

Supporting Statement A. for Request for Clearance:

**National Hospital Discharge Survey**

**0920-0212**

**(Expiration date: 08/31/08)**

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## **SUPPORTING STATEMENT**

### **THE NATIONAL HOSPITAL DISCHARGE SURVEY**

This request is for a revision of an approved data collection survey (OMB No. 0920-0212), the National Hospital Discharge Survey (NHDS). The three year request will include a reduction in the current NHDS sample size (2008 and 2009), a pretest for the redesigned NHDS (2008) and field work for the first two years of the redesigned NHDS survey (2010 – 2011).

As a condition of the current clearance that expires August 31, 2008, NCHS was asked to explore and include in this clearance package options for reducing burden on hospitals that have been regular survey participants. The following is the NCHS response to this request.

Hospitals that currently participate in the NHDS do so voluntarily. Many consider their participation as part of their role in public health and research. Moreover after deciding to participate, hospitals are given a choice, to help minimize the burden placed on them, as to how they would like to participate either 1) by sampling and abstracting the data themselves, 2) having the U.S. Census Bureau do the data collection for them, or 3) submitting electronic data files directly or via an abstract service to NCHS. Currently, only 12 percent of the hospitals participating sample and abstract the data themselves. Additionally, hospitals are compensated for their participation in the current survey.

Due to budgetary constraints, the sample sizes for the 2008 and 2009 NHDS data collections will decrease from 501 to 239 hospitals, thereby reducing burden for some hospitals. Based on prior participation, it is estimated that only 10 percent of the 239 hospitals will sample and abstract the data themselves. For the redesigned NHDS beginning in 2010, NCHS will draw a completely new sample of approximately 240 hospitals in part to address the burden issue. For the redesigned NHDS, all data abstraction will be done by a field representative from Research Triangle Institute (RTI) International, thereby reducing the hospital's involvement time.

#### **A. Justification**

##### **1. Circumstances Making the Collection of Information Necessary**

###### Current NHDS

The National Health Survey Act of 1956 initiated a period of intensive survey development in the United States to meet the multiple needs for health statistics in the public and private sectors. In 1960 the National Center for Health Statistics (NCHS) was formed. Since that time the NCHS has refined, implemented, and maintained the initial series of surveys, adding surveys and related survey research as necessary to meet the legislative mandate for providing health statistics. NCHS has structured its health care provider surveys into a family of surveys called the National Health Care Surveys

(NHCS). The current surveys which comprise the NHCS are the National Hospital Discharge Survey, the National Survey of Ambulatory Surgery (OMB No. 0920-0334), the National Ambulatory Medical Care Survey (OMB No. 0920-0234), the National Hospital Ambulatory Medical Care Survey (OMB No. 0920-0278), the National Nursing Home Survey (OMB No. 0920-0353), The National Survey of Residential Care Facilities (OMB No. 0920-0212) and the National Home and Hospice Care Survey (OMB No. 0920-0298). This family of surveys generates data that permit analysis of the relationship among the use of health services, patient characteristics, and provider characteristics at both the national and regional levels.

The NHDS, which has been conducted continuously since 1965, is the Nation's principal source of data on inpatient utilization of short-stay, non-Federal hospitals, and is the principal source of nationally representative estimates on the characteristics of discharges, lengths of stay, diagnoses, surgical and non-surgical procedures, and patterns of use of care in hospitals in various regions of the country. It is the benchmark against which special programmatic data sources are compared. The NCHS is authorized to collect data on hospital utilization under Section 306(b) of the Public Health Service Act (42 USC 242k) (Attachment A).

### Redesigned NHDS

Although the NHDS has served the country well for over 40 years by providing national data on inpatient care, significant changes have occurred in the role of inpatient care and in the data sources available to understand the characteristics of inpatient care. For the NHDS to remain policy relevant, it must reflect the types of care and services now offered in American hospitals. For example, the average length of hospital stay has declined over 40 percent from 1970 to 2004. Many conditions for which, only a decade ago, a patient would have been admitted to a hospital and observed for a day or two are now, at least for patients with some types of insurance, admitted as "observation" patients, a designation that precludes their incorporation into an "inpatient only" database.

