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Reproducing Social Inequality and Unequal Treatment in the National Health Information Infrastructure

A Discourse Analysis of Institute of Medicine Executive Summaries

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This research analyzes how discourse constituting the currently proposed National Health Information Infrastructure (NHII) may reproduce existing social inequality in healthcare. Textually oriented critical discourse analysis and corpus linguistics methods compare 3 executive summaries from the Institute of Medicine reports: the Quality Chasm and Insuring Health series, and the stand-alone report Unequal Treatment. These methods proved effective in studying the social action of language used in those summaries and will be useful in studying a larger corpus of discourse constituting the NHII. Further research will provide information to prevent or mitigate the reproduction of social inequality in healthcare through the proposed NHII. **Key words:** *corpus linguistics*, *critical theory*, *discourse analysis*, *health information technology*, *national health information infrastructure*, *social constructionism*, *social inequality*, *social justice*, *value sensitive design*

THE NATIONAL HEALTH INFORMATION INFRASTRUCTURE (NHII) is "an initiative set forth to improve the effectiveness, efficiency and overall quality of health and healthcare in the United States ... [composed of] a comprehensive knowledge-based network of interoperable systems of clinical, public health, and personal health information."[1] Designed to be constructed over a 10-year period, beginning in 2004, the NHII thus currently exists primarily as a discursive object, that is, as a set of texts produced by the Institute of Medicine* and a variety of other stakeholders (regulatory agencies, policy experts, and so on) that discuss the overall vision of the NHII and what its priorities should be.

However, closer examination of these texts reveals a variety of presuppositions, gaps in thinking, and prejudices that reflect

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*The Institute of Medicine is one of the National Academies of Science, and each report can be read free online at the National Academies Press Web site.[2,3] For this research, each executive summary was purchased in book and digital format from The National Academies Press (NAP) Web site. The PDFs were converted to text documents to enable processing via Oxford WordSmith Tools 4.0. Oxford WordSmith Tools enables corpus-based analysis through the use of key word searches, creation of concordances, collocation, and other techniques and was used for key word searches in this analysis.[4]

current problems in American healthcare. Thus, the purpose of this research was to interrogate how the discourse constituting the proposed NHII risks reproducing existing patterns of unequal access to healthcare, even while the project is in the planning stages. The problematic consequences of social inequality and disparity due to socioeconomic status and racialization of populations in the United States healthcare system are well described elsewhere.[5-9] For these reasons, the possibility that such consequences could be "frozen in" to the NHII—as part of a faulty process of thinking through the project—is equally problematic. This study uses discourse analysis methods, couched within a framework of critical analysis, to open debate about this possibility.

THE NHII IN SOCIAL CONTEXT

The National Committee on Vital and Health Statistics and the Department of Health and Human Services sponsored 2 national working conferences in 2003 and 2004 to codify the subject and scope of the NHII,[10] describing it as "[t]he set of technologies, standards, applications, systems, values, and laws that support all facets of individual health, healthcare, and public health."[1]

The National Committee on Vital and Health Statistics further asserts that an NHII will improve patient safety, improve healthcare quality, enable homeland security (eg, bioterrorism detection), inform and empower healthcare consumers with respect to their personal health status, and improve understanding of healthcare costs. Although the NHII is explicitly described as a voluntary initiative and "*not* a centralized database of medical records or a government regulation,"[1] it should be clear that this initiative has the potential to redefine, reengineer, and reconstitute many—if not all—aspects of the United States healthcare system.

It is difficult to dispute the claim that such an information infrastructure may improve healthcare services as it has so many other industries such as banking, air travel, and the distribution of commercial goods. However, information technologies have also been shown to reproduce bias[11] and to introduce new structures of inequality and social exclusion.[12,13] Norris[12] described the magnification of existing social inequalities through a digital divide between those who have access to information technology and those who do not. This argument can be extended to the divide between those who have access to the inception, design, construction, and evaluation processes of information technology and those who do not. Warschauer[13] illustrated the social embeddedness of technology by describing the impact of several technology projects on the communities in which they are deployed. Feenberg asserted that technology is an "ambivalent process of development suspended between different possibilities,[14(p15)]" and that every technological artifact is inscribed with specific values from inception, through design and use. For all these reasons, it is possible that the NHII could represent something less than an unabashed force for good, given its broad sweep. But how best to assess the potential effects of a project that is still essentially composed of talk *about* the project?

