UNITED STATES DISTRICT COURT

DISTRICT OF ARIZONA

Victor Parsons; Shawn Jensen; Stephen Swartz; Dustin Brislan; Sonia Rodriguez; Christina Verduzco; Jackie Thomas; Jeremy Smith; Robert Gamez; Maryanne Chisholm; Desiree Licci; Joseph Hefner; Joshua Polson; and Charlotte Wells, on behalf of themselves and all others similarly situated; and Arizona Center for Disability Law, Plaintiffs, v. Charles Ryan, Director, Arizona Department of Corrections; and Richard Pratt, Interim Division Director, Division of Health Services, Arizona Department of Corrections, in their official capacities, Defendants.	No. CV 12-00601-PHX-NVW (MEA)

CONFIDENTIAL
REBUTTAL EXPERT REPORT OF:

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REGARDING
DENTAL CARE AT THE ARIZONA DEPARTMENT OF CORRECTIONS

JANUARY 31, 2014

JAY D. SHULMAN, DMD, MA, MSPH

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I. Introduction

In my Expert Report dated November 8, 2013, I opined that ADC's inadequate policies and practices regarding staffing, triaging, treatment time frames (or lack thereof), tooth extraction, preparation for dentures, and contractor monitoring create a system that places all inmates at a substantial risk of serious dental injury, such as preventable pain, advanced tooth decay, and unnecessary loss of teeth. The expert report of John W. Dovgan, DDS, dated December 18, 2013, does not meaningfully rebut or alter any of my opinions.

Dr. Dovgan's lack of experience in correctional dentistry is reflected in his expert report in that he overlooks the forest for the trees. He addresses few of the fundamental problems and systemic issues that I identified in my report, leaving the remainder essentially unrebutted. For example, while he reviews the clinical records and deposition testimony of the named plaintiffs, he overlooks that their experiences are merely *examples* of the institutional dental problems that place all inmates at risk under ADC's policies, none of which he effectively addresses. Systemic issues are at the heart of this dispute, and Dr. Dovgan's failure to address the majority of those issues calls into question the validity of his entire report. Moreover, Dr. Dovgan's focus on the care provided to specific inmates is misplaced because even if it were true that they at times received quality care, it does not mean that ADC is devoid of systemic problems that place all inmates at a *risk* of injury.

Moreover, when Dr. Dovgan does purport to directly disagree with my report, he often misconstrues or misrepresents my opinions. This is compounded by his failure to provide pinpoint citations and by the fact that he relied on numerous facts and documents which I did not have access to or had insufficient time to review when I drafted my report, making it extremely difficult to analyze his opinions and the statements with which he disagrees. Some of Dr. Dovgan's other arguments are wholly irrelevant to the systemic problems I identified at ADC and do little to show that ADC's dental system delivers timely and effective dental care to inmates. Accordingly, I disagree with a number of Dr. Dovgan's opinions for reasons explained more fully below.

A. Dr. Dovgan Lacks the Qualifications Necessary to Opine on System-Level Dentistry at ADC

Dr. Dovgan lacks the requisite qualifications to opine on correctional dentistry. He has not worked in a correctional institution or any other large-scale institution providing dental care. Nor has he significantly published or given presentations on institutional dentistry, much less dental care in jails or prisons. His lack of experience is evident throughout his report, such as his failure to understand how the dental appointment process in the private sector differs from that in a prison. For example, he faults Maryanne Chisholm for refusing a dental appointment because she stated in her deposition that "she chose to attend a medical appointment instead on that date, even though the [dental] appointment was scheduled far in advance." [Dovgan Report at 48] He does not understand that, not only are prisoners not informed of their future movements for security reasons, but that routine dental appointments are not scheduled in advance like they are in private practice—rather, they are scheduled each day based on available capacity once more urgent requests are addressed.

Dr. Dovgan's lack of experience in correctional dentistry also deprives him of the experiential framework to evaluate the information presented to him in his staff interviews. The short shrift he gives to ADC's systemic problems in his report reflects his inadequate background as well as his credulity.

Dr. Dovgan's experience is in individual (private) rather than institutional practice.[1] Institutional dentistry and its subset, correctional dentistry, are at the heart of this case. Knowledge of clinical dentistry is necessary, but not sufficient, because the claims in *Parsons* relate to systemic failures, not an individual dentist's clinical or billing behavior. Being able to evaluate whether a single inmate needs dental treatment, for example, does not qualify a dentist to opine on whether an institution's written policies and *de facto* practices create systemic-level risks for 34,000 inmates. In fact, the differences between individual and institutional or population-based practice are so great that the American Dental Association has recognized Dental Public Health as one of its nine specialties.[2]

Similarly, Dr. Dovgan's lack of experience in statistics, epidemiology, and health services research places him in a poor position to opine on my sampling methodology or defend his own. He dismisses my findings of substantial delay in the dental care of prisoners over a multi-year period with the conclusory statements:

> Out of the charts he selected, Dr. Shulman found a few examples of HNRs that were not seen within ADC guidelines, but his sample was not random and was instead chosen based on HNRs for pain and dental grievances. Given this selection, I am not surprised that he found some charts not in compliance with ADC's guidelines.

[Dovgan Report at 72] But Dr. Dovgan is not qualified to make those statements. His *curriculum vitae* fails to indicate any graduate level coursework or publications in public health, statistics, epidemiology, or research methods; domains that are foundational to the issue of sample selection, data interpretation, and analysis. Nor have any of his publications involved the methodological issues on which he opines in this case. Experience and training in this area are necessary to understand the tradeoffs between sampling theory and practicality. This shortcoming might have been mitigated had Dr. Dovgan sought assistance from an expert in those areas, but he did not; and as a result, his critique of my methodology should be rejected. Moreover, his own methodology is flawed for the reason described below.

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[1] Institutional practice refers to dentistry performed in a large public or non-profit organization, such as the military, the US Public Health Service, Department of Veterans Affairs, the Federal Bureau of Prisons, and state and large county correctional systems.

[2] *See* the American Dental Association website, http://www.ada.org/495.aspx. Dental Public Health is defined as "that part of dentistry providing leadership and expertise in population-based dentistry, oral health surveillance, policy development, community-based disease prevention and health promotion, and the maintenance of the dental safety net." [ADA, Oral Health Topics]

B. Dr. Dovgan's Exclusive Focus on Smallwood Prison Dental Service ("SPDS") Gives a Skewed Picture of ADC's Dental Care and Ignores Systemic Risks

Dr. Dovgan's focus on dental care provided after March 2013 to the virtual exclusion of treatment provided by Wexford and ADC results in an incomplete analysis of the factors affecting the provision of dental care at ADC. Moreover, rather than addressing the underlying problems I identified in my report, he dismisses virtually all of them based on the fact that wait times have been reduced.

My report explains numerous reasons why ADC's *systemic* inadequacies in the delivery of dental care place inmates at a substantial risk of serious harm. I use specific inmates largely as examples of how that risk has manifested, but my opinions do not rise and fall with those examples because, based on my expertise in institutional and population-based dentistry, I am looking at the current risk to the inmates caused by the system as a whole.

Dr. Dovgan completely misses this point. With the exception of his review of the named plaintiffs' dental records, Dr. Dovgan primarily focuses on treatment provided after March 2013—when SPDS assumed responsibility for dental care—and ignores the underlying systemic problems that gave rise to insufficient dental care during ADC's and Wexford's reign and that continue to exist at ADC. In his report, Dr. Dovgan wrote:

> My audit revealed that the inmates Dr. Shulman used in his tables to support his theories have all, since that time, been treated within ADC guidelines for routine care in 2013. Thus, any untimeliness in their care occurred prior to SPDS and the use of the CDS system to track HNRs and appointments. The recent treatment of the 20 inmates with treatment in 2013 is shown in the following tables: […]

[Dovgan Report at 55] By only focusing on recent care, Dr. Dovgan appears to tacitly agree with my findings about past untimeliness and inadequacies of care. That certain inmates that I highlighted as examples might have received dental care since I highlighted them in my original report does not refute the fact that ADC has put, and continues to put, all inmates in a substantial risk of serious dental injury. Similarly, that certain inmates may have received quality dental care on occasion does not disprove the existence of underlying systemic problems that put all inmates at risk. In other words, the risks I identified still exist even though an inmate might not suffer serious injury on every occasion.[3]

The fact that SPDS may have improved wait times, moreover, does nothing to (1) correct the policies that are the root causes of the problems or (2) guarantee those problems do not arise again. Furthermore, ADC lacks an effective means of verifying that SPDS is even complying with its policies. Indeed, Dr. Dovgan does not address my opinions regarding ADC's failure to develop

[3] To put it in even simpler terms, if ten inmates request treatment each day but one is randomly ignored and never treated, it is no defense to say that the inmate ignored on Monday was treated the next time he asked for care. Every day there remains an unacceptable risk of non-treatment.

and implement an effective monitoring structure for dental care. Reading his report, one would never know that ADC has a Dental Monitor (Dr. Karen Chu) or compliance monitors at each facility. In fact, he fails to rebut most of my discussion about ADC's lack of oversight of the dental program. [Shulman Report at 35-36]

Although SPDS has introduced a database that facilitates management reporting and some aspects of inmate tracking, SPDS must operate in accordance with the DSTM, which it cannot change. [Smallwood Dep. at 46:10-21; 47:20-48:3; 51:12-15; 54:4-17] Consequently, systemic problems due to deficient ADC procedures persist. For example, Dr. Dovgan indicates that, as Dr. Smallwood testified, dental assistants still evaluate inmates and make clinical assessments to triage HNRs. [*See* Dovgan Report at, *e.g.*, 12, 32; *compare with* Smallwood Dep. at 96:9-97:3, 98:4-11] Dr. Dovgan also obliquely attempts to justify the practice in which inmates are removed from the Routine Care List when they receive an Urgent Care appointment (which I describe as the ADC Prisoners' Dilemma) but makes no effort to directly address it or rebut its effects.

In short, Dr. Dovgan's opinions rest entirely on SPDS's recent improvements, not on a substantive analysis of the dental policies I identified or any changes or improvements made to those policies.

II. Dr. Dovgan's Methodology Is Insufficient

In a study of this type, a useful methodology must be consistent and must focus on policies and practices of the system and the way they create risk for the prison population. Consequently, reviewing the treatment of individual prisoners is not an end, but simply a means to illuminate the issues that relate to systemic problems.

A. Dr. Dovgan's Methodology

Dr. Dovgan's methodology is inadequate because it was designed to focus on dental care provided after March 2013 and because he misunderstands the importance of individual dental records in evaluating systemic harms. Furthermore, even when the records he reviewed contained pre-Smallwood information, he did not report it.

Dr. Dovgan states that he reviewed "154 [actually 149][4] charts of inmates at nine ADC facilities." This total apparently excludes the charts of the named plaintiffs, and includes "randomly selected charts reviewed by Dr. Shulman at each facility" and his "own random selection of charts at each facility." [Dovgan Report at 7]

Dr. Dovgan describes his sampling procedure for the charts he selected as follows:

> I used two methods of selecting my random sample. At a few facilities, I walked down the hallway of the chart storage room and selected a chart every third step. At the other facilities, I asked for

[4] Dr. Dovgan's list actually included 155 inmates, but there were 6 duplicates as a result of misspelling the name or listing an inmate by both first and last name. [*See* Dovgan Report Ex. B at 4-8]

> the dental appointment list and selected every fifth patient. I further examined more than 30 charts while onsite so that I could evaluate x-rays for appropriateness of care.