Furthermore, our understanding of care within short-stay non-federal hospitals has changed over time, as have the relevant policy and clinical questions that relate to hospital care. The groundbreaking report of the Institute of Medicine (IOM), To Err is Human: Building A Safer Health System - Institute of Medicine (<http://www.iom.edu/cms/8089/5575.aspx>) and the follow-up report, Crossing the Quality Chasm: A New Health System for the 21st Century (<http://www.iom.edu/cms/8089/5432.aspx>) have created a new focus on improving the quality and safety of health care in hospitals across the country (all reports are weblinked). Policymakers, researchers, and hospitals have a heightened interest in measuring the performance and safety of physicians, departments, and entire organizations in order to improve the care they deliver. The sciences of risk adjustment and health outcomes measurement have progressed, leading to new and better methods to evaluate how successful or appropriate a particular health intervention might be.

In addition, further recognition that there may be variation in hospital care by race, ethnicity, and socioeconomic status, as described in the IOM's [Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care](http://iom.edu/CMS/3740/4475.aspx), (<http://iom.edu/CMS/3740/4475.aspx>) has created new questions concerning the causes and solutions to health disparities.

In response to the new questions that are being asked about hospital care and other health care in the United States, it has become necessary to gain a deeper understanding of the care that is being provided in hospitals in the United States. Unfortunately, the data needed do not currently exist.

Many of these issues require data that are nationally representative to conduct valid and adequate analyses. For example, understanding whether hospital safety varies by geographic area, urban/rural status, or hospital size would require data that are national in scope. This leaves few possible data sources with which to address many hospital related questions.

Although other data sources cover many hospital admissions or large geographic segments of the United States, none provides the detail needed by many health care researchers and policymakers. All national databases lack information on observation status patients and detailed data on patients, such as laboratory values, and the ability to collect focused clinical data on patients with pre-specified diagnoses, procedures, or demographic characteristics.

Although the current NHDS is representative of the United States in many dimensions, its clinical depth is not extensive enough to address critical questions such as, "Did this patient spend time in the intensive care unit of the hospital?" and "Were the medications the patient was prescribed at discharge appropriate?" Data to address these types of questions are crucial to understanding the care provided. The current NHDS does not collect data on laboratory values that may reflect the true severity of illness, such as the renal function (reflected by the blood urea nitrogen and creatinine levels) of patients with diabetes. Outcome measures after one has left the hospital, such as readmission or death, which may reflect the quality of hospital care provided, are also not collected in the current survey.

To inform efforts to improve the NHDS, NCHS has conducted developmental work, carried out focused discussions with people in many federal and private organizations, and conducted a workshop in March 2006. Using the findings of the workshop and interviews, NCHS identified key data about hospitals and information about discharges and tested methods and tools in a feasibility study in 7 hospitals. See an executive summary of the feasibility study in Attachment B.

NCHS then conducted further developmental work for the redesigned survey, completing a pilot study during April-May of 2008 in 4 hospitals in the Washington, DC, area. This study tested the use of a laptop PC-based data collection tool, and the abstraction of data elements identified in our earlier developmental work. In addition to providing

information about the tool itself, the pilot is providing important information about the effort required on the part of the abstractors and the hospitals to conduct sampling procedures and obtain specific data elements.

The next step, a pretest, will focus on the design and testing of the operational mechanism to recruit a new panel of hospitals and collect a broader spectrum of data elements using information technologies. With OMB approval, a pretest will be conducted in 30 hospitals. This will include a test of all aspects of the survey from hospital induction through delivery of final files and documentation to NCHS. Based on the results of the pretest, aspects of all systems and materials may be modified to ensure a successful, redesigned NHDS.