METHODS

In this research, textually oriented critical discourse analysis[15] has been used to assess the social action of language (or discourse) promoting the deployment of information technology to improve healthcare. Critical discourse analysis is concerned with "how discourses are constructive of and constituted by social institutions and their practices, what constitutes knowledge, how ideology functions in social institutions and how people obtain and maintain power within a given community."[16(p12)] Critical discourse analysis hypothesizes that the ways language is used to craft features of texts—including a sense of genre, a textual surface, images of authorship and of the intended audience, highlighting of important frames through use of key term selection, and so forth—are all sensitive to systems of power relations embedded in the circumstances of production of the discourse. In this way, textually oriented critical discourse analysis methods can create a series of signposts that point out inequities in power relations embedded in documents that represent official prescriptions for the deployment of social actions in the healthcare arena.[15]

Note that it is not essential that the authors of these texts be consciously aware of having embedded such inequities in them, or even that there was any intention to perpetuate such inequities. Rather, the cardinal principle of critical discourse analysis is that all texts, irrespective of their means of production, are marked by the power relations (and relationships with power) associated with their authors.[15] Because of this, a critical discourse analysis view of official documents regarding healthcare automatically suspects that such documents might reflect unequal power relations, simply because unequal power relations pervade the healthcare system at this time, and powerholders within that system are unlikely to avoid having been marked by that experience.

Corpus linguistics is a methodology used to study patterns of language use in large collections of natural texts, which have been selected in some systematic or principled way to be representative of a given discursive domain. Historically, corpus linguistics has been widely used in lexicography, and in the construction of dictionaries based on current language use.[17] Modern corpus linguistics consists of quantitative and qualitative analysis, making use of special computer programs designed for both automatic and interactive analysis.[18] It has recently been combined with critical discourse analysis in projects requiring analysis of large numbers of texts, especially in the realms of politics and policy. Fairclough[19] used this combination to study the social action of the language of the New Labour Party, and Piper[20] used it to study the use of the expression "lifelong learning" in the New Labour Program. In this study, the quantitative and descriptive power of corpus linguistics is combined with the critical stance of discourse analysis to illuminate the following question: what features of current inequities in healthcare risk are being reproduced by official documents describing the NHII?

Data selection

Corpus linguistics analysis requires a principled approach to corpus selection to be effective. The texts that are chosen for analysis must occupy a representative position—within a particular document or within a set of documents—such that the analysis can plausibly illustrate something about the entire discursive domain those texts represent.[21] For this reason, an explanation for the choice of texts to be analyzed here follows.[1]

The data selected for this research were the executive summaries of the first reports in both the Quality Chasm[22] and the Consequences of Uninsurance/Insuring Health[23] series of reports by the Institute of Medicine, as well as the opening summary of the stand-alone report *Unequal Treatment.*[24] These reports were all published contemporaneously between 2000 and 2005, resulting in a large naturally occurring corpus of textual data from which to study the stated research problem. Unfortunately, it was beyond the scope of the current study to investigate the entire corpus of text from these 3 report series (composed of more than 20 book-length reports), so representative portions of the series have been isolated for deeper analysis. Specific texts from the first reports of each of the 2 report series, respectively,—*To Err Is Human* from the Quality Chasm series,[25] and *Coverage Matters* from the Insuring Health series[26]—were selected to represent the beginnings of those 2 projects, along with parallel text from the stand-alone report *Unequal Treatment.*[24] These specific selections were chosen for several reasons, all related to the idea that assessment of the degree to which these texts do (or do not) acknowledge and reinforce each other's perspectives bears directly on the question of whether there are gaps in the social understandings embedded in plans for the NHII.