[*Id.*] Dr. Dovgan does not explain why he did not use the same method at all facilities. The result of using two different methods is that he sampled from two different sampling frames:[5] the chart room (that is, all inmates in the facility) and the dental appointment list. The chart room sample ensured that his reviews would not yield much information on inmate dental care because not all inmates request dental care. To draw substantial opinions about the quality of dental care by reviewing records of inmates who did not request that care is suspect. While an appointment list may be an appropriate sampling frame, his failure to explain his lack of consistency is concerning.[6] Moreover, it is unclear how he chose the additional 30 records he reviewed for x-rays.

Based on my analysis of the list of 149 records provided in his report, Dr. Dovgan reviewed 59 records of inmates that were in my report, as well as 34 other records of inmates that were on a system-wide report produced by ADC purportedly containing all (22,715) dental appointments scheduled between January 1, 2012 and approximately June 21, 2013 ("Appointment List"). [ADC091994–3617] The other 56 records (or 37.6% of the total) were not in my report or on the Appointment List, and thus presumably included dental care, if at all, only very recently or before January 1, 2012. Many of those are presumably the records chosen in the chart room and, as explained above, may well include no dental treatment at all.

Dr. Dovgan spends a tremendous amount of time detailing his interviews with ADC staff (staff I was told I could not interview for any substantial period during my tours), but does not use the medical records—or any other data—to back up their many assertions. Indeed, he spends virtually no time discussing what the records he reviewed show regarding the issues that I identified in my report. Rather, he simply indicates, for some of the facilities and not others, that the care he saw in the charts he audited was "appropriate." [*E.g.*, Dovgan Report at 36, 38] Whether individual care was appropriate is, as I have explained, not the issue.

While Dr. Dovgan describes how he calculated wait times, he reports the wait times only in connection with a handful of records he uses as examples of inmates who experienced delays. [Dovgan Report at 53-54] That he reported no aggregate wait times (stating only that the prisoners have all been treated) and did not rebut the wait times for routine and urgent care I reported [Shulman Report at 40-46] suggests that he agrees with my calculations. Rather than calculating wait times based on the records he reviewed, he uses SPDS reports to show wait times for each institution from March 2013 to November 2013.

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[5] A sampling frame is a list of records from which a sample is drawn that should have the property that every element in the population has some chance of being included in the sample. [*See*, Levy and Lemeshow at 16-17]

[6] I have not seen this appointment list, and therefore do not know what period or what types of appointments it covers. A list of requests for routine care that have not yet been addressed, for example, would include prisoners who have submitted requests for fillings and the like who have had no occasion to require urgent care.

In addition, although Dr. Dovgan indicates he reviewed 801 HNRs from the charts he selected [Dovgan Report at 53], he fails to specify the time period covered by his review.[7] The remainder of his report is focused nearly exclusively on care provided by SPDS, and, combined with his failure to provide any aggregate data, suggests he has cherry-picked recent entries and ignored older problems to improve the picture presented of ADC's dental system.

B. My Methodology

To assess "the overall quality of ADC's dental program, including the timeliness of addressing complaints of pain, identifying disease, arresting disease progress, and rehabilitating affected teeth" [Shulman Report at 8], I reviewed dental records of randomly selected prisoners. In my experience evaluating correctional and institutional care, I found that interviews with prisoners regarding their dental treatment may be inaccurate or incomplete. Moreover, prisoner narratives would need to be corroborated by a record review. Consequently, I spent the limited time that I was allowed at the prisons on record reviews.

Similarly, I did not review x-rays because I was evaluating the overall quality of the ADC dental care system, not the quality of the care provided to any particular prisoner. Instead, I relied on the charting and treatment plans of the dentists who had an opportunity to review x-rays and examine the prisoners. Thus, if a dentist charted a tooth to be filled, I presumed that a filling was appropriate treatment. Similarly, I assumed that a tooth charted for extraction should be extracted.

1. Sampling Plan

In addition to reviewing records of named plaintiffs and other identified prisoners, I performed record audits at each prison I visited to collect sufficient data to allow me to opine about the quality of the ADC dental program. [Shulman Report at 8] Based on my experience auditing prisons, many prisoners will not have requested dental care during the period of interest (2009-2013). Thus, selecting records from the entire ADC population would be inefficient.[8] My

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[7] I have not had sufficient time since these records were produced to review all of them and evaluate the information apparently covered by Dr. Dovgan. To the extent I was able to verify specific references in the medical records or other documents referenced by Dr. Dovgan and not produced until late January, I have done so.

[8] My co-monitor and I dealt with a similar issue as Court Experts in the *Perez* case. The settlement agreement specified that "the court experts shall agree on a statistically appropriate number of inmate dental records that must be audited to assess compliance." [*Perez* Agreement at 11] We discuss the sampling frame issue at length.

> The sampling frame in a survey comprises individuals (or records) eligible to be selected. While, on the surface, it might seem that the sampling frame should include all individuals or records, there are cases in which that would be inefficient. Assume, for the sake of argument, that recording blood pressure on hypertensive patients before invasive (*i.e.*, restorative or surgical) procedures is determined to be an outcome of interest.

preference was to select records from a list of HNRs for dental care submitted between 2009 and 2013; however, I was informed that ADC had no such list. As a result, I used the Appointment List referenced above. The Appointment List has all scheduled appointments for a 17-month period but not necessarily all HNRs submitted during that period since an unknown proportion may not have been scheduled for an appointment.

From the Appointment List, I selected prisoners who had scheduled appointments for "pain and swelling" since my experience in correctional and institutional care has taught me that timely addressing pain is an excellent measure of the responsiveness of a dental care system and the level of compliance with policies and procedures. [Shulman Report at 9] After selecting a record from the Appointment List, I would examine the timeliness of the appointment for pain as well as reconstruct the prisoner's dental history during the period of interest. Many of the selected records had HNRs requesting both routine care and treatment for pain. In such cases, I would ascertain the extent to which problems that generated a request for urgent care were related to routine care that had been substantially delayed.

Dr. Dovgan dismisses my findings of substantial delay in the dental care of prisoners over a multi-year period with the conclusory statement that my sample was "not random and was instead chosen based on HNRs for pain and dental grievances." [Dovgan Report at 72] However, he does not explain why my sample was not random, and he confuses my selection process (selection from an appointment list) with my sampling frame (prisoners on the appointment list with complaints of pain and swelling). More fundamentally, Dr. Dovgan fails to understand that randomly selecting dental records of inmates complaining of pain or swelling is the most effective way to understand whether the inmates who require urgent dental care actually receive it.

III. Standard of Care

Dr. Dovgan's opinion largely says that ADC's system is good because (1) ADC complies with its own policies [Dovgan Report at 9], (2) ADC complies with NCCHC standards [*Id.* at 5-6], and (3) ADC is basically the same as private care [*Id.* at 16]. The first two opinions falsely

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> The compliance indicator "**is blood pressure recorded on patients with a history of hypertension who have undergone invasive dental procedures**" is recorded from the dental record. If, for example, 20% of the patients were hypertensive, only 20% of the records would contain useful information. Moreover, if only half of the hypertensive patients had invasive treatment during the period of interest, only 10% of the records would contain useful information. Approximately 200 records would have to be sampled to yield 20 records of hypertensives that had invasive dental treatment during the period of interest. Here it is far more efficient to sample from hypertensive patients or *a fortiori* hypertensive patients who had invasive procedures performed. On the other hand, for outcomes such as whether a screening examination is performed within a given period, the sampling frame should comprise all patients.

[Methodological Issues at 4 (emphasis in original)]

assume, without analysis, that the DTSM and NCCHC establish a constitutional standard for timely and quality care and that ADC always follows them. Neither is true. The third opinion misstates the differences between prison dentistry and private dentistry in order to falsely suggest that ADC inmates are at no greater risk of dental injury than the public at large.

A. NCCHC Accreditation

Dr. Dovgan bases his ringing endorsement of the ADC dental care system in part on his conclusion that, "ADC policy as written complies with NCCHC oral care standards and guidelines."[9] [Dovgan Report at 73] But compliance with NCCHC standards fails to demonstrate that an institution comports with the appropriate standard of care because the NCCHC Oral Care Standard does not mandate specific timelines for treatment. Moreover, NCCHC accreditation is neither necessary nor sufficient to meet the standard of care because the NCCHC audit does not focus on record reviews by dentist-auditors. In addition, NCCHC's Oral Care Standard P-E-06 is insufficient to ensure adequate prisoner dental care because it is insufficiently prescriptive with respect to timelines and scope of care. In fact, the shortcomings of the NCCHC standards reinforce the systemic failures within the ADC.

As an example, among the compliance indicators for the Oral Care Standard (P-E-06) is that a prison must provide "[O]ral treatment, not limited to extractions, … according to a treatment plan based on a system of established priorities for care." [*Id.* at 70, ¶ 4 (emphasis omitted)] Absent a policy that no treatment other than extractions will be provided, an institution could satisfy the standard even with policies and practices that result in preventable pain and tooth loss. The NCCHC sets forth no minimum scope of care.[10] Consequently, NCCHC accreditation does not ensure that ADC inmates receive adequate dental care. In many ways, it shares the same defects as the MGAR: both systems are designed for non-dentists to audit elements of a program that requires no specialized knowledge.[11] The results are simply a myopic view of a prison's dental care system.

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[9] Dr. Dovgan implicitly assumes that ADC policy is followed and that ADC has the wherewithal to ensure that its policies are followed. I will address these assumptions later in this report.

[10] While the NCCHC provided more detailed guidelines, these guidelines are not explicitly incorporated by reference into Oral Care Standard P-E-06 and consequently they are not mandatory. [*See,* NCCHC at Appendix G] Dr. Dovgan acknowledges this. "The NCCHC also **recommends** that urgent care requests be seen within 72 hours. [Dovgan Report at 14 (emphasis added)]

[11] The letters from NCCHC to ADC describing the findings of the NCCHC reviewers found no adverse findings related to the dental program. The reviewers failed to note problems with the substance of ADC dental policies, the consistency with which the policies are applied, and endemic harmful practices that are performed at ADC but are not in any policy. For example, the lack of adequate treatment for periodontal disease noted by Dr. Chu—a major program defect—was unreported by NCCHC site visitors. It is one thing not to use a jewelers' eye but quite another when it is not a jeweler performing the examination.

B. California Department of Corrections ("CDCR")

Dr. Dovgan dismisses my references to the CDCR dental care system as "my standard," representing "Dr. Shulman's belief as to what a dental program in a correctional system should encompass." [Dovgan Report at 6] He misses my point. It is not that CDCR necessarily embodies the constitutional standard; rather, CDCR had similar problems as ADC and developed its policies to address those problems within the constraints of a prison system with limited resources. For example, CDCR developed a classification system to assign wait times based on the seriousness of the dental problem, which materially reduces tooth morbidity and mortality as I described in my report. [Shulman Report at 4-5] CDCR, therefore, shows that a better standard is possible and, due to other court cases, has been followed.

IV. ADC Dental Program

Dr. Dovgan concludes that ADC is in compliance with its own policies and, on that basis, opines that its dental practice is within the standard of care. [Dovgan Report at 73-74] However, while the policies in the DSTM provide written instructions, the instructions are often vague and fail to address how specific tasks should be performed. For example, nowhere does Procedure 770.5 address how a clinic should set up and maintain a Routine Care List. As a result, it has become common practice (and SPDS policy) to remove prisoners who are seen for urgent care from the Routine Care List (see discussion of the ADC Prisoners' Dilemma, *infra*). Dr. Dovgan's identification of various items in the DSTM is not the same as the DSTM having detailed instructions to ensure that the procedures are uniformly implemented across the ADC dental care system.

