol is used and why." Participants did not see the nurse protocols as inclusive of all health

care needs. They acknowledged that not all nurses followed the protocols or interpreted them differently, leading other nurses to perceive some critical health care decisions as made inappropriately by nursing staff:

> Another institution wanted to send a patient to the X prison infirmary due to a change in medical condition and possible seizure and needed more care. The nurse at the other institution should have sent the patient to the hospital instead, as there wasn't a provider available at the other prison to assess the patient. The other nurse was questioning if the patient was faking an illness, or do they have a real medical concern?

Nurses at ODOC are tasked with assessing inmate health care needs and, at times, challenged to identify whether an inmate's physical complaints are genuine, or fabricated, "difficult to know if an inmate is faking or has a legitimate concern." As a result, there is inconsistent or perceived inappropriate triage of health care needs.

Currently, the decisions made by the TLC committee and staff, which oversees inmate grievances, are not independently reviewed. Two study participants identified the lack of independent reviews pose a potential conflict of interest, and raised the question of provider bias in the decision-making process:

> I question if there is bias by providers on the TLC committee and whether approval, or denial of care is based on questionable decisions and no documentation supporting decisions made. Decisions for TLC denial will sometimes occur before the formal meeting has taken place. There are no nurses on the TLC committee. No explanation as to why a denial was made.

Additionally, inmates who disagree with a TLC committee decision can file a grievance. The grievance is then submitted to the Assistant Nurse Manager for review. According to a

study participant, the grievance process is flawed, and lacks independent evaluation of the decision-making process:

> A grievance is filed by an inmate and reviewed by the assistant nurse manager. A decision is made, and then appealed by the inmate. It then goes to the Medical Director who reviews it and will concur with the original decision. It then goes back to the assistant nurse manager for evaluation. It is a circular process with no significant impact. The question then becomes: are you achieving outcomes the grievance process intended? Is there an objective, accurate process for a grievance? You need to have an objective view. There isn't a process to review the reviewers and decisions are based on initial review findings and interpretation. Objectivity is lost.

Both the TLC committee and grievance process lack independent review of their decision-making process. The perception of provider bias in decision-making is an important topic that warrants further exploration by the ODOC.

**Factors Ensuring Measurement of Quality Health Care and Barriers**

Question six: Tell me what you think are the most significant factors that ensure measurement of quality of health care for inmates within the DOC and barriers to the measurement of quality of health care for inmates.

Participants identify the quality of nursing staff, and personal staff accountability, ensure the measurement of quality health care in the correctional setting, "ensure level of professionalism for all nursing staff. If not good, then quality of care suffers. Need to make people accountable for what they do. Everyone needs the same standard and non-judgmental." Inmate grievances, SN and CQI are also mentioned by study participants as facilitators that ensure quality of health care in the correctional setting.

In summary, barriers to measuring quality of health care outcomes identified by study participants include: (a) acute issues addressed and SN overlooked during an inmate visit with the provider; (a) staff retention; (c) insufficient staff education that is timely; (d) managers need to disseminate to staff the value of measuring quality of health care; (e) lack of electronic health record (EHR).

Three study participants report spending a great deal of time looking for medical records. The nurses expressed that their time would be better spent addressing patient needs, "there is a problem with tracking down charts and a need for EHR. Big time commitment on the part of the nurse involved looking for charts. Management needs to look at the cost/benefit of EHR."

**Limitations of Study**

The study was limited to one correctional facility in Oregon with a small number of participants and it was never intended that the results be generalized to all correctional facilities statewide. In theory, all the facilities should provide comparable health care statewide. Additionally, the respondents were all registered nurses. Including provider, or administrator input would have provided the researcher with additional insight into the methods the ODOC employs to measure quality of care in corrections. Future study considerations should include a survey of all of the correctional facilities in Oregon, as well as include provider and administrator input to provide a richer context to evaluate quality of health care measures in corrections.