First, the 3 reports share a common institutional author/sponsor—the Institute of Medicine. The Institute of Medicine is one of the National Academies of Science, which are private, nonprofit, nongovernmental, self-sustaining policy institutions, established to advise the federal government regarding matters relating to science.[2,3] Each academy publishes (through the NAP), in both digital and book formats,[27] reports that advise the government by gathering and synthesizing evidence in various problem domains within their purview, often making recommendations concerning these domains for action at policy and other levels. The degree to which these reports fail to "be aware" of each others' points of view may serve as a proxy for assessing the degree to which the Institute of Medicine displays inconsistent understanding of how much the problems addressed by the reports are interconnected on the level of day-to-day healthcare.

A second reason to select these texts is that they come from reports that were all published contemporaneously between 2000 and 2004 and refer to subjects of interest to this research—safety/quality, uninsurance/insuring health, and unequal treatment/disparities in healthcare for racialized populations. The first report selected for this study, *To Err Is Human*, is the initial report in a series formally titled the Quality Chasm Series,[22] but more commonly referred to as the Patient Safety reports because of its emphasis on improving patient safety. The Quality Chasm series is of particular interest because one of the key recommendations repeated throughout all of its constituent reports is the strategy of deploying health information technology to improve patient safety[25,28,29]; the final report in that series is a detailed, policy-level, requirements specification for the NHII.[30] Furthermore, the Quality Chasm reports are widely cited in health informatics literature. *To Err Is Human* is the best known of the Quality Chasm reports and serves as a good exemplar of the Quality Chasm perspective.

The second report selected for this study, *Coverage Matters,* begins the Insuring Health series of 6 reports on the effects of "uninsurance" in the United States.[23] This series examines barriers to access to healthcare in terms of insurance and lack of insurance.

The third report, *Unequal Treatment*, is a stand-alone report that examines the problem of healthcare disparities related to race and ethnicity with respect to how these occur at a structural level beyond that of individual access to care. It examines factors of racism embedded in the institutionalized processes of healthcare that contribute to unequal treatment between white patients and patients from racialized ethnic minority groups.[24]

Discourse about construction of the NHII arose largely out of the Patient Safety/Quality Chasm report series. Therefore, the degree to which existing healthcare inequalities and disparities are discussed in the Quality Chasm series—as indexed by a high degree of discursive overlap—may serve as a measure of the degree to which the new NHII avoids the risk of freezing in those disparities. Conversely, if the Quality Chasm series displays a low degree of discursive overlap with the other 2 Institute of Medicine reports/report series under consideration here, that may serve as a measure for the failure of the Quality Chasm series to grapple with the problem of existing healthcare disparities, thus risking reproduction of those disparities as part of the NHII.

The executive summaries were selected as representative textual proxies for the 3 targeted reports. Executive summaries provide an abbreviated overview of longer reports or proposals and hence highlight or foreground the content the authors feel is most important—meaning that executive summaries occupy especially privileged positions of discursive importance within their source documents. Reflecting this, the executive summary is often the only part of a major report read by large numbers of its readers, who may only care to spend time reading the "take-home" points. Comparing the executive

Table 1. Patient safety report timeline[a]

1998 Chassin and Galvin, The urgent need to improve health care quality: Institute of Medicine National Roundtable on Health Care Quality. *JAMA.* 280(11) (underuse, overuse, misuse introduced here)

1999 Under the Clinton administration, Congress requested the IOM study on healthcare disparities based on race and ethnicity.

	Institute of Medicine reports		
Year published	Healthcare services[b] (Safety/Quality Chasm)[c]	Healthcare services[b] (Uninsurance/Insuring Health)[c]	Health sciences policy[b] (Unequal Treatment)[c]
2000	*To Err Is Human*		
2001	*Crossing the Quality Chasm*	*Coverage Matters*	
2002		*Care Without Coverage*	
2002		*Health Insurance Is A Family Matter*	
2003		*Hidden Costs, Value Lost*	*Unequal Treatment*
2003	*Keeping Patients Safe*	*A Shared Destiny*	
2004	*Patient Safety*	*Insuring America's Health*	

[a] The Chassin and Galvin[31] report provided the impetus for the Quality Chasm Reports. In 1999, under the Clinton Administration, Congress requested an Institute of Medicine study on health care disparities based on race and ethnicity. The report *Unequal Treatment* was the product.