Moreover, compliance with ADC's own policies is insufficient when those policies are themselves inadequate. Indeed, sedulous adherence to a flawed policy has the potential to cause harm. Because he solely relies on compliance with ADC policies, Dr. Dovgan also fails to address any of the fundamental problems that I identified in my report, such as dental assistants taking x-rays *sua sponte*, performing clinical examinations, and assigning prisoners to routine or urgent care; inadequate treatment of periodontal disease; and inadequate consent and refusal.

A. Inadequate Clinical Triage

1. Dental Assistant Assessment[12]

ADC allows dental assistants to perform clinical tasks for which they are not qualified and, as a result, prisoners may be exposed to unnecessary ionizing radiation and are at risk of harm from poor decisions made by dentists who rely on a dental assistant's clinical examination.

[12] There are two issues related to triage: (1) the administrative review of HNRs and the decision whether the patient should be given an appointment for urgent care or routine care or no appointment at all, and (2) a dental assistant's performance of a clinical examination on a prisoner often in the absence of a dentist. This latter activity is referred to as Dental Assistant Evaluation, Dental Assistant Assessment, Dental Assistant Triage, or DA Triage.

I opined in my report that ADC Procedure 787 § 5.2 is deeply flawed. This procedure provides that if a patient is brought into a dental clinic based on an urgent need, the dental assistant "will review the inmate health history, perform an oral evaluation, and take dental radiographs, to assist in determining the severity of the dental condition." Thus, dental assistants can take x-rays without specific instructions from a dentist, interpret the x-rays, and enter their diagnoses in the inmates' dental charts. Whether they are acting under Procedure 787 § 5.2 or a derivative local operating procedure, post order, or standing order, such activities are below the standard of care.

Dr. Dovgan never explicitly acknowledges that dental assistants are examining patients, making diagnoses, and taking x-rays *sua sponte*. Rather than responding to my opinions about the inadequate clinical triage process, he simply evades the issue by inappropriately conflating clinical triage (*i.e.*, performing clinical examinations in accordance with Procedure 787 § 5.2) with the administrative process of determining whether an inmate should be scheduled for an urgent care or a routine care appointment.

To support his position, Dr. Dovgan relies on American Dental Association's literature regarding dental assistant job functions. [Dovgan Report at 11] His citation confirms my opinion, however, because none of the functions on the list comes close to the clinical activities performed by dental assistants under Procedure 787 § 5.2. Adherence to such a harmful policy as Procedure 787 § 5.2 is hardly laudatory and is surely below the standard of care.

Dr. Dovgan states (without providing a citation) that "Dr. Shulman claims that dental assistants and nurses are making triage decisions that are below the standard of care." [Dovgan Report at 10] This is a gross distortion of my report. While I state that allowing dental assistants to make triage decisions is below the standard of care [Shulman Report at 16], I make no such statement about registered nurses with dental training and qualifications. Dr. Dovgan misses the point that clinical triage should be performed only by mid-level or advanced level providers and not by licensed practical/vocational nurses or dental assistants.

Moreover, SPDS does not appear to understand what is permitted under Procedure 787 § 5.2. Dr. Smallwood testified that dental assistants decide whether to consult with a dentist based on oral instructions provided by each supervising dentist; however, neither he nor ADC are familiar with those instructions. [Smallwood Dep. at 96:3-99:3] Dr. Smallwood also testified that a dental assistant performs a basic assessment by examining a prisoner's oral cavity and identifying the quadrant of the mouth that is the source of pain. The dental assistant looks for something strictly out of the normal such as a severe abscess or major infection—but does not identify cavities or the need for extractions. [Smallwood Dep. at 61:1-62:12] According to Defendants, Dr. Brian Hanstad, the SPDS Northern Region Dental Director and the Dental Supervisor for ASPC-Perryville, also "will testify that dental assistants review the inmate's complaint, take a health history, and take x-rays if needed. He will testify that dental assistants do not perform dental procedures and that a dentist is always on-site at the clinic during clinic hours." [Defendants' 11th Supplemental Disclosure Statement at 47]

Allowing a dental assistant to interview a patient and perform an oral assessment under direct supervision[13] is not, per se, below the standard of care; however, my record review documents that Dental Assistant Assessments occur under general supervision (*i.e.*, when a dentist was not present in the clinic). Moreover Procedure 787 § 5 anticipates that "the unit dentist may not be available" when such assessments are performed.

During my review, I found 60 Dental Assistant Assessment examinations performed on 42 prisoners. [Shulman Report at 20] And unlike the narrow ambit described by Drs. Smallwood and Hanstad, dental assistants performed intraoral examinations and percussion tests[14] and made diagnoses.[15] Furthermore, they often decided whether to take x-rays (usually without direction from a dentist) and interpreted those x-rays. The dental assistants also decided whether to discuss their findings telephonically with a dentist and, if the dentist deemed it appropriate, arranged for inmates to have access to antibiotics and analgesics. [Shulman Report at 20]

Even if dental assistants discuss their findings telephonically with the dentist, the quality of the dentist's decision is limited by the accuracy of the information that is provided, including the interpretation of the radiograph and the description of the prisoner's medical history. This is problematic for two reasons. First, the dentist's decision, such as whether or not to prescribe an antibiotic, may depend on whether there is radiographic evidence of an abscess. But in my opinion as a professional dental educator, it takes dental students years of didactic and clinical experience to develop the skills necessary to interpret radiographs. It is unlikely that dental assistants will be able to simply pick up the necessary skills because they lack the foundational knowledge in maxillofacial anatomy. Second, a dentist who relies on the dental assistant's review of an inmate's medical history to determine if he should order penicillin is more likely to erroneously order

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[13] The Arizona Dental Practice Act does not define direct and general supervision for dental assistants specifically; however, it sets forth a definition for dental hygienists (who have far more training than dental assistants). "Direct supervision" occurs when "the dentist is present in the office while the dental hygienist is treating a patient and is available for consultation regarding procedures that the dentist authorizes and for which the dentist is responsible." "General supervision" occurs when "the dentist is available for consultation, whether or not the dentist is in the dentist's office, over procedures that the dentist has authorized and for which the dentist remains responsible." Ariz. Rev. Stat. § 32-1281(I). Since dental assistants are minimally trained individuals, their supervision should be no less stringent.

[14] Tapping on teeth and recording the patient's response. *See, for example*, 9/19/12 clinical entries for Angel Morales (234567) and 12/12/11 clinical entry for Gregory Dossett (56282).

[15] *See, for example*, 2/7/13 clinical entry for Anthony Wetzig (78169) where the diagnosis of "reversible pulpitis" was made. There was no documented infection, but penicillin was dispensed—an action below the standard of care. *Also see* 12/12/11 clinical entry for Gregory Dossett (56282) ("possible reversible pulpitis"); John Lanoza (264099) ("possible abscess"); Kenneth Haddock (205997) (on 1/14/12, "at this time there is no pathology in the area" and on 10/2/12 [after taking x-ray *sua sponte* and interpreting it] "Apex involved"). Table 1 also shows some "diagnoses" recorded by dental assistants.

penicillin than if he reviewed the medical history himself. If such an error is made, a patient with a penicillin allergy could have a hypersensitivity reaction or go into life-threatening anaphylactic shock. [Solensky at 202-203]

My findings documented the clinical overreach inherent in the Dental Assistant Assessment process and stand in stark contrast to the testimony of Dr. Smallwood, the proffered testimony of Dr. Brian Hanstad, and the unsupported opinions of Dr. Dovgan. Moreover, the proffered testimony of Dr. Hanstad that the Dental Assistant Assessment process is within the standard of care is in direct conflict with Dr. Chu's December 2012 recommendations that even a basic assessment was inappropriate because "dental assistants are not qualified to diagnose conditions and most importantly have difficulty accurately describing symptoms." [*See* AGA_Review_00090609 at ¶ 4] Furthermore, in January 2013, Dr. Chu recommended that triage be completed by nurses in the absence of dentists because "dental assistants are not qualified and can cause more harm than good." [AGA_Review_00094915; Shulman Report at 20] Yet the procedure persists.

Dr. Dovgan's expert report is more notable for what he did not discuss. With regard to DA Assessment in particular, the records he reviewed had several occurrences of such assessments, but he makes no mention of them. One of the themes of his report was that the ADC dental program is within the standard of care since it follows its own policies. [*See, e.g.*, Dovgan Report at 73 ("ADC policy as written complies with NCCHC oral care standards and guidelines. My review of records, reports, and statistics, and my interviews with dentists and dental assistants confirm that ADC policy is being routinely followed at all dental clinics statewide.")] However, he fails to report evidence that ADC was in violation of 787 § 5.3, which requires that records and x-rays of those inmates who received a dental assistant evaluation be reviewed and acknowledged by a dentist within 24 hours (or another dentist or the complex physician in his absence).

Had Dr. Dovgan focused on systemic issues, he would have noticed that of the 14 occurrences of Dental Assistant Assessment documented in the 59 records he and I both reviewed (listed in Table 1), only 2 of the 14 occurrences (14%) were in compliance with § 5.3. Of the 12 that were non-compliant, eight (67%) entirely lacked a dentist signature acknowledging review of the dental assistant's note, three (25%) were signed but had no date, and one (8%) was signed five days after the note was written. Surely a non-compliance rate of 86% is above the threshold to suggest a systemic problem. Putting aside my opinion that the Dental Assistant Assessment is facially below the standard of care, ADC's compliance with its own procedure is so poor that it is symptomatic of its failure to monitor prisoner dental care. Moreover, Dr. Dovgan's failure to identify or report this systemic problem stains his credibility as a correctional dentistry expert.

2. X-rays

Dental assistants decide when x-rays should be taken pursuant to ADC Procedure 787. This has the potential of exposing a prisoner to unnecessary ionizing radiation. As I explained in my report, this policy is below the standard of care. While dental assistants with the appropriate certification commonly expose x-rays in institutional and private practice, allowing them to expose radiographs *sua sponte* is in conflict with recommendations from the American Dental Association and Food and Drug Administration. According to the recommendations,

> Dentists should conduct a clinical examination, consider the patient's oral and medical histories, as well as consider the patient's vulnerability to environmental factors that may affect oral health before conducting a radiographic examination.

[Radiation Exposure at 20] Dentists must prescribe radiographs for individual patients, based on patient-specific needs and their clinical judgment because exposure to ionizing radiation is irreversible. Reliance on ADC Procedure 787 is not a substitute for a dentist's clinical judgment. Moreover, as I explained in my report, dental assistants are minimally trained individuals who are not clinicians and should not exercise clinical judgment. [Shulman Report at 3]

Dr. Dovgan appears to think my concern is with dental assistants physically taking x-rays (a standard activity in dental practice). [*See* Dovgan Report at 20] Rather, I criticize dental assistants having the discretion to decide which teeth should be x-rayed and when an x-ray should be taken. That all dentists Dr. Dovgan interviewed at ADC stated that they had a "standing order for dental assistants to take **needed** x-rays on all teeth that need to be reviewed" [Dovgan Report at 20 (emphasis added)] is symptomatic of a system with inadequate policies that are poorly monitored. Dr. Dovgan fails to recognize that it is the dental assistant, not the dentist, who must exercise clinical judgment to decide which teeth "need" to be x-rayed.