**RAND Study Comparison**

There are inherent challenges when attempting to compare Oregon's quality of health care measures to states discussed in the RAND study (MO, NY, OH, TX, WA) given the wide variance in number and types of measures implemented in the correctional facilities (Damberg et

al., 2011). The RAND study broadly defines quality measures implemented by each state (MO, NY, OH, TX, WA) in the study, and defines quality measures by key domain conditions (See Table 1).

Nationally, there is a lack of consensus in correctional health care defining which type (implicit and/or explicit) of quality health care measure is an appropriate indicator of outcomes (Damberg et al., 2011). Individually, each state determines how quality of health care is measured and which clinical practice guidelines are implemented. As a result, comparing quality measures implemented in the RAND study states with those in Oregon will not yield meaningful data for comparison since there is a glaring lack of standardization in the measurement processes. However, without exception, all five states had some form of quality of health care measure. The key differences lie in the type of measure sets (implicit or explicit), what is being measured (prevalence), or whether the measure is a combination of non-correctional setting measures, facility specific, or free-world measures (Damberg et al., 2011).

Applying the RAND study's definition of quality measures, Oregon's quality indicators for chronic disease were implicit measures and evaluated process, rather than clinical outcomes (Damberg et al., 2011). The ODOC (n.d) defined quality patient care and outcomes in relation to clinical practice guidelines. The following definition was used for Chronic Disease Services at the ODOC (n.d.)

> Monitoring and Clinical guidelines will be consistent with national clinical practice guidelines, where available. *Clinical practice guidelines* are defined as systematically developed, science-based statements designed and used to assist clinical decision making, assess and assure the quality of care, educate individuals and groups about clinical

> disease, and guide the allocation of health care resources. These guidelines help clinicians to practice the best medicine, aimed at improving patient outcomes (para. 2).

The shared themes identified by the study participants, and the RAND study states include: mental health disorders, infectious disease (HIV, tuberculosis, hepatitis C), diabetes, hypertension, staffing qualifications, and grievances (Damberg et al., 2011). Missouri and Texas are the only states to use community and national standards to benchmark their data (Damberg et al., 2011). To date, Oregon has yet to fully define, collect data, and measure explicit quality of health care outcomes.

## Discussion

The current literature supports the need to improve health care in the prison population. Unfortunately, several barriers impeded implementation of quality measures in the correctional setting locally, as well as nationally, and warrant further exploration. Barriers identified include: (a) the ethical constraint of research with prisoners impedes the ability to obtain meaningful data that are specific to the prison population; (b) an absence of research evaluating the appropriateness of implementing community standard of care guidelines in the correctional setting; (c) a lack of national standardized methods to measure quality of health care in corrections; (d) the inability to collect meaningful data due to a lack of EHR in many correctional settings (Binswanger et al., 2009; Chwang, 2010; Elger, 2008; Loeb & AbuDagga, 2006; Mitka 2004; Wilper et al., 2009).

Understanding the unique health care needs and inherent challenges of providing care in the correctional setting will foster an approach to health care delivery that is appropriate, steeped in evidence-based practice and is equally measurable. The NCCHC (n.d.) is one of two national accrediting organizations in correctional health care. The ODOC is accredited by the NCCHC

(n.d.) and follows the organizations standard of health care recommendations. A weakness of the NCCHC (n.d.) clinical practice recommendations is the focus on standards and prevalence measures. The recommended guidelines focus on process of care such as: provision of health care service, appropriateness of care delivered, and timeliness of care delivered. Measuring process of care does not evaluate whether the care delivered is evidence-based practice.

The Oregon Department of Corrections CQI activities are implicit measures of procedures/process compliance, and serve as a tool to evaluate appropriateness of the care delivered. The Oregon Department of Corrections (2011a) policy defines CQI as:

> The quality of the delivery of health care in the Oregon Department of Corrections will be monitored through Continuous Quality Improvement activities, which include program review, inquiries regarding customer satisfaction, and assessment of the relationship of Health Services to other areas of inmate management (para. 1).