[b] IOM Board.

[c] Series/topic.

summaries enables the sampling of the most discursively pivotal parts of 3 quite different report series, while still limiting the scope of this project to a manageable size. Finally, these 3 executive summaries offer a unique multidimensional snapshot of social action in the discourse of a single American institution with broad influence in the healthcare domain.

Table 1 shows the timeline of publication of the 3 reports/series represented in the data selected for this analysis. Wodak's discourse-historical approach[16] makes use of complex charts and graphs to track ideology through multiple texts produced over time. Although the discourse-historical approach has not been used extensively in this study, Table 1 provides a the publication history of the relevant reports, beginning in 1998 with an Institute of Medicine roundtable report on quality titled *The Urgent Need to Improve Health Care Quality* by Chassin and Galvin,[31] which is a primary reference for the report *To Err Is Human*.

ANALYSIS

Analysis of the target texts was conducted from the outside in, beginning with an examination of textual surfaces and references.

Textual surface

In the PDF, each text is visually quite similar when viewed from the first page. Each bears a standard cover page identifying the document as a product of the NAP and providing information about how to make further use of NAP resources. This cover page in the electronic version appears to "brand" each document as a NAP publication. Both *To Err Is Human* and *Unequal Treatment* are available in hardback book format as well as PDF, while

Coverage Matters is available only in paperback and PDFs. Only *Unequal Treatment* is available in all 3 formats. The availability of a hardback book form for *To Err Is Human* and *Unequal Treatment* makes them seem much more substantial, both physically and visually, than the paperback-only edition of *Coverage Matters*.

The documents from both *To Err Is Human* and *Coverage Matters* are both titled "Executive Summary." *Unequal Treatment's* executive summary is actually titled "Summary," but this text refers to itself as the "executive summary" near the bottom of the third page. The *Unequal Treatment* title "Summary" seems inclusive of nonexecutive readers.

All 3 texts make use of headings and subheadings for organization of background, themes, and arguments. The executive summaries of both *To Err Is Human* and *Unequal Treatment* include "Recommendations," which are numbered and printed in bold text and which immediately draw the reader's eye. These recommendations are culled from the full reports, and including them in the executive summaries gives the impression that enough is known about the problems outlined in the reports that solid, evidence-based recommendations can be made—and consequently, evidence-based actions can be taken. *Unequal Treatment* also isolates a feature called "Findings" in the same way and follows each finding with a recommendation. The use of the word "findings" has an authoritarian tone, suggestive of legal or medical findings. The executive summary from *Coverage Matters* makes no prominent display of findings and makes no recommendations. Unlike the other 2 reports, the *Coverage Matters* text specifically outlines the next 5 reports to appear in this series. This gives *Coverage Matters* a much more tentative feel than either *To Err Is Human* or *Unequal Treatment*, giving the impression that far less is known about uninsurance than either quality/safety or unequal treatment based on race or ethnicity. While both *Unequal Treatment* and *To Err Is Human* encourage the executive reader to act on the basis of the respective reports, *Coverage Matters* seems to caution the executive reader to wait for the upcoming 5 reports before taking action.

Genre analysis

Swales defined genre as a "class of communicative events"[32(p58)] that share communicative purposes; comparable rhetorical action; potential audiences; and elements of style, form, content, and structure. Bazerman[33] described a genre as a frame for social action, environment for learning, and site of meaning construction that shapes our thoughts and communication.

The data texts used in this study are representative of at least 2 genres—the executive summary in general and a policy recommendation report from the Institute of Medicine—as well as samples of domain-specific writing from 3 distinct Institute of Medicine series topics, as described previously.