3. HNR Triage

The ADC Procedure that defines Routine and Urgent Care is flawed in both concept and execution. It is flawed in concept because it reserves Urgent Care to a small set of conditions; consequently, prisoners with advanced conditions that do not meet the pinched Urgent Care definition may be assigned to Routine Care. It is flawed in execution because dental assistants, who are minimally trained individuals, decide whether an HNR is assigned to Urgent or Routine Care. Both flaws have the potential to create treatment delays, placing prisoners at risk for preventable pain and tooth loss.

In my report, I opined that the underlying clinical paradigm embodied in the HNR triage guidelines in ADC Procedure 770.2 is fundamentally flawed because the distinction between routine and urgent care is insufficient to properly categorize inmates with respect to the clinically appropriate treatment window. For teeth with substantial decay that do not meet ADC's criteria for Priority 2 (Urgent Care),[16] delay in treatment may allow that decay to progress to the point that the teeth require a more complex restoration with a less optimistic prognosis or must be extracted. Similarly, Procedure 770.2 fails to provide for expedited treatment for broken or lost fillings.

[16] According to Dental Procedure 770.2 ¶ 3.1, the following qualify as "urgent care": fractured dentition with pulp exposure, acute dental abscess, oral pathological condition that may severely compromise the general health of the inmate, or acute necrotizing ulcerative gingivitis. The following conditions qualify for Routine Care: caries; chronic periodontal conditions, non-restorable teeth, edentulous and partially edentulous patients requiring replacement; presence of temporary, sedative, or intermediate restorations, and TMJ disorders; periodic examination; gingival recession or root sensitivity; routine dental prophylaxis. [*Id.* at § 3.1.3]

Even in the absence of pain, these restorable teeth may develop irreversible pulpitis while the inmate is waiting for a routine care appointment. [Shulman Report at 7]

Dr. Dovgan disagrees with my opinion that delay may cause irreparable harm because I cannot guarantee that increased wait times "**will**" cause irreparable harm. [Dovgan Report at 18 (emphasis added)] His criticism rings hollow for two reasons. First, contrary to Dr. Dovgan's statement, I did not say that wait times **will** cause irreparable harm in a particular inmate. Instead, I stated that wait times **may** result in the progression of tooth decay and other chronic issues in any given inmate. Second, in my experience in institutional and correctional dentistry, a system with thousands of inmates with dental needs cannot possibly avoid dental injury when delays become excessive. And as it relates to any given inmate, while dental disease progression is difficult to predict, clearly there is a point at which a tooth becomes non-restorable. [*See, e.g.*, Dovgan Report at 5 (noting that a tooth may develop periapical periodontitis over time, which "is treated by either an extraction of the tooth or root canal therapy")]

Dr. Dovgan also overlooks the fact that decay may progress faster in prisoners than in the general population because prisoners are provided with limited oral hygiene modalities. For example, prisoners have limited or no access to lengths of dental floss and standard toothbrushes to satisfy their particular needs.[17] Another factor associated with the progression of decay is reduced salivation (xerostomia). [Shulman and Cappelli at 3] Xerostomia is a reported side effect of many drug classes and frequently occurs with antidepressants and antipsychotics, drug classes that are often prescribed to prisoners. [Swager and Morgan at 54]

Dr. Dovgan fails to dispute my documentation of patients who experienced irreparable harm as the result of delays in dental treatment. [Shulman Report at 18] Table 1 in my opening report lists 30 prisoners who were assigned to the Routine Care List despite stating pain in their HNR and, as a result, were not scheduled for up to 137 days.[18] [*Id.* at 40-42] Dr. Dovgan reviewed these records and failed to gainsay my findings. Indeed, his failure to refute these data in his report suggests tacit acceptance. Instead of addressing the issue related to triage, Dr. Dovgan presents a table that he describes as the recent treatment of 20 inmates from Table 1 of my opening report (although my table reported treatment of 30 prisoners). [Dovgan Report at 55-66] Of the 61 HNRs he lists, all were from 2013 and 52 were submitted after March 2013, with the stated goal only of showing that these patients have been seen in 2013. [*Id.*] This information is irrelevant to my point, and, again, Dr. Dovgan betrays his bias by focusing on treatment after SPDS began providing dental care. Dr. Dovgan's "analysis" of those records is little more than a Potemkin tour of the records reported in my table. [Dovgan Report at 55-66]

[17] My point here is not that lengths of floss and standard toothbrushes should necessarily be provided notwithstanding security concerns but rather that inmates using less effective preventive oral hygiene modalities may have a more rapid progression of oral disease.

[18] Dr. Hanstad's proffered testimony that all dental assistants are instructed that all HNRs saying pain, swelling, or similar are brought in for a pain evaluation rings hollow given the numerous instances of dental assistants assigning prisoners that submitted HNRs stating pain to Routine Care.

Dr. Dovgan claims that "[m]any inmates make pain references in their HNRs only to be clinically evaluated as not having pain at all or even worse stating they have no pain once they see the dentist only to file another HNR later for the same issue." [Dovgan Report at 3] Notwithstanding Dr. Dovgan's doubts about "many" of the HNRs, the standard of care would be for a competent clinician to examine a patient complaining of pain so that the pain can be (as Dr. Dovgan puts it) "clinically validated." [*Id*.] And even if some inmates falsely complain of pain and/or refuse treatment, not even Dr. Dovgan could assert that all requests for dental treatment fall into this category so that the appropriate standard of care would be to ignore them. At least some inmates legitimately need dental treatment, and Dr. Dovgan's unsupported assertion that some inmates might be unreliable is irrelevant to whether ADC's policies and practices put all inmates at risk of serious dental injury.

Finally, in addition to these issues in the policy itself, ADC executes its own policy poorly when it inappropriately relies on unqualified dental assistants to review HNRs and to decide whether a prisoner should be scheduled for routine or urgent care. As I have explained, a dental assistant, including one at ADC, generally has minimal education and experience. ADC policies do not provide formal, standardized training and leave too much room for discretion. And ad hoc (or even formal) training by supervising dentists is insufficient because dental assistants do not have the requisite dental knowledge to evaluate HNRs as well as dental charts and x-rays (if appropriate). Similarly, they do not have the requisite dental knowledge to understand when it is necessary to ask a dentist (if one is present) to review the chart and x-rays.

Dr. Dovgan asserts that dental assistants make similar decisions in private practice. [Dovgan Report at 11-12] However, he fails to consider the difference between a private patient and a prisoner. For example, a private patient who is not satisfied with the dental assistant can insist on speaking to the dentist and likely will be able to do so. A private patient does not use an HNR process to get an appointment, and if access to the dentist is denied, the private patient can always go to another dentist. A prisoner, on the other hand, is powerless to find another dentist.

4. Harm Due to Inappropriate Triage

Delay may cause two types of harm: preventable pain and further injury. In my opening report, I documented several particularly egregious examples of harm due to delay caused by ADC's systemic failures. As a result of inadequate assignments by dental assistants and the practice of removing prisoners from the Routine Care List when they are seen for urgent care, the harm suffered by inmates can be substantial. Some examples of harm are illustrated in the cases I described in my opening report at 22-23.

Dr. Dovgan rebuts none of these examples. Rather, he cherry-picks one inmate—Shana Bartman—for discussion. In my report, I listed Ms. Bartman as having submitted an HNR stating pain on April 11, 2013—under SPDS—that was misclassified as routine care, causing her to still be waiting for treatment at the time of my review two months later. Dr. Dovgan, missing the point of the example, reviews Ms. Bartman's "recent treatment," which includes two pain HNRs submitted in September 2013 and a routine care HNR submitted in October, and concludes that all treatment was within the guidelines because she was ultimately seen 108 days after her April 2013 HNR was submitted. But Dr. Dovgan fails to realize that a dental assistant improperly triaged that

HNR and did not provide Ms. Bartman with an urgent care appointment within 72 hours—that she was seen not far beyond the 90 day routine care guideline is beside the point.[19]

B. Timeliness of Care

ADC's policies and practices combine to delay treating decay, lost fillings, and broken teeth. Such delays allow decay to progress and tooth structure to be lost, decreasing the likelihood of a successful clinical result. ADC's focus on "routine care" wait times fails to provide appropriate and timely care to many inmates. [Shulman Report at 23]

1. Lack of Timelines

Dr. Dovgan misses my point regarding timeliness for care. He simply relies on ADC's compliance with NCCHC Oral Care Standards or the DSTM. But he fails to address my critique of the validity of the NCCHC Oral Care Standard or my opinion that

> NCCHC accreditation … does not require that dentists audit the care actually performed at an institution in order to evaluate health outcomes. Additionally, some NCCHC standards, such as its requirement that care be "timely," do not specify auditable standards. Thus, relying on NCCHC standards or accreditation, as ADC does, fails to demonstrate that an institution meets the appropriate standard of care. To the contrary, the shortcomings of the NCCHC standards reinforce the systemic failures within ADC.

[Shulman Report at 3-4] Moreover, despite Dr. Dovgan's unsupported assertions, ADC policy is **not** consonant with the NCCHC standard. Although NCCHC Oral Care Standard P-E-06 specifies that appropriate care "is timely and includes immediate access for urgent or painful conditions," NCCHC at 69, the definition of Priority 2 (urgent care) in ADC Procedure 770.2 does not include pain.

Dr. Dovgan states (again without providing a citation) that "Dr. Shulman claims that ADC policy does not dictate timeliness standards for intake, urgent, and routine care. This is untrue." [Dovgan Report at 14] This both misrepresents my report (I do not address intake) and is itself unsupported because, as I explained in my opening report (and as Dr. Dovgan concurs), it is the contracts, not the DSTM, that specify the relevant timeframes. [Dovgan Report at 14] This is an important distinction since it is an institution's policies and procedures that define its system rather than contractual language that may be changed.

[19] Dr. Dovgan's summary is curious, as it involves several pain appointments in quick succession, which would be the pattern expected as a tooth decays past the point it is easily restorable. However, the records Dovgan reviewed were not produced in time for me to review them for this report.

2. Wait Times

Dr. Dovgan presents various tables to show that wait times for routine care have decreased to the point that SPDS has met and exceeded the standard in the Corizon contract. [Dovgan Report at 15-16] But he fails to consider that the wait times computed by SPDS (as well as ADC and Wexford before it) are an artifact of (1) the start date of the HNR used for the computation, (2) the date when the appointment is presumed to have occurred, and (3) the extent to which intervening events are considered. For example, a prisoner who submits an HNR and is examined by a dental assistant has been seen for the purposes of wait time computation—even though the dental assistant is not a licensed provider. This has the effect of artificially deflating wait times.

Moreover, a wait time algorithm that shows that a contractor (*i.e.*, Corizon/SPDS) is meeting its contractual obligations might discount factors beyond its control, such as inmates being away at court or security issues. But those outside factors should not be excluded when reviewing wait times under a constitutional analysis because it is ADC's responsibility to ensure adequate health care despite any operational difficulties. Thus, an appointment that is cancelled due to lockdown or insufficient custody staff should not deflate computed wait times.

In addition, the factors that Dr. Dovgan contends affect wait times (being out to court, medical issues, and refusals) are irrelevant. Although some inmates might be unavailable for appointments for whatever reason, there undoubtedly are inmates who are available and are waiting for dental care. And to the extent ADC is aware of the problem of inmates being unable (or even refusing) to attend appointments for logistical and security reasons, ADC should do something to ensure that inmates can still receive dental care, not use those facts as excuses for their inadequate practices.