The ODOC (2011a) broadly defines CQI in relation to health care outcomes. However, the CQI policy lacks a well-defined eligible population with specific measurement criteria that is representative of explicit measures and thus a more precise measure of health care outcomes (Damberg et al., 2011).

Special Needs were identified by study participants as a quality measure employed by the ODOC. According to ODOC policy (ODOC, n.d.), SN are defined as nine chronic medical conditions the ODOC has identified and paired with guidelines for clinical practice (ODOC, n.d.). The measures are implicit, and measure process of care rather than explicit measures of care which measure "outcomes that are supported by clinical evidence" (Damberg et al., 2011, p. 126). Four of the ODOC Special Need (lipid disorders, HIV, diabetes, hypertension) measures have intermediate outcomes embedded within the recommended care guidelines such as low-

density lipoprotein (LDL) levels < 100 mg/dl, HIV viral load and CD4 count, blood pressure parameters, or hemoglobin A1c levels <7% for individuals with diabetes. Intermediate outcomes of care represent "blood sugar control or blood pressure control" which reflects the current state of a medical condition (Damberg et al., 2011, p. 127).

The ODOC is in the process of hiring a registered nurse to case-manage inmates with a SN diagnosis to ensure compliance with ODOC SN policy (personal communication, March 28, 2013). Additionally, the ODOC is in the process of measuring the frequency of SN visits for each inmate with a SN diagnosis. Measuring the frequency of SN visits for each inmate who has a specific SN diagnosis will yield a rich data base to evaluate whether explicit measures of health care outcomes are being met by the ODOC. Again, explicit measures are preferable as they measure health care outcomes that are specific to the health condition and are evidence-based (Damberg et al., 2011).

Quality of care measure identified by study participants for future consideration by the ODOC focused on the decision-making process of the TLC committee coupled with the inmate grievance process. Currently, the TLC is comprised of providers only; the committee does not have nurse representation. The stated function of the TLC is to provide clinical care that is timely, appropriate, and consistent with community standards of care (ODOC, 2011b). Approval from the TLC committee is required for certain medical care and treatment that is deemed a medical necessity (ODOC, 2011c). The grievance process is a formal method used by inmates to appeal decisions with which they are in disagreement, including decisions made by the TLC committee.

**Clinical Implications/Recommendations**

The ODOC has a prison population of over 14,000 inmates dispersed across thirteen correctional facilities in the state (ODOC, n.d.). Measuring quality of health care outcomes in the correctional setting ensures the standard of health care is being met. Meeting the standard of care in the correctional setting is legally mandated by the United States Supreme Court decision *Estelle v. Gamble* (United States Reports, 1976). In order to benchmark Oregon's progress toward measuring meaningful quality of health care outcomes, it is imperative to collect data that are timely and substantive.

Currently, the ODOC is only measuring whether the SN visit occurred and the SN form is completed. As a result of this type of measurement, it is unclear whether the care provided produced a benefit by reducing avoidance of illness, decreased morbidity, and mortality (Damberg et al., 2011). The ODOC (n.d.) has a written policy outlining the frequency medical visits and laboratory screening should occur for specified medical and mental health SN. The ODOC is in the process of auditing charts to determine if SN visits are occurring (personal communication, May 7, 2013).

The ODOC SN policy has the requisite foundational information to measure quality of health care outcomes that are true explicit measures. The researcher proposes the following four recommendations to translate current ODOC SN policy into substantive explicit quality measures: 1) ensure SN are completed appropriately, timely, and at the designated ODOC policy frequency for all inmates with a SN diagnosis; 2) after SN data has been collected over a one year period, calculate the percentage of inmates who meet the SN policy guidelines for each of the nine chronic illnesses identified by the ODOC. For example, the ODOC (n.d) SN policy for HIV recommends inmates have a SN visit every three months. In addition to the every three

month visit, inmates should have the following laboratory: complete blood count (CBC), complete metabolic panel (CMP), HIV viral load and CD4 count. An illustration of an explicit measure is to determine the percent of inmates with a diagnosis of HIV who had three CBC, CMP, HIV viral load and CD4 count tests in the past twelve months; 3) identify the gaps hindering completion of SN health care; 4) lastly, delineate a framework that will inform processes to ensure measurement of health care outcomes that are explicit type measures.