An executive summary is typically understood to be a high-level synopsis of a longer report or proposal. The word "executive" in the title suggests that the report is summarized for the executive reader who may be pressed for time by executive duties but must become familiar with—and possibly act on—the contents of the longer report. This reading of "executive summary" implies that the author necessarily defers to a consideration of the time resources of the reader. Another interpretation of the title word "executive" might be that the whole report has been summarized by an executive of the committee, board or institution, or at his/her direction. Either reading of "executive summary" supports the interpretation that the text contains the author's intended "must read" or "take home points" of the overall report, and foregrounds views that the author wishes to emphasize. Reinforcing both these interpretations, the title "Executive Summary" targets the self-images of an audience of "executives," or elites who have the power—and in some cases the obligation—to act on the results and recommendations contained in the reports.

These texts are also executive summaries of reports issued by the Institute of Medicine, which is a policy institution chartered to advise the federal government on matters pertaining to medicine and healthcare.[3] These reports ostensibly aim to synthesize "current best evidence" in healthcare and are used to guide federal and state legislature, regulatory practices and to set standards of care across disciplines, professions, and institutions, with the stated overall goal of improving healthcare in the United States. While each sample represents an aspect of healthcare quality, each of these is a sample of a distinct Institute of Medicine discourse—the quality/safety, the uninsurance/insuring health, and the unequal treatment discourses. A key question would then be, how much do these genres inform or stand apart each other? Other features of the textual analyses address this issue.

Authorship

These executive summaries have no specified authors other than the authors of the overall reports. The authors of the overall reports are variously presented. When downloaded from the Library of Congress Z39.50 Web site using citation management software (Reference Manager: Thomson Reuters, Carlsbad, California), *Unequal Treatment* and *To Err Is Human* list human authors. *Unequal Treatment* also lists an institutional author (the Institute of Medicine) and a committee author, in that order. Examination of the *Unequal Treatment* and *To Err Is Human* texts in digital and book format shows that the human authors are referred to as the editors of each report. The institutional author is the Institute of Medicine, while the committee author is the specific committee within the Institute of Medicine, which was convened and charged with generating the report. Committee members are listed in the front material, as are the reviewers and staff involved in producing the reports. The same search process for *Coverage Matters* yields a Library of Congress reference with only institutional and named committee authors and no individually named human authors. The 3 types of authors found in *Unequal Treatment* might serve to emphasize the authority of the report, but may also be interpreted as diffusing responsibility for the report contents.

Each text has chapters whose authors are not specified. However, *Unequal Treatment* also includes a number of papers that do have specific authors as well. The report as a whole is substantially longer than the other 2 reports, and this may explain why it is not part of a series—perhaps all potential reports on this subject are consolidated into 1 report. It is also possible to interpret this lack of production of a series on the topic of *Unequal Treatment* as meaning that the Institute of Medicine believes that unequal treatment is of less importance than either patient safety/quality or uninsurance/insuring health. Lending some support to this interpretation is the fact that *To Err Is Human* and *Coverage Matters* each have a foreword by a president of the Institute of Medicine (Kenneth Shine), whereas *Unequal Treatment* has no such forward by a president of the Institute of Medicine.

Intended audience

The intended audience of any given text affects author choices in such things as vocabulary, evidence, and publication venues. Given that the Institute of Medicine is charged with the responsibility to advise the federal government on matters relating to healthcare and medicine, the primary intended reader of these texts is "the government of the United States," or at least federal policy makers. Inasmuch as these are executive summaries, it may be assumed that persons with positions of high-level executorial authority are another intended audience of these texts.

Since these recommendations may be used by policy makers to set funding priorities, these reports are also read and integrated into grant applications and scholarly research by graduate students, researchers, and grant seekers. *To Err Is Human* quality/safety reports are widely quoted in biomedical informatics literature and grants because of the recommendations for the deployment of information technology for purposes of improving patient safety in healthcare. Any of these intended readers may be considered elites in comparison to the vast majority of consumers of American healthcare.