Further, Dr. Dovgan's opinions on these issues are overstated or simply incorrect. [Dovgan Report at 15-16] For example, he cites inmates being out to court for as many as 600 days as affecting wait times. But the number of inmates out to court or at a medical facility is a matter of public record and generally appears to be about 1% of the prisoner population.[20] Moreover, this is not a new phenomenon and would affect ADC, Wexford, and SPDS wait times equally. Regardless, I used median wait times and percentiles in my calculation to minimize the effect of outliers such as Dr. Dovgan's hypothetical inmate who was out to court for 21 months.

Similarly, delays for medical issues are both relatively infrequent and not confined to any particular dental provider. While Plaintiff Wells did experience delays in dental care because of a medical condition [Dovgan Report at 17], such occurrences are relatively infrequent. For example in the records I reviewed, only four had entries noting that a dental appointment had to be rescheduled for a medical issue.[21]

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[20] *See*, for example, ADC Institutional Capacity & Committed Population for the Month Ending December 31, 2013, http://www.azcorrections.gov/adc/reports/capacity/bed_2013/bed_capacity_dec13.pdf.

[21] JD Merrick (99252) 10/19/11; Gary Vasko (35526) 8/1/11; Matthew Coleman (260481**)** 2/28/13; Mauricio Erives (246089) 8/4/10.

Dr. Dovgan similarly states that inmates frequently refuse care after submitting an HNR, which delays treatment.[22] He offers no support for this conclusory statement except for interviews with treating dentists. But when the dentists' claims are compared to the reports Dr. Dovgan includes, they are wildly out of proportion. [*E.g.*, *compare* Dovgan Report at 39 (Dr. Weekly at Florence gets "eight refusals a day on average") *with id*. at 22 (540 refusals over 8.5 months reported at Florence); *id.* at 41 (Dr. Lucas saying he receives a "high number" of refusals after pain HNRs) *with id*. at 42 (16 refusals total over 224 visits, based on the report Dovgan viewed on site)] Regardless, this issue is irrelevant to the wait times I calculated, since I treated the date of refusal as the date of appointment. By using frequent refusals as an excuse, Dr. Dovgan fails to recognize that treatment refusals may be an indictment of the ADC dental program because prisoners are forced to refuse care for pain in order to stay on the Routine Care List. [*See* Shulman Report at 25-28 & Table 3 (documenting 29 records (almost 10%) that illustrate the ADC Prisoners' Dilemma, when prisoners are forced to choose between seeking urgent care for a painful tooth at the cost of losing their position on the Routine Care List)] Dr. Dovgan entirely ignores this phenomenon, which also magnifies the delay while simultaneously deflating reported wait times. Dr. Dovgan fails to cite any evidence that rebuts my opinion relating to the ADC Prisoners' Dilemma. In fact, he does not mention it in his report.

C. Staffing

Dr. Dovgan states (again without proper citation) that "Dr. Shulman claims that staffing in a correctional system must be provided at a ratio of one dentist per 1,000 inmates." [Dovgan Report at 18] This oversimplifies and misstates my opinion. I did not dictate a required ratio, but rather began my discussion by citing a recommendation made in one of the few publications relating to correctional dentistry. [*See* Shulman Report at 2 ("The recommended inmate to dentist ratio for prisons is at least 1,000:1, under the assumption that dental hygiene support will be provided in addition to that ratio. [Makrides *et al.* at 557]")]

Staffing is a key input to any dental care system and inadequate staffing can result in hurried care, attempts to achieve efficiencies that are detrimental to the quality of care, a reduced scope of services, and increased wait times. Although no particular ratio is required, a constitutionally-adequate system must have enough dentists to provide dentistry at the appropriate standard of care. The recommended ratio of 1,000:1 is a reasonable starting point for staffing system-wide with adjustments for individual facilities. ADC's ratios are significantly higher, and I found numerous issues that indicate staffing is insufficient and affecting the quality of care, none of which Dr. Dovgan refutes or even substantively addresses. If anything, ADC's facilities need an even lower inmate-to-dentist ratio because the benchmark ratio of 1,000:1 assumes that there is a sufficient number of dental hygienists, which ADC lacks. It is undisputed that staffing ratios should not necessarily be the same for every facility and should be tailored to the facility's mission, oral disease prevalence rates, and demographics. Ironically, Dr. Dovgan notes that ADC's Perryville facility has the most HNRs but ranks sixth in inmate-to-dentist ratio—yet Dr. Dovgan apparently fails to realize that Perryville's high number of HNRs count means Perryville has greater staffing needs.

[22] In the wait time data I reported, I treated the refusal date as the appointment date. [Shulman Report at 10]

Dr. Dovgan's primary response to the staffing issue is to assert that reduced wait times for routine care indicate that ADC's program is within the standard of care. Moreover, he asserts that "[a]verage wait times for routine care at ADC facilities are not greater than the average wait times for many private dental offices." [Dovgan Report at 16] Since Dr. Dovgan does not cite any data with respect to private practice wait times, I am at a loss as to how to evaluate his conclusory statement, but, as noted above, private dental offices are fundamentally different than prisons.

Dr. Dovgan also opines that my focus on staffing ratios is misplaced because they are not the sole predictor of outcome and wait times; productivity is also important. [Dovgan Report at 19] SPDS tracks each provider's productivity so that they can receive productivity-based bonuses. [*Id*.] Dr. Dovgan provides neither documentation nor details about the putative bonus system, so his opinion lacks merit and empirical support. Further, even if productivity-based bonuses could be useful, they also create perverse incentives to run inmates through the dental facilities without any meaningful care or to calculate wait times so that it appears as though treatment is being provided more quickly than is truly the case. This is particularly concerning in light of ADC's indifference or inability to monitor its dental contractors.

1. Insufficient Staffing to Treat Periodontal Disease

One consequence of insufficient staffing is the inability to provide an appropriate scope of care. My review indicates that ADC's staffing is inadequate to treat moderate to advanced periodontal disease. This is below the standard of care and puts inmates at a substantial risk of dental injury, including preventable pain and loss of teeth.

In my opening report, I cited Dr. Chu's observation that while periodontal disease is common among prisoners [Clare at 92], the treatment commonly employed to treat it—deep cleaning called "scaling and root planing"—is rare. [AGA_Review_00094915] Records of recent treatment provided after Dr. Dovgan's report confirmed Dr. Chu's observation more precisely than I was able to previously.[23] In the 20 inmates whose 2013 treatment is listed in Dr. Dovgan's report, scaling and root planing procedures were only performed for one prisoner.[24] [ADC_D002497-2517] Dr. Dovgan makes no mention of this issue, despite frequent comments about how bad inmates' teeth are.

2. Dental Assistant Substitution

The Dental Assistant Assessment also reduces wait time by substituting minimally trained individuals for licensed dentists. Relatedly, dental assistants have not always triaged the HNRs. Previous ADC practice was for dental assistants to pull the records of inmates who submitted HNRs and then dentists would review the records and x-rays before making triage decisions. [Shulman Report at 16 n. 17] While delegating a function that was previously performed by licensed dentists to minimally trained individuals may reduce wait times, it does so at a cost

[23] These records listed the actual treatment codes so I did not have to attempt to subjectively determine from the treatment notes in the chart exactly what procedure was performed.

[24] Michelle Myers (188014) [ADC_D002512]

measured in the harms I described in my opening report. Given the incentives and work-arounds such as the substitution of dental assistants for dentists, SPDS-calculated wait times alone should not justify the staffing levels.

D. Avoidable Extractions

Dr. Dovgan fails to offer any meaningful response to my opinion that ADC's systemic practices place inmates at risk of having teeth unnecessarily extracted. Instead of responding to my argument, Dr. Dovgan merely plays word games in that he asserts that ADC does not have an "extraction only" policy because ADC dentists told him that they would save teeth whenever possible. [Dovgan Report at 21] First, my expert report does not use the phrase "extraction only policy." In my Declaration, I used the phrase "de facto extraction only policy" [Shulman Decl. at 16] and often referred to the problem as "avoidable extractions."

Terminology aside, my opinion is not that ADC performs only extractions. Rather, my opinion is that ADC's practices put inmates at risk of having teeth extracted when those teeth could be saved if better practices were in place. An inadequate consent policy, a triage system that inappropriately assigns patients who submit HNRs stating pain to the Routine Care List, and a practice that allows minimally-trained individuals to respond to HNRs combine to create a system that places prisoners at risk of harm. That ADC sometimes performs fillings and that some teeth are beyond repair does not confute my opinion that ADC puts inmates at risk of losing teeth that could have been saved.

Dr. Dovgan also puts stock in his interpretation of "informed consent" for extractions, but he does not understand the concept. Informed consent is a process rather than just a form; it is an actual discussion of alternatives to extraction, appropriately documented, and a true opportunity for a prisoner to make a reasonable and informed decision. [Dovgan Report at 20] While fillings should not be an option if the tooth is scheduled for extraction, prisoners should be informed if there are alternatives that they may exercise upon their release—that is, root canals and crowns. A prisoner may opt to bear with some degree of pain in the hope that the tooth will remain relatively asymptomatic until his or her release.

Dr. Dovgan takes issue with my opinion that the ADC Informed Consent Form is not consistent with NCCHC policy. But rather than attempting to identify errors in my reasoning [Shulman Report at 29], he simply responds that "Dr. Shulman also claims that the ADC Informed Consent form is not compliant with NCCHC standards. I have reviewed the NCCHC standards on informed consent and find the ADC Informed Consent form to be within the standard of care and in compliance." [Dovgan Report at 21] Such ipse dixit reasoning is unpersuasive.

In an attempt to rebut my opinion, Dr. Dovgan states the truism that "Some teeth are simply non-restorable" [Dovgan Report at 22] and similarly argues that, in some cases, either a filling or an extraction may be appropriate dental care. Dr. Dovgan's argument distracts from the issue. Although some teeth are not restorable, many others are. Dr. Dovgan's truism does not mean that ADC does not perform unnecessary extractions simply because some extractions are necessary. Further, as I stated in my report, I accepted the judgment of the dentist who performed the initial treatment plan (per the charting and clinical notes) as to whether a tooth was restorable or should be extracted. Since the examining dentist examined the patient and interpreted the x-

rays, his information was more informed than mine. It was based on this information that I opine as to whether extraction was indicated at the time of the clinical notes.

Dental disease progresses over time, and a tooth that is restorable will likely deteriorate over time. As I mentioned earlier, this deterioration is a function of the initial state of the tooth and other individual factors. While Dr. Dovgan and I do not disagree on the impact of such factors, he cites those factors, such as dry mouth, as a reason that prisoners' teeth may be non-restorable. [Dovgan Report at 23] In contrast, I see it as an example of ADC's failure to provide timely treatment given the totality of the circumstances.[25] What is more, Dr. Dovgan's response that some teeth might either by filled or extracted lays out an intractable conundrum. According to his paradigm, differences in clinical judgment are solely responsible when, for example, a dentist decides to extract a tooth that months earlier another dentist treatment planned for a filling. By semantic fiat, he tries to take the issue of harm due to disease progression resulting from untimely treatment off the table.

Dr. Dovgan also criticizes my decision not to review patient x-rays. [Dovgan Report at 26] The fact that I did not review x-rays (or examine prisoners) is irrelevant given that I need not rely on particularized instances of care. The issue, as I see it, is not whether an individual dentist is practicing below the standard of care but whether ADC, through inadequate policies, procedures, and monitoring, maintains a dental care system that is below the standard of care. Many times, the dental records alone are sufficient to make this determination. Thus, I commented when the clinical record was inconsistent with the treatment decision, such as when a tooth was extracted or recommended for extraction in the absence of a clinical justification like the tooth was non-restorable due to caries, irreversible pulpitis, or periapical pulpitis.