Specifically, the pretest will be designed to test four important features of the survey that will be newly added to the NHDS in this redesign. These four features described below provide a new set of “tools” for the redesigned survey that allow users to answer important clinical and policy questions that have been difficult to address in the past.

First, we will be testing new sampling procedures that allow us to over-sample specific patient groups by demographic, diagnosis, or discharge status categories. This will allow targeted data collections focused on specific clinical and policy questions, allowing more statistical power than might otherwise be obtained with a random sample of discharges from hospitals.

Second, we are testing the addition of specific modules to our core data collection activities. In the pretest, these include specific questions on acute coronary syndrome, in-hospital deaths, and hospital acquired blood stream infections. These are being conducted with the financial support and content guidance of the National Heart, Lung, and Blood Institute (NHLBI), the Agency for Health Care Research and Quality (AHRQ), and the Center for Disease Control and Prevention's (CDC's) National Center for Preparedness, Detection, and Control of Infectious Diseases (NCPDCID) respectively. If these particular modules are found to be successful, these sources may provide future funding for modules in the national redesigned survey in 2010. In addition, however, conducting these modules in the pretest allows testing of the methodology necessary to add specific modules.

Third, we will test the ability to collect key clinical and financial information as part of our core survey for all sampled cases. These data elements are described in detail below. In short, they will allow for analyses that could not be previously conducted with the current NHDS.

Fourth, the pretest will allow us to test the collection of protected health information (PHI), and the willingness of hospitals to provide this information. PHI will allow linkage to the National Death Index, providing improved outcomes of hospitalization. Hospitals may have concerns about release of these data, and the pretest will assess the effect of collecting PHI on hospital willingness to participate. The collection of PHI was approved by the NCHS Ethics Review Board for the pilot test described above.

Moreover, testing of these four important areas in the pretest will inform the national redesigned survey. The implications for operational success, cost, hospital burden, and hospital participation will be evaluated during the pretest and any changes that are made to the national survey as a result of information gained during the pretest will be reported to the OMB as soon as possible.

## **2. Purpose and Use of Information Collection**

### Current NHDS

Data collected through the current NHDS are essential for evaluating the health status of the population, for the planning of programs and policy to improve the health status of the Nation, for studying trends in morbidity, and for research activities in the health field.

The data collected by the current NHDS are used by governmental, professional, scientific, academic, commercial institutions, and the public. The wide variety of uses of NHDS data is best exemplified by the diversity of its users. These include Federal agencies, such as the Centers for Medicare & Medicaid Services (CMS), the National Institutes of Health (NIH), the Food and Drug Administration (FDA), various Centers within the Centers for Disease Control and Prevention (CDC), the Department of Defense (DOD), and the Department of Veterans' Affairs (VA), international organizations, such as the Organization for Economic Cooperation and Development, universities and medical schools, professional organizations, such as the American College of Surgeons and the American Heart Association; state health planning agencies; hospitals; pharmaceutical and medical supply manufacturers; publishing houses; market research groups; and insurance companies.

Of particular importance, current NHDS data are used by the Department of Health and Human Services (DHHS) in the development and monitoring of goals for the Year 2010 Health Objectives for the nation. In addition, NHDS data provide annual updates for numerous tables in the Congressionally-mandated NCHS report, *Health, United States* and the annual reports produced by Agency for Healthcare Research and Quality (AHRQ) on quality of care and disparities, *The National Healthcare Quality Report and the National Healthcare Disparities Report*.

Data from the current NHDS provide significant input to the operations of many programs within the CDC. Within the National Center for Infectious Diseases, NHDS data provide national estimates of hospital utilization for patients discharged with human immunodeficiency virus (HIV). Staff of the National Center for Injury Prevention and Control use NHDS data as a measure of hospitalizations due to injury. NHDS data are used in a variety of research activities in the National Center for Chronic Disease Prevention and Health Promotion. In addition, NHDS data frequently appear in CDC's *Morbidity and Mortality Weekly Report (MMWR)*. A recent surveillance report on asthma using NHDS data can be found at

National Surveillance for Asthma --- United States, 1980--2004<sup>1</sup>.