**Conclusion**

The prison population is aging and burdened with complex chronic medical and mental health conditions that are greater than the general population (La Vigne, Davies, Palmer & Halberstadt, 2008). In addition to multiple chronic illnesses, inmates are 10-15 years older physiologically than their non-institutionalized counterpart (Loeb & AbuDagga, 2006). Measuring quality of health care outcomes in the correctional setting is a viable method to ensure health care in the prison is comparable to that of the non-institutionalized population. However, nationally, there is wide variation in measuring quality of health care in corrections. Damberg et al., (2011), propose correctional facilities measure health care outcomes using explicit type measures. The Oregon Department of Corrections has taken steps toward capturing data that will translate into explicit quality of health care measures and provide the ODOC with a richer dashboard of quality measures. This ambitious effort will require a collaborative effort among all stakeholders with a common goal of structuring a format to capture data that is meaningful and measurable.

## Summary

Currently, the ODOC has a framework in place that to measure explicit quality of health care measures. To successfully measure health care outcomes, the ODOC will need to take steps

to ensure appropriate and timely completion of Special Needs. The ODOC is currently measuring implicit type quality of health care measures. Explicit type quality of health care measures is preferable as they are evidence-based and measure health care outcomes. The ODOC is well positioned to translate current SN implicit measures into meaningful explicit quality of health care measures.

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# Appendix A

1. Tell me your understanding of how Oregon DOC currently measures quality of health care for inmates?
2. In a large system such as the DOC, many people at multiple levels may have responsibility for implementing all or some quality measures. Give me an example that shows who has the responsibility for implementing quality health care measures within your institution? Can you think of any other examples? Tell me about them.
3. Tell me about the quality measures that are being tracked that you either know about from your own experience or have heard about from co-workers. Can you think of any other measures that you haven't talked about yet? Tell me about them.
4. You've talked about a number of quality measures that are being tracked and by whom. Now can you tell me about how useful these measures you have mentioned are for determining the strengths and areas for improvement within the DOC health care system?
5. In some large systems, even though the intent is there to measure quality of health care, it doesn't seem to happen. Tell me about a time where you observed that the DOC did not measure quality of health care and explain why you think that happened? Tell me about any other examples you can recall.
6. This is my last question, and it has two parts. You have talked about what is happening from your perspective. First, tell me what you think are the most significant factors that ensure measurement of quality of health care for inmates within the DOC. For the second and final part of this question, tell me about those significant factors that are barriers to the measurement of quality of health care for inmates. That is the end of the planned interview. Is there anything else you would like to add? Do you have any questions for me?

## Appendix B

## Quality Measures and Themes

| | Question | Codes | Interviewee 1 | Interviewee 2 | Interviewee 3 | Interviewee 4 | Interviewee 5 | Interviewee 6 | Interviewee 7 | Interviewee 8 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Question 1** | Tell me your understanding of how Oregon DOC currently measures quality of health care for inmates? | **Code 1** | CQI | CQI | CQI | CQI | EBP | Special Needs | CQI | Infection Control |
| | | **Code 2** | Annual survey of inmates | Chart reviews | Nurse protocol used appropriately | SN | | Specialist referrals | Chart reviews | SN |
| | | **Code 3** | Kyte | Inmate grievances | Kytes | | | | Nurse protocol | Kytes |
| | | **Code 4** | Result of an adverse patient event | | Triage by nurse appropriate? | | | | Medication errors | Inmate grievances |
| | | **Code 5** | Assessment of inmates | | | | | | | Standard of care equivalent to outside |
| **Question 2** | Who has the responsibility for implementing quality health care measures within your institution? | | | | | | | | | |
| | | **Code 1** | Everybody | CMO | Nurse implements | CQI generated as result of adverse event | Everyone | CMO Dr. X | HSM, Nurses, Providers | Everyone is involved. Committee to Dr. X to TLC committee |