E. Chewing Difficulty

Dr. Dovgan does not address my opinion about systemic problems with monitoring patients with chewing difficulties except to say that it is untrue because SPDS tracks both partial and full dentures. [*See* Dovgan Report at 26] Dr. Dovgan is so focused on SPDS that he fails to rebut my opinion that "**ADC policy** does not address timing or monitoring of patients waiting to receive dental devices, thus permitting inappropriate delays and problems in receiving a proper diet." [Shulman Report at 32 (emphasis added)] That SPDS tracks aspects of the denture process is useful, but it does not track soft diets. Similarly, Dr. Chu testified that she does not monitor whether patients are receiving diets prescribed for dental reasons. [Chu Dep. at 42:17-19]

[25] That a substantial proportion of prisoners are taking medication with dry mouth as a side effect suggests that decay will progress faster, on average, in this high-risk population than one with a lower proportion of such individuals. Consequently a lower prisoner to dentist ratio will be needed to prevent unnecessary tooth morbidity and mortality, and treatment timeframes take on greater importance. As an example, medical records indicate that Plaintiff Chisholm is taking Metoprolol, Carbamazepine, and Amitryptyline [ADC 0003878], Plaintiff Wells is taking Lisinopril and Metoprolol [ADC0005089], and Plaintiff Polson is taking Lithium Carbonate, Haloperidol, and Benztropine [ADC0004260], all of which contribute significantly to dry mouth. [Gage and Pickett at 374-5, 97-99, 454-5, 455-6, 506-7,134-5, 53-4]

F. Monitoring

Dr. Dovgan has virtually no meaningful response to the fact that ADC does not monitor the dental program. His silence is particularly perplexing since it comprised a large section of my report. He fails to address the inadequacies of ADC's monitoring of the dental program. Specifically, he makes no mention of Dr. Chu, the Dental Monitor; nor does he address the limitations of the MGAR that I discussed. [Shulman Report at 37] His statement that "MGARs measure some performance metrics relating to dental" [Dovgan Report at 30] is vague to the point of meaninglessness—not to mention that oral care has only been evaluated on the MGAR once in 15 months. Moreover, his conclusory statement that "ADC reviews monthly reports on dental wait times and staffing to determine contract compliance" [*id.*] is unpersuasive in light of Dr. Chu's testimony that she has only seen one staffing SPDS report [Chu Dep. at 66:6-67:7] and has no access to the CDS software to which Dr. Dovgan referred. [Chu Dep. at 69:24-70:21]

V. Named Plaintiffs

Dr. Dovgan spends considerable time in his report on the named plaintiffs who have had dental issues, comparing their deposition testimony to their dental history and evaluating the clinical treatment they received. In doing so, he misunderstands their role in this litigation and in my report. All the named plaintiffs are at risk from the systemic issues I identified in my report. The named plaintiffs identified in the complaint as experiencing dental issues typify the harms that result from ADC's inadequate and poorly monitored policies. As I explained above, that a particular inmate is or is not currently suffering a dental injury weighs little on whether the inmate population at large is at risk. Based on my experience in institutional dentistry, I can opine on the effect that ADC's policies and practices have, including the risks of dental injury, without offering a clinical opinion on any particular inmate.

In any event, Dr. Dovgan often overlooks instances of inadequate care shown in the named plaintiffs' dental records.

Joshua Polson (187716) illustrates several systemic deficiencies in the ADC dental program.

- **Inadequate HNR Triage.** Because dental assistants are given too much authority to decide clinical issues, Mr. Polson was refused appointments multiple times despite complaining of pain or the inability to eat. [Shulman Report at 22]
- **Inadequate management of chewing difficulty.** Joshua Polson's record shows long periods where he reported pain and difficulty chewing, but was unable to get the appropriate soft diet. Those issues caused marked weight loss as well as the inability for Mr. Polson to take his medication. [Shulman Report at 33-34]
- **Inadequate monitoring.** Mr. Polson's failure to receive a soft diet consistently was due to ADC's failure to monitor whether individuals awaiting dentures receive a clinically appropriate diet. Moreover, it took Mr. Polson well over a year to receive his

dentures, counting only from the time of his last refusal (at which point it had been over 18 months since he had qualified for partials).[26]

Charlotte Wells (247188) suffered long wait times and had teeth recommended for extraction without clinical justification.

- **Wait times**. Ms. Wells requested a filling (on tooth #13) as a result of her intake exam in 2009, but the routine care wait was 257 days—at which time the appointment was postponed a further 96 days by medical issues. Delay for medical issues is appropriate and unavoidable, but the original wait, at over 8 months, is itself unacceptable. Had that appointment been within the ADC routine care timeframe of 90 days, even with the three rescheduled appointments, #13 would have been filled five months sooner. While the rate at which decay progresses is variable, a 5-month delay is substantial. Furthermore, Ms. Wells was taking Lisinopril and Metoprolol, both of which have dry mouth as side effects. In my opinion, the 5- month delay (beyond that due to her medical condition) in conjunction with probable dry mouth was responsible for progression of the decay in #13 to the point that the attempt to fill it in November 2010 was unsuccessful. The tooth was ultimately extracted in late 2013. [ADC197517]

- **Avoidable Extractions/Prisoners' Dilemma**. Ms. Wells was twice offered extractions of teeth that were not diagnosed as needing an extraction, and both were ultimately filled. [Shulman Report at 25] The first incident occurred six weeks after receiving the filling on #13, when she submitted an HNR regarding pain in that tooth and #18 and was seen on a pain evaluation. Dr. Dovgan and I agree that nothing in the chart entry suggested a clinical reason for extraction of either tooth.[27] Dr. Dovgan states that Ms. Wells was then nevertheless "given the option of extracting these teeth." [Dovgan Report at 46-47] If the dentist did in fact merely offer to extract teeth with no identifiable issues, this is itself below the standard of care.[28] Moreover, the refusal form, which Ms. Wells signed indicating she wanted a filling, says that she was

[26] Dr. Dovgan faults Mr. Polson for refusing treatment thereby causing delays. In the three years between when Mr. Polson first qualified for dentures in April 2008 and when he received them in April 2011, he twice refused treatment. The first time, in April 2009, delayed treatment by approximately seven months (he refiled a request to start partials in July and was seen in November). The second time, in December 2009, was because the extraction site from his previous extraction had not healed. Rather than rescheduling Mr. Polson a short time later, Dental required him to file another HNR to restart the process and wait on the Routine Care List. I used this last HNR date in my original report to calculate Mr. Polson's wait time, even though it understates the degree to which ADC's lack of monitoring affected Mr. Polson.

[27] For example, a documented pulp vitality test or symptoms consistent with irreversible pulpitis.

[28] Dr. Dovgan dismisses this incident as "a judgment call that turned out to need extraction anyway." [Dovgan Report at 47] But based on the dentist's clinical notes, there was insufficient justification to warrant recommending extraction.

"advised that it is necessary" for her to have two teeth extracted, with no mention of possible alternatives. A similar incident occurred several months later with regard to tooth #14. Dr. Balk's assessment was "**possible** irreversible pulpitis" (emphasis added), but there was no documentation of a test for pulp vitality. Dr. Balk recommended that #14 be extracted, Ms. Wells refused, and a filling was placed several months later. Dr. Dovgan ignores this incident entirely.

Maryanne Chisholm (200825) has also been the victim of delays, inadequate triage, and the prisoners' dilemma. In early 2012, she refused an extraction in a fractured tooth. The underlying records are not entirely clear, but Ms. Chisholm believes she was told that she could wait six months for routine care if her tooth was not extracted, and apparently did not understand she needed to file another HNR (or the HNR is missing). When she did file another HNR in August, she requested replacement of missing crowns. Dr. Dovgan dismisses this request as "below the standard of care," but what he means is that ADC does not offer replacement crowns. [29] [Dovgan Report at 49] In a follow-up HNR a few days later requesting to have her teeth "fixed," the dental assistant responded, "If you have a major toothache and you want it [a tooth that is bothering her] pulled, submit for a pain HNR. Wait times are 4-6 months for fillings."[30] She was not seen for five months, at which time only one tooth in need of immediate treatment was filled. This was not, as Dr. Dovgan opines, within ADC's timelines.[31]

Stephen Swartz (102486) illustrates a consistent lack of monitoring and follow-up care with regard to his maxillofacial injury and subsequent oral surgery, as well as an untimely response to an HNR stating pain in January 2012. [Shulman Report at 14] Dr. Dovgan addresses none of these issues, instead focusing on Mr. Swartz' deposition testimony and history of refusals. Whether or not an inmate refuses treatment on occasion has no impact on the clinical obligation to promptly respond to complaints of pain. [Dovgan Report at 50-52]

VI. Irrelevant Issues Addressed by Dovgan

Dr. Dovgan spends much of his report on irrelevant issues that neither directly respond to the systemic deficiencies I identified nor establish, without more, a constitutionally-adequate dental system.

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[29] Dr. Dovgan faults Ms. Chisholm's original request for failing to understand ADC policy, stating, "it is unclear what routine care treatment she believes she would have been eligible for. ADC policy does not provide for placement of crowns. Thus any tooth needing root canal therapy and a crown would therefore have an extraction." While it is not clear (because of the five month delay) which teeth Ms. Chisholm was complaining about, she did receive a filling, rather than an extraction, at her next visit.

[30] It is hard to imagine a dentist giving that advice to a prisoner.

[31] Ms. Chisholm was taking Metoprolol, Carbamazepine, and Amitryptyline all of which have dry mouth as side effects. Consequently, treatment delay would have a more pronounced effect on decay progression for her.

A. Meth Mouth

Dr. Dovgan spends a lot of time describing "meth mouth," which he claims "is caused by the drug methamphetamine." [Dovgan Report at 4] He presents a clinical photograph of what he asserts to be "a typical 'meth mouth' patient" with teeth that have deteriorated so badly that no layman, much less a dentist, would deem them to be restorable. [*Id*. at 4] He proceeds (without any citation) to distort my position by claiming that I would have you believe the dentist should place fillings on these teeth. [*Id*. at 4-5] However, nowhere in my report do I say anything that would lead a reasonable and prudent reader to infer that I would have him believe that.

Dr. Dovgan's discussion of "meth mouth" is largely irrelevant because, regardless of its prevalence among ADC prisoners, inmates still need timely access to dental care. In fact, a population with unusually high dental treatment needs should have more dentists. ADC also must take inmates as they find them, not wish away their dental obligations by blaming the inmates for their dental problems. But even if Dr. Dovgan's meth mouth opinion was credible, none of the charts I reviewed (including that of Plaintiff Polson) used that term to describe the inmate's condition. Moreover, Dr. Dovgan's reported (but unsubstantiated) observations from dental staff that a high proportion of prisoners have never had dental care is similarly irrelevant to my observations, except to the extent it demonstrates why a prison may need more dentists.

B. Occupational Safety & Health Administration ("OSHA")

Dr. Dovgan's discussion about OSHA is irrelevant since OSHA has no jurisdiction over clinical care. To the contrary, OSHA is a part of the US Department of Labor with a mission of "assuring safe and healthful working conditions" for employees (https://www.osha.gov/about.html, accessed Jan. 20, 2014). Further, compliance with OSHA guidelines alone does not establish constitutional dental care.