References and reference lists

Swales[32] refers to the use of citations or references in academic writing as a means of creating a research space or territory. All 3 executive summaries make use of references to research and other texts to support the framing of the problems, recommendations, and solutions contained in the summaries. The citation format of *To Err Is Human* is numbered, whereas the other 2 texts use author last names and publication dates. However, while both *To Err Is Human* and *Unequal Treatment* have reference lists at the end of the executive summary, *Coverage Matters* makes use of 1 long reference list at the end of the entire report. As a result, a person skimming the executive summary of *Coverage Matters* is unable to skim the references used in the executive summary without turning to the back of the book and viewing the reference list for the entire book. This increases the reading burden for the reader who is not already familiar with the literature in this area. This weakens the authority and obscures the research space or territory of the executive summary of *Coverage Matters*, in comparison to the other 2 texts.

To Err Is Human[21] cites 18 outside sources in the executive summary and has 5139 words, whereas the reference list for *Unequal Treatment* has 88 citations and 7729 words. *To Err Is Human* thus uses an average of 1 reference per 286 words (5139/18), whereas *Unequal Treatment* uses an average of 1 reference per 88 words (7729/88). This may imply that the *Unequal Treatment* executive summary is much better grounded in supporting evidence than is *To Err Is Human*, but can also be interpreted to mean that the authors of *Unequal Treatment* perceive a more pressing need to demonstrate the strong evidence supporting their project than do the authors of *To Err Is Human*. The absence of a reference list at the end of the *Coverage Matters* executive summary makes comparing its references to those of the other texts tedious, requiring extraction of the *Coverage Matters* citations from the executive summary text. It can be argued that such placement of the references makes it more difficult for people who are not familiar with this domain to track evidence specific to the claims made in the executive summary.

There is no overlap between the references in the executive summaries of *Unequal Treatment* and *To Err Is Human*—although, *Unequal Treatment* does refer to the second report in the Quality Chasm series.[24]

Key words in context

It is not possible to perform a true key word analysis between the 3 texts without a large corpus to use for comparison with ordinary, policy, medical or some other specialty language usage. However, Table 2 contains a limited comparison of key words selected from the title and descriptive material of each of the 3 texts. As shown in the table, there is very little overlap across all 3 texts in the use of these key words. The only 3 words that appear in all 3 texts are “access,” “insurance,” and “quality,” and these words are used somewhat differently in the texts. For instance, in *To Err Is Human,* “access” refers to access to information, whereas “access” in the other 2 texts refers to access to healthcare.

Even in cases of overlap, the words appear disproportionately in one text over the others. The authors of *Coverage Matters* or *Unequal Treatment* make minimal use of the word “safety.” While the word “information” is used 18 and 13 times in *To Err Is Human* and *Unequal Treatment*, respectively, it does not appear at all in *Coverage Matters*. Even the words “inequality” and “inequity,” which might be expected to appear prominently in *Unequal Treatment* and *Coverage Matters*, appear only 3 times in any of the texts.

Table 2. Comparison of node words selected by the author from the titles and descriptive materials of the reports

Node words	*Coverage Matters*	*To Err Is Human*	*Unequal Treatment*
Access	10	2	22
Disparit*	3	0	72
Inequality	0	0	2
Inequit*	0	0	1
Insurance	93	1	7
Quality	4	13	25
Safety	1	106	0
System*	0	53	30
Unequal	0	0	1
Uninsurance	13	0	0
Uninsured	77	0	0

Modality

Fairclough[19] defines modality as a reflection of the level of commitment to the truth claims a writer makes and/or the obligation to respond, which is expressed to the reader. Words such as *could, should, can*, and *might* reflect varying levels of modality. The word "could" appears only once in both *To Err Is Human* and *Unequal Treatment* and not at all in *Coverage Matters*, whereas "should" appears 47 times in *To Err Is Human*, once in *Coverage Matters*, and 20 times in *Unequal Treatment*. In *To Err Is Human* "could" is used on the first page, at the end of the second paragraph: "...adverse events resulted from medical errors which *could* have been prevented."[25(p1)] The use of "could" so early in *To Err Is Human* strongly promotes the central thesis of this report—that medical errors are widespread, causing injuries that could be prevented as well as the implication that the reader should feel obligated to do something about this problem.