| | | | Interviewee 1 | Interviewee 2 | Interviewee 3 | Interviewee 4 | Interviewee 5 | Interviewee 6 | Interviewee 7 | Interviewee 8 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Question 2** | | **Code 2** | QM result of adverse event | JCAHO equivalent (NCCHC) | Different governing boards (ie. pharmacy) | HSM | | Occur as a result of an incident or adverse event | | Do not need quality control. Nursing protocol to follow. |
| | | **Code 3** | Policy change a result of inmate grievance | | Dr. X if outcomes not met | | | | | |
| | | **Code 4** | | All facilities have same policy, but interpret differently. | | | | | | |
| **Question 3** | Tell me about the quality measures that are being tracked that you either know about from your own experience or have heard about from co-workers. | | | | | | | | | |
| | | **Code 1** | Infectious disease | ID hep C | "mandowns" | Involuntary MH process; admin psychotropic | Recordkeeping | CQI | Nurse Protocol | SN chronic conditions |
| | | **Code 2** | Medication refills | TB | SN | Infirmary Care | Hospice | Generated by grievance | Medication reconciliation and accuracy | ID hep B, TB |
| | | **Code 3** | Dental priority list for cleaning vs dental work | MH | Meeting outcomes for SN? | Pharmacy tracking medication reconciliation | | SN | Timely and appropriate documentation | |
| | | **Code 4** | Mental Health | | | | | EHR | | |

| | | Codes | Interviewee 1 | Interviewee 2 | Interviewee 3 | Interviewee 4 | Interviewee 5 | Interviewee 6 | Interviewee 7 | Interviewee 8 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Question 4** | Tell me about how useful these measures you have mentioned are for determining the strengths and areas for improvement within the DOC health care system? | | | | | | | | | |
| | | **Code 1** | Sometimes create more work for staff by adding another layer of work | TB-no outbreaks | Helpful if complete information | Helpful if measures are meaningful | EHR | Useful when know outcome | Not sure. Continue to see same mistakes by staff | Yes, useful. Mental illness makes it difficult for inmates to pay attention to physical health. |
| | | **Code 2** | Can decrease work load too | MH decrease in suicides & educates public re: MH issues of inmates | Helpful if educate staff on importance | Need to improve looking at implicit measures | Hospice | Medication & transcription errors improved | Is information being disseminated to the right people? | Need more education to inmates about health care. Have sufficient handouts. |
| | | **Code 3** | Expensive tx, ? Success d;/t high risk behaviors post release | | Paper charts a hindrance | | Create more work additional step in care | | Nursing needs more education (like infection control), wound care, Nurses need on-going continuing education. | |

| | | Code | Interviewee 1 | Interviewee 2 | Interviewee 3 | Interviewee 4 | Interviewee 5 | Interviewee 6 | Interviewee 7 | Interviewee 8 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Question 5** | Tell me about a time where you observed that the DOC did not measure quality of health care and explain why you think that happened? | | | | | | | | | |
| | | **Code 1** | Difficulty procuring needed equipment/supplies | Need to measure post-release outcomes of care | Need to measure TLC process and potential for bias | Grievance process not monitored; no process to review the reviewers | Efficacy of Kyte system | Continuity of care and transition of care | Medication reconciliation and accuracy. FIB cards not completed properly or accounted for | TB and not measuring labs. |
| | | **Code 2** | Change in practice a result of NCCHC survey and deficiency identified resulting in a change in practice. | ? Disconnect between prison care and community | TLC decision making occurs before formally presented | | Triage of pt. needs | | | Problems are not addressed until something bad happens. |