VII. Conclusion

ADC is subjecting prisoners to avoidable harms because of inadequate staffing, inadequate policies and practices, and inadequate monitoring. In my opinion, based on 41 years of experience and to a reasonably degree of dental certainty, these deficiencies combine to produce a dental care system below the standard of care.

Nothing in Dr. Dovgan's report changes my opinion, although I reserve the right to amend this report upon review of the documents he relied on or additional information that may come to light. Dr. Dovgan's opinions should be rejected because they are based on conclusory statements and misrepresent my report. His focus was too narrow, he virtually ignored care provided by Wexford and ADC, and failed to address the presence of systemic problems I mention in my report.[32]

[32] As required per court rules, my rates as an expert for this matter are as follows: $300 per hour for research, report drafting and analysis, $150 per hour for travel, and $500 per hour for attending and/or testifying at depositions or trial.

Table 1. Dental Assistant Evaluations in the 59 Dental Charts Dr. Dovgan and I Reviewed in Common*							
Inmate	**Date**	**Page**	**X-ray taken *sua sponte***	**Tests Performed**	**Diagnosis**	**Contact with Dentist Documented**	**Acknowledged per § 5.3 within 1 business day**
Charles Hayes (173697)	11/2/12	ADC_D000006	Yes		Gross bone loss	No	Signed but no date
Charles Hayes (173697)	10/9/12	ADC_D000007	Yes	Percussion	Possible caries	No	Signed but no date
David Maxey (101698)	1/8/13	ADC_D000013	Yes		No evident pathology Perio issues	No	Signed but no date
David Maxey (101698)	6/22/12	ADC_D000013	Yes		Radiolucency at apex of #5	Yes	Yes
David Maxey (101698)	11/3/11	ADC_D000014	Yes	Percussion	Carious lesions	No	No
John Brown (181444)	9/21/12	ADC_D000032	No	Percussion	No changes in x-ray	Yes	Signed but dated 9/26/12

Table 1. Dental Assistant Evaluations in the 59 Dental Charts Dr. Dovgan and I Reviewed in Common*							
Inmate	**Date**	**Page**	**X-ray taken *sua sponte***	**Tests Performed**	**Diagnosis**	**Contact with Dentist Documented**	**Acknowledged per § 5.3 within 1 business day**
John Brown (181444)	9/6/12	ADC_D000033	Yes	Percussion	No	Yes	Yes
Gerardo Vega (202738)	7/25/12	ADC_D000061	Yes	Percussion	Yes no obvious infection to apex	No	No
Jonathan Lake (179157)	3/30/12	ADC_D000204	No			No	No
Jonathan Lake (179157)	5/4/12	ADC_D00020	Yes	Percussion	No current pathology	No	No
Jonathan Lake (179157)	1/27/12	ADC_D000205	Yes		#31 decay	No	No
Jonathan Lake (179157)	11/5/10	ADC_D000205	Yes		No current pathology	No	No

Table 1. Dental Assistant Evaluations in the 59 Dental Charts Dr. Dovgan and I Reviewed in Common*							
Inmate	**Date**	**Page**	**X-ray taken *sua sponte***	**Tests Performed**	**Diagnosis**	**Contact with Dentist Documented**	**Acknowledged per § 5.3 within 1 business day**
Jesse Gibson (184318)	2/19/13	ADC_D000412	No		No	No	No
Gerardo Reyes (281463)	6/20/13	ADC_D001238	No	Palpation	No	Yes	No

*Note: Of the 59 charts, there were 14 occurrences of Dental Assistant Assessment in 7 charts.

EXHIBIT A

CURRICULUM VITAE - JAY D. SHULMAN

PERSONAL INFORMATION

Address: 9647 Hilldale Drive, Dallas, Texas 75231
Telephone: (214) 923-8359
E-mail: jayshulman@sbcglobal.net

EDUCATION

1982 Master of Science in Public Health
University of North Carolina

1979 Master of Arts in Education and Human Development
George Washington University

1971 Doctor of Dental Medicine
University of Pennsylvania

1967 Bachelor of Arts (Biology)
New York University

POSITIONS HELD

Academic

2007 – Adjunct Professor, Department of Periodontics
Baylor College of Dentistry

2003 - 07 Professor (Tenure), Department of Public Health Sciences
Baylor College of Dentistry (retired October, 2007)

1993 - 03 Associate Professor, Department of Public Health Sciences
Baylor College of Dentistry

Military

1971 - 93 Active duty, U.S. Army. Retired July 1993 in grade of Colonel.

1990 - 93 Chief, Dental Studies Division & Interim Commander (1993),
US Army Health Care Studies and Clinical Investigation Activity

Directed Army Dental Corps' oral epidemiologic and health services research. Supervised a team of public health dentists, statisticians, and management analysts. Designed and conducted research in oral epidemiology, healthcare management and policy.

1987 - 90 Director, Dental Services Giessen (Germany) Military Community and Commander, 86th Medical Detachment. Public Health & Preventive Dentistry Consultant, US Army 7th Medical Command.

Directed dental care for Army in North Central Germany. Operated 6 clinics with 20 dentists and 60 ancillary personnel. Responsible for the dental health of 25,000 soldiers and family members and for providing dental services during wartime using portable equipment. Provided technical supervision of public health and preventive dentistry programs for the Army in Europe.

1984 - 87 Chief, Dental Studies Division US Army Health Care Studies & Clinical Investigation Activity. Public Health & Preventive Dentistry Consultant to Army Surgeon General.

Directed Army Corps' oral epidemiologic and health services research. Supervised a multi-disciplinary team of public health dentists, statisticians, and management analysts. Designed and conducted research in oral epidemiology, healthcare management and policy. Technical supervision of all Army public health and preventive dentistry programs worldwide.

1982 - 84 Assistant Director for Research, US Army Institute of Dental Research.

Responsible for Management of extramural research program, performing epidemiologic research, and teaching biostatistics and epidemiology to Walter Reed Army Medical Center dental residents.

1980 - 82 Full-time graduate student (Army Dental Public Health Training Fellowship) at the School for Public Health, University of North Carolina at Chapel Hill.

1976 - 80 Director, Dental Automation
US Army Tri-Service Medical Information Systems Agency
Walter Reed Army Medical Center, Washington, DC

Directed a team of computer scientists in the development of an automated management system for the Army dental clinics and upper management.

1975 - 76 Clinical Dentist, Pentagon Dental Clinic, Washington, DC

1974 - 75 Clinical Dentist, US Army Hospital Okinawa, Japan

1971 - 74 Clinical Dentist, US Army Dental, Clinic Fort McPherson, Georgia

BOARD CERTIFICATION AND STATE LICENSE

Dental Licensure.

Texas #17518 (retired)

Board Certification.

Certified by the American Board of Dental Public Health since 1984 (active).

RESEARCH - AREAS OF INTEREST

Oral epidemiology, health services research, health policy, military and correctional health.

RECENT FUNDED RESEARCH

2010 - 12 Instrument system and technique for minimally invasive periodontal surgery (MIS). National Institutes of Health SBIR Grant 2R44DE017829-02A1 ($368,270). Principal Investigator: Dr. Stephen Harrel. Role: Paid consultant.

CURRENT SOCIETY AND ORGANIZATION MEMBERSHIPS

1982 – American Association of Public Health Dentistry

2011 – Texas Oral Health Coalition

PROFESSIONAL ACTIVITIES

Invited Presentations.

Apr 2012 Public Health, Public Policy, And Legal Issues Associated with Health Care in Prisons: A Dental Perspective. Presented at the University of Texas Health Science Center, San Antonio.

Apr 2009 Public Health, Public Policy, And Legal Issues Associated with Health Care in Prisons: A Dental Perspective. Presented at the University of Iowa.

Mar 2008 Public Health and Public Policy Issues Related to Dental Care in Prisons. Presented at University of North Carolina School of Public Health, Chapel Hill, NC.

Jun 2007 Characteristics of Dental Care Systems of State Departments of Corrections. Presented to annual meeting of Federal Bureau of Prisons dentists, Norman OK.

Jun 2006 Public Health Aspects of Correctional Dentistry. Presented to annual meeting of Federal Bureau of Prisons dentists, Fort Worth, TX.

Oct 2006 Opportunities for Dental Research Using the National Health and Nutrition Examination Survey. Indiana University School of Dentistry.

Aug 2006 Dental Public Health and Legal Issues Associated with Correctional Dentistry. Federal Bureau of Prisons.

Dec 2005 Opportunities for Faculty Research Using Secondary Data. Frontiers in Dentistry Lecture. University of the Pacific School of Dentistry.

Feb 2005 Advanced Education in Dental Public Health. University of Missouri, Kansas City, School of Dentistry.

Consultant Activities

2012 – Expert Witness. *Parsons et al. v. Ryan et al*. 2:12-cv-00601-NVW (D. AZ).

2012 – Expert Witness. *Daryl Farmer v. Gwendolyn Miles, et al.* 10-cv-05055 (N.D. IL), Eastern Division. Deposed February 1, 2013.

2012 – Expert Witness. *John Smentek et al. v. Thomas Dart, Sheriff of Cook County et al*. 1:09-cv-00529 (N.D. IL).

2012 – Consultant. Quentin Hall et al. v. Margaret Mimms, Sheriff of Fresno County et al. 1:11-cv-02047-LJO-BAM (E.D. CA)

2009 - 11 Expert Witness. Inmates of the *Northumberland County Prison, et al. v. Ralph Reish, et al*. 08-CV-345 (M.D. PA).

2007 - 09 Expert Witness. *Flynn v. Doyle* 06-C-537-RTR (E.D.WI.) Deposed June 5, 2008.

2006 - 12 Rule 706 Expert (monitor) and Court Representative, *Perez v. Tilton* (*Perez v. Cate*) federal class action lawsuit settlement. C05-5241 JSW (N.D. CA).

Responsible to *Perez* Court for coordinating remedies between dental (*Perez v. Tilton / Cate*), medical (*Plata v. Schwarzenegger*), and mental health (*Coleman v. Schwarzenegger*). Monitored compliance with *Perez* stipulated injunction. Monitoring completed June 2012.

2005 - 10 Rule 706 Expert (monitor), *Fussell v. Wilkinson* federal class action lawsuit settlement. 1:03-cv-00704-SSB (S.D. OH).

Performed initial fact finding, provided dental input to stipulated injunction and monitored compliance. Monitoring completed October 2010.