In *Unequal Treatment*, the word "could" appears much later in the text and has much less impact on the mode of the text. Regarding the issue of disclosing a health plan's clinical protocols, the text notes: "To achieve this, private accrediting entities and state regulatory bodies *could* require that health plans publish their clinical practice protocols, along with supporting evidence, thereby opening these protocols."[24(p16)] The use of "could" here instead of "should" weakens the suggestion being made by the author that clinical protocols—which might contain evidence of systematic exclusory practices targeting ethnic minorities—ought to be available for public scrutiny. This is curious, given the political project of the report, which involves exposing institutional and systematic exclusionary practices that lead to inequity in healthcare. The overall low incidence of the modals "could" and "should" in *Coverage Matters* is also curious given that this is the beginning report of a policy series outlining the "consequences of uninsurance," with the presumed purpose of persuading readers that uninsurance is an important problem.

Narrative framing

It is beyond the scope of this report to present a detailed comparison of the language in use in these 3 sample texts. However, an examination of the opening paragraphs of the executive summaries of the selected reports (references omitted) demonstrates some striking stylistic differences between them:

To Err Is Human[25(p2)]:

> The knowledgeable health reporter for the Boston Globe, Betsy Lehman, died from an overdose

> during chemotherapy. Willie King had the wrong leg amputated. Ben Kolb was eight years old when he died during "minor" surgery due to a drug mix-up.

Unequal Treatment[24(p1)]:

> Looking gaunt but determined, 59-year-old Robert Tools was introduced on August 21, 2001, as a medical miracle—the first surviving recipient of a fully implantable artificial heart. At a news conference, Tools spoke with emotion about his second chance at life and the quality of his care. His physicians looked on with obvious affection, grateful and honored to have extended Tools' life. Mr. Tools has since lost his battle for life, but will be remembered as a hero for undergoing an experimental technology and paving the way for other patients to undergo the procedure. Moreover, the fact that Tools was African American and his doctors were white seemed, for most Americans, to symbolize the irrelevance of race in 2001. According to two recent polls, a significant majority of Americans believe that blacks like Tools receive the same quality of healthcare as whites.

Coverage Matters[26(p1)]:

> Healthcare increasingly affects our personal lives and the national economy as its benefits to our health, longevity and quality of life grow. Over the past quarter of a century, clinical medicine has become more sophisticated, technological advances have become more commonplace, and the range of healthcare interventions has been much expanded. Yet over the same period, the numbers of persons without health insurance to help them purchase health services has increased by about one million per year—faster than the rate of overall population growth. The total number of uninsured Americans grew even during years of economic prosperity.

The opening paragraphs of *To Err Is Human* and *Unequal Treatment* both make use of active agency, expressing a sense of immediacy through the use of dramatic and emotional narrative stories of specifically named persons who have suffered adversity in healthcare. In *To Err Is Human*, the adversity is death or maiming due to tragic medical errors, and is by far the more dramatic of the two. In *Unequal Treatment*, Mr Tools is depicted as a heroic African American recipient of the latest in cardiac technology—an implantable artificial heart. *To Err Is Human* uses this approach to imply that any American is in danger when he/she receives medical care in the United States. The strong use of the modal "could" follows in the second paragraph of *To Err Is Human* (not shown in the excerpt above), where the authors of the text state that these errors could have been prevented. *Unequal Treatment* goes on in the second paragraph (not shown in the excerpt above) to state that the story of Mr Tools is somewhat misleading, that his case is not the norm, and that it represents an isolated case of an African American receiving cutting edge treatment in healthcare. Most readers can relate the circumstances depicted in these 2 paragraphs on the level of feeling endangered by or deprived of a good healthcare.