| | | Codes | Interviewee 1 | Interviewee 2 | Interviewee 3 | Interviewee 4 | Interviewee 5 | Interviewee 6 | Interviewee 7 | Interviewee 8 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Question 6** | Tell me what you think are the most significant factors that ensure measurement of quality of health care for inmates within the DOC and barriers to the measurement of quality of health care for inmates. | **Code 1** | Inmates will file a grievance that care is not same as standard in community | DOC Accountability Model | Nurses ensure quality of measures occur. | NCCHC | Staffing quality | Inmates must fight for right to care | Staff accountability | follow-up for chronic conditions. |
| | | **Code 2** | CQI or SN completed as per facility policy | JCAHO equivalent (NCCHC) | DOC policies ensure quality of care. | | | | Professional behavior | not enough nurses involved in quality care expectation |
| | | **Code 3** | Random chart audit by provider | | | | | | | |
| | | **Code 4** | Chart audit- does visit/rx/dx match SN ID | | | | | | | |

| Question 6 Barriers | Code | Interviewee 1 | Interviewee 2 | Interviewee 3 | Interviewee 4 | Interviewee 5 | Interviewee 6 | Interviewee 7 | Interviewee 8 |
|---|---|---|---|---|---|---|---|---|---|
| | **Code 1** | Acute issues addressed and chronic SN visits get overlooked due to time constraints o**f** provider. Or provider unaware of visit purpose and inmate C/O acute issue | Staff turnover | Pre-conceived notions of what an inmate deserves and not objective findings. | Need staff "buy-in" | Employee "buy-in" on importance quality measures | Inmate faking? | Unprofessional behavior | not enough nurses involved in quality care expectation |
| | | | Inadequate staff training leads to improper scheduling of SN visits | Gaps in start time and on-going education | Barrier to care based on crime committed and not level of care needs. | paper charts | Burn-out of long-term employees | Time with provider limited | If inmate has short term problem it will need to be addressed until after release. |
| | **Code 3** | | Inmate transfers not seamless process | | | Each institution interprets data and is then reflected as state-wide results | Delay in educational opportunities from date of hire | inadequate resources | |
| | **Code 4** | | | | Not enough "manpower" to interpret data | | Not enough nurses, too many patients needing care | | |

Table 1

Comparison of Oregon and RAND Study Quality of Care Measures

| RAND Study Measures | Oregon Measures |
|---|---|
| Noncondition-specific access to care and utilization of services | NT |
| Cardiac | Hypertension/cardiovascular disease; lipid disorders |
| Major depressive and bipolar disorders | Serious mental illness |
| Infectious disease | HIV/AIDS; hepatitis C/chronic hepatitis; hepatic cirrhosis |
| Medication monitoring | NT |
| Metabolic disease | Diabetes |
| Screening and prevention | NT |
| Psychotic disorders, substance abuse, and other mental health conditions | NT |
| Pulmonary | Asthma/respiratory |
| Transitions in care | NT |
| Emergent and urgent conditions | NT |
| Patient experience | NT |
| Other | Seizure disorder |

NT=not tracked

Table 2

Study Participant Demographics

| Interviewee | Licensure | Degree | Education | Years in practice | Years in correctional health | Prison location |
|---|---|---|---|---|---|---|
| 1 | RN | ADN | ADN | 9 | 8 | OSP |
| 2 | RN | BSN | BSN | 19 | 7 | OSP |
| 3 | RN | ADN | Accelerated RN–MS program | 15 | 2 | OSP |
| 4 | RN | BSN | FNP/DNP program | 9 | 6 | OSP |
| 5 | RN | BSN | BSN | 1 | 6 months | OSP |
| 6 | RN | ADN | ADN | 20 | 17 months | OSP |
| 7 | RN | BSN | BSN | 15 | 6 | OSP |
| 8 | RN | ADN | ADN | 7 | 5 | OSP |
| | | | | | | |