1999 - 03 Editorial Board *Journal of Public Health Dentistry*

1996 - 05 Editorial Board, Mosby's Dental Drug Reference

1993 - 07 *Ad hoc* reviewer: Journal of Public Health Dent (10); Journal of American Dental Association (6); Journal of Dental Education (3); Pediatrics (1); Community Dentistry and Oral Epidemiology(3); Cleft Palate Craniofacial Journal (3); Pediatrics International (3); Journal of Dental Research (2); Caries Research (4); Oral Diseases (2); Journal of Oral Rehabilitation (2); British Dental Journal (3)

Teaching

<u>Predoctoral</u>

1993 - 2007 Director, Principles of Biostatistics

1993 - 2007 Lecturer, Applied Preventive Dentistry

1993 - 2007 Clinical Supervisor, Preventive Dentistry

2006 - 2007	Clinical Supervisor and Care Provider, Dallas County Juvenile Detention Center Dental Clinic
1993 - 2005	Director, Epidemiology & Prevention
1995 - 2003	Director, Dental Public Health

Postdoctoral

2007 –	Research mentor, Department of Periodontics, Baylor College of Dentistry
1994 - 2007	Director, Dental Public Health Residency
1994 - 2007	Lecturer, Research Methods
2001 - 2006	Director, Applied Biostatistics

PUBLICATIONS

Peer-Reviewed (55)

1. Bansal R, Bolin KA, Abdellatif HM, Shulman JD. Knowledge, Attitude and use of fluorides among dentists in Texas. *J Contemp Dent Pract* 2012;13(3):371-375.
2. Shulman JD, Sauter DT. Treatment of odontogenic pain in a correctional setting. *J Correctional Health Care* (2012) 18:1, 58 - 65.
3. Barker TS, Cueva MA, Rivera-Hidalgo F, Beach MM, Rossman JA, Kerns DG, Crump TB, Shulman JD. A comparative study of root coverage using two different acellular dermal matrix products. *J. Periodontology* (2010) 81:11, 1596-1603.
4. Maupomé G, Shulman JD, Medina-Solis CE, Ladeinde O. Is there a relationship between asthma and dental caries? A critical review of the literature. *Journal of the American Dental Association* 2010;141(9):1061-1074.
5. Puttaiah R, Shulman JD, Youngblood D, Bedi R, Tse E, Shetty S, Almas K, Du M. Sample infection control needs assessment survey data from eight countries. *Indian Dental Journal* 2009; 59, 271-276.
6. Fransen JN, He J, Glickman GN, Rios A, Shulman JD, Honeyman A. Comparative Assessment of ActiV GP/Glass Ionomer Sealer, Resilon/Epiphany, and Gutta-Percha/AH Plus Obturation: A Bacterial Leakage Study. *Journal of Endodontics* 2008; 34(6), 725-27.
7. Beach MM, Shulman JD, Johns G, Paas J. Assessing the viability of the independent practice of dental hygiene. *J Public Health Dent.2007;*67(4):250-4.
8. Blackwelder A, Shulman JD. Texas dentists' attitudes towards the dental Medicaid program. *Pediatr Dent* 2007;29:40-4.
9. Massey CC, Shulman JD. Acute ethanol toxicity from ingesting mouthwash in children younger than 6 years of age, 1989-2003. *Pediatr Dent*. 2006; 28:405-409.

10. Shulman JD, Carpenter WM. Prevalence and risk factors associated with geographic tongue among US adults. *Oral Dis*. 2006;12:381-386.
11. Clark DC, Shulman JD, Maupomé G, Levy SM. Changes in dental fluorosis following cessation of water fluoridation. *Community Dent Oral Epidemiol*. 2006;34: 197-204.
12. Shulman JD, Sutherland JN. Reports to the National Practitioner Data Bank involving dentists, 1990-2004. *J Am Dent Assoc* 2006;137:523-528.
13. Holyfield LJ, Bolin KA, Rankin KV, Shulman JD, Jones DL, Eden BD. Use of computer technology to modify objective structured clinical examinations. *J Dent Educ* 2005;10:1133-1136.
14. Benson BW, Shulman JD. Inclusion of tobacco exposure as a predictive factor for decreased bone mineral content. *Nicotine Tob Res* 2005;719-724.
15. Shulman JD, Rivera-Hidalgo F, Beach MM. Risk factors associated with denture stomatitis in the United States. *J Oral Path Med* 2005;340-346.
16. Shulman JD. Is there an association between low birth weight and caries in the primary dentition? *Caries Res* 2005;39:161-167.
17. Shulman JD. The prevalence of oral mucosal lesions in U.S. children and youth. *Int J Pediatr Dent.*2005;15:89-97.
18. Bolin KA, Shulman JD. Nationwide dentist survey of salaries, retention issues, and work environment perceptions in community health centers. *J Am Dent Assoc* 2005;136 (2): 214-220.
19. Shulman JD. Recurrent herpes labialis in US children and youth. *Community Dent Oral Epidemiol* 2004; 32: 402-9.
20. Shulman JD. An exploration of point, annual, and lifetime prevalence in characterizing recurrent aphthous stomatitis in USA children and youth. *J Oral Path Med*. 2004;33: 558.66.
21. Shulman JD, Beach MM, Rivera-Hidalgo F. The prevalence of oral mucosal lesions in U.S. Adults: Data from the Third National Health and Nutrition Examination Survey. *J Am Dent Assoc* 2004;135:1279-86.
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23. Shulman JD, Maupomé G, Clark DC, Levy SM. Perceptions of tooth color and dental fluorosis among parents, dentists, and children. *J Am Dent Assoc* 2004;135(5):595-604.
24. Rivera-Hidalgo F, Shulman JD, Beach MM. The association of tobacco and other factors with recurrent aphthous stomatitis. *Oral Dis.* 2004;10:335-345.

25. Shulman JD, Peterson J. The association between occlusal characteristics and incisal trauma in individuals 8 - 50 years of age. *Dental Traumatology* 2004; 20: 67-74.
26. Buschang PH, Shulman JD. Crowding in treated and untreated subjects 17-50 years of age. *The Angle Orthodontist* 2003; 73(5):502-8.
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28. Shulman JD, Nunn ME, Taylor SE, Rivera-Hidalgo F. The prevalence of periodontal-related changes in adolescents with asthma: Results of the Third Annual National Health and Nutrition Examination Survey. *Pediatr Dent* 2003; 25(3):279-84.
29. Makrides NS, Shulman JD. Dental health care of prison populations. *J Corr Health Care* 2002; 9(3):291-306.
30. Shulman JD, Ezemobi EE, Sutherland JN. Louisiana dentists' attitudes toward the Dental Medicaid program. *Pediatr Dent* 2001; 23(5):395-400.
31. Shulman JD, Taylor SE, Nunn ME. The association between asthma and dental caries in children and adolescents: A population-based case-control study. *Caries Res* 2001; 35:4:240-246.
32. Maupomé G, Shulman JD, Clark DC, Levy SM, Berkowitz J. Tooth-surface progression and reversal changes in fluoridated and no-longer-fluoridated communities over a 3-year period. *Caries Res* 2001; 35:2:95-105.
33. Trautmann G, Gutmann JL, Nunn ME, Witherspoon DE, Shulman JD. Restoring teeth that are endodontically treated through existing crowns. Part I: Survey of pulpal status on access. *Quintessence Int* 2000; 31(10):713-18.
34. Trautmann G, Gutmann JL, Nunn ME, Witherspoon DE, Shulman JD. Restoring teeth that are endodontically treated through existing crowns. Part II: Survey of restorative materials commonly used. *Quintessence Int* 2000; 31(10):719-28.
35. Lalumandier JA, McPhee SD, Riddle S, Shulman JD, Daigle WW. Carpal tunnel syndrome: Effect on Army dental personnel. *Milit Med* 165:372-78,May 2000.
36. McFadyen JA, Shulman JD**.** Orofacial injuries in youth soccer. *Pediatr Dent* 1999; 21:192-96.
37. Cederberg RA, Fredricksen NL, Benson BW, Shulman JD. Influence of the digital image display monitor quality on observer performance. *Dentomaxillofacial Radiology* 1999; 28:203-7.
38. Shulman JD, Niessen LC, Kress GC, DeSpain B, Duffy R. Dental public health for the 21st century: Implications for specialty education and practice*. J Public Health Dent* 1998; 58 (Suppl 1):75-83.

39. Cederberg RA, Fredricksen NL, Benson BW, Shulman JD. Effect of different lighting conditions on diagnostic performance of digital film images. *Dentomaxillofacial Radiology* 1998; 27:293-97.
40. Shulman JD, Lewis DL, Carpenter WM. The prevalence of chapped lips during an Army hot weather exercise. *Milit Med* 1997; 162:817-19.
41. Shulman JD, Wells LM. Acute toxicity due to ethanol ingestion from mouthrinses in children less than six years of age. *Pediatr Dent* 1997; 19(6):404-8.
42. Kress G, Shulman JD. Consumer satisfaction with dental care: where have we been, where are we going? *J Am Coll Dent* 1997; 64 (1):9-15**.**
43. Shulman JD, Wells LM. Acute toxicity in children under the age of six from ingesting home fluoride products: an update. *J Public Health Dent* 1995; 57(3):150-8.
44. McFadyen JA, Seidler KL, Shulman JD, Wells, LM. Provision of free and discounted dental services to selected populations: A survey of attitudes and practices of dentists attending the 1996 Dallas Midwinter Meeting. *Texas Dent J* 1996; 113 (12):10-18.
45. Shulman JD**.** Potential effects of patient opportunity cost on dental school patients. *J Dent Educ* 1996; 60 (8):693-700.
46. Shulman JD, Lalumandier JA, Grabenstein JD. The average daily dose of fluoride: a model based on fluid consumption. *Pediatr Dent* 1995; 17 (1):13-18.
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49. Shulman JD, Williams TR, Tupa JE, Lalumandier JA, Richter NW, Olexa BJ. A comparison of dental fitness classification using different class 3 criteria. *Milit Med* 1994; 159 (1):5-10.
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51. Shulman JD, Carpenter WM, Lewis DL. The prevalence of recurrent herpes labialis during an Army hot weather exercise. *J Public Health Dent* 1992; 52 (4):198-203.
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53. Lewis DM, Shulman JD, Carpenter WM. The prevalence of acute lip damage during a US Army cold weather exercise. *Milit Med* 1985; 150 (2):87-90.
54. Freund DA, Shulman JD. Regulation of the professions, results from dentistry. In Scheffler, Richard (ed.). *Advances in Health Economics and Health Services Research IV* 1984; 5(1):161-180.

55. Baumgartner JC, Brown CM, Mader CL, Peters DD, Shulman JD. Scanning electron microscopic evaluation of root canal irrigation with saline, sodium hypochlorite, and citric acid. *J Endodon.* 1984; 10 (11):525-531.

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1. Shulman JD. Structural Reform Litigation in Prison Dental Care: The *Perez* Case. *Correctional Law Reporter* 25(2) August-September 2013.
2. Shulman JD, Gonzales CK. Epidemiology of Oral Cancer. In Cappelli DP, Mosley C, eds. Prevention in Clinical Oral Health Care. Elsevier (2008), 27-43.
3. Cappelli DP, Shulman JD. Epidemiology of Periodontal Diseases. In Cappelli DP, Mosley C, eds. Prevention in Clinical Oral Health Care. Elsevier (2008), 14-26.
4. Shulman JD, Cappelli DP. Epidemiology of Dental Caries. In Cappelli DP, Mosley C, eds. Prevention in Clinical Oral Health Care . Elsevier (2008), 2-13.
5. Shulman JD, Heng C. Meth Mouth: What We Know and What We Don't Know. *Fortune News* 2006;52(1):12-13.

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EXHIBIT B

EXHIBIT B
MATERIALS REVIEWED

All Materials Identified in Exhibit C to Expert Report dated Nov. 8, 2013

Named Plaintiffs' Records

Dustin Brislan (164993) ADC197411-416
Maryann Chisholm (200825) ADC197417-424
Robert Gamez (131401) ADC197425-434
Joseph Hefner (203653) ADC197435-446
Desiree Licci (150051) ADC197448-455
Victor Parsons (123589) ADC197456-462
Sonia Rodriguez (103830) ADC197463-470
Stephen Swartz (102486) ADC197471-491
Jackie Thomas (211267) ADC197492-500
Christina Verduzco (205576) ADC197501-513
Charlotte Wells (247188) ADC197514-526

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Expert Report of John W. Dovgan DDS regarding Dental Care

Defendants' Eleventh Supplemental (Expert) Disclosure Statement

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