Data from the current NHDS are being used in many specialized ways. The staff of the National Heart, Lung, and Blood Institute, NIH, request yearly updates of selected coronary diagnoses and procedures to monitor trends in coronary conditions. NHDS data are also used by researchers at the National Cancer Institute, NIH, to assist in measuring the incidence of uterine and prostate cancer. The DOD and the VA use NHDS data to compare inpatient care provided in their hospitals with care provided in the civilian sector.

Current NHDS data are used extensively by the health research community. Some recently published articles in journals in which NHDS data have been used include the *New England Journal of Medicine*, *American Journal of Surgery*, the *American Journal of Cardiology*, the *American Journal of Obstetrics and Gynecology*, the *Journal of the American Medical Association*, and the *Journal of Pediatrics*.

Redesigned NHDS

There are many issues with substantial policy importance that the current NHDS cannot address. A redesigned NHDS will move NCHS forward to collect data that will better meet current and future policy and research needs and will allow a range of new research and policy questions to be explored. The following paragraphs highlight ways in which the redesigned NHDS can be used to address questions related to five policy-related areas that our developmental work identified as high priority.

**Cost of Care and Resource Use**

The redesign introduces new variables related to payment for care. These variables will supplement information already available from other sources on costs of care, which are approximated through charges submitted on hospital bills. The addition of variables on payment will allow examination of more-complex issues, such as cost shifting among different payers and patients.

Stakeholders expressed interest in better understanding the allocation of resources and the need for greater transparency in cost and pricing. The redesign addresses these needs by introducing information on actual payment. This will provide data on charges, actual payment, and costs calculated from cost-to-charge ratios. Variation in payment across diagnoses and hospitals may be assessed using these data, allowing examination of payment utilization, quality of care, and disparities in care. Data from the Facility Questionnaire may be used to identify hospitals with different payer mixes (e.g., high or low proportion of Medicaid patients or self-pay patients), while patient data may then be used to determine whether individual patient encounters are profitable (i.e., payment exceeds cost) or unprofitable (i.e., cost exceeds hospital payment). These findings might be analyzed for the entire patient mix in participating hospitals or for specific diagnoses

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<sup>1</sup> <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5608a1.htm>

and procedures captured through ICD-9-CM codes. This will be the first time a nationally representative set of data will be available to address potential gaps between cost of care and payment for services.

The general survey will not have sufficient depth to answer focused questions related to cost of care. However, in the future, special modules designed specifically for such analyses could be used to answer questions such as the number of nursing hours allocated to patients with a particular acuity or the cost of antibiotic medications for treating patients with gram-negative sepsis.

Further, in the redesigned national survey, we aim to determine whether patients have had an intensive care unit (ICU) stay during hospitalization and the number of days of intensive care during hospitalization. This will allow national estimates of the costs of intensive care in the U.S., an area of resource use that has been poorly studied to date. In addition, disparities and trends in the allocation of intensive care resources could be assessed as well.

### **Quality of Care Including Patient Safety**

Quality of care, including patient safety, is and will continue to be a critical issue in health services research. A key focus will be to understand the degree to which processes of care are consistent with recognized quality standards and practice guidelines. Drawing meaningful inferences regarding quality of care requires a clinical context in which that care is provided. The proposed redesign expands the survey's clinical information by incorporating laboratory data, medications on admission and discharge, and other clinically relevant variables. The redesign also captures whether diagnoses existed on admission, an important determinant in differentiating between adverse situations that led to hospitalization and complications that resulted from the care provided.

The redesigned survey begins to define variables that will link structure, process, and outcomes of care. Structural information (i.e., information on the facility and environment in which care is received) provided on