The opening paragraph in *Coverage Matters* makes no reference to specific persons who have suffered adversity due to lack of health insurance, though the need for a series on uninsurance/insuring health implies that there must be many such cases. The absence of personal narrative is striking in comparison to the other 2 reports. Instead, *Coverage Matters* begins with a broad, general description of the importance of healthcare and how it has evolved over a quarter of a century. As a result, the *Coverage Matters* opening paragraph seems much more global, less personal, and may hold less interest for the reader, especially given that the intended readers for this text are predominantly elites who likely have high-quality health insurance as a benefit of employment. This may have engendered a gap in perception, in which the health circumstances of the authors might simply have made the impact of uninsurance sufficiently difficult to "feel," because the language used to describe it is bland and technocratic.

DISCUSSION AND CONCLUSIONS

This has been a textual surface analysis of 3 different executive summaries from 3 different Institute of Medicine policy recommendation reports. Two conclusions may be drawn. First, the research undertaken here has been shown to be relevant to the analysis of social values embedded in policy documents and can be used to inform the design of further studies of such problems, using the combination of critical discourse analysis and corpus linguistics.

The second conclusion is that the present analysis reveals evidence of discursive partitioning between 3 major healthcare quality problems as well as the potential reproduction of patterns of inequality in the Institute of Medicine discourse surrounding the NHII. The lack of overlap between the 3 texts, with respect either to references or key words, suggests minimal intersection between the research spaces of these 3 reports/series, even though all 3 are considered important enough to American healthcare quality to warrant either a series or large stand-alone report. The absence of the word "information" in *Coverage Matters* is of particular interest and warrants further study in a larger project. It may simply indicate differences of vocabulary and problem sets of the discourses reflected in the 3 texts. However, the evidence presented here suggests most strongly that this absence reflects values and ideologies that are inscribed in these discourses, as well as discursive partitioning between quality problems outlined in the 3 different report series. If this lack of overlap in research space pervades the entire corpus of all reports from both series and the stand-alone report—something that also warrants further study in a larger project—this almost certainly means that the Institute of Medicine literature supporting the NHII does not include consideration of the reproduction of social inequity in healthcare through the NHII.

The genre analysis and study of the intended audience reveals texts written by a group of elites for another group of elite peers. Most consumers of American healthcare are excluded from the discursive space of problem definition, decision and policy-making. This exclusion is mitigated by the fact that all Institute of Medicine reports and those of the other National Academies can be read in their entirety on the World Wide Web. However, this requires unlimited Web access with sufficient bandwidth and screen to comfortably read the pages, because they can only be downloaded one at a time. It does nothing to provide a voice for participation for nonelite, nonspecialist consumers or ensure that the vocabulary is accessible for nonspecialized readers.

The analysis of textual surfaces and modality overwhelmingly illuminates a tentative voice with weak commitment to action in *Coverage Matters*, whereas *To Err Is Human* and *Unequal Treatment* boldly offer definite findings and strong recommendations in the executive summaries. This weakens the engagement and exhortation to action in *Coverage Matters.* The comparison of opening paragraphs revealed similarities and differences in the strategies of persuasion and engagement used by the authors of these executive summaries. *To Err Is Human* and *Unequal Treatment* both make strong active efforts to exhort and engage the reader on the level of human interest, whereas *Coverage Matters* lacks the element of personal narrative and seems almost blasé about the report topic. This is surprising given that so-called "uninsurance" is such a profoundly distinctive American problem that it has entered the realm of public entertainment—such as in the film *John Q*, starring Denzel Washington as an underinsured working father who takes a hospital hostage to procure a heart transplant for his ailing son.[34]

Textually oriented critical discourse analysis combined with corpus linguistics is a potentially very powerful and effective way to study the social action of language embedded in institutional texts. In the present case, further research using a larger corpus and a wider variety of discourse analysis methods will provide information required to understand the processes by which social inequality in healthcare may be reproduced through the proposed NHII and to anchor political action designed to counter and reverse that dynamic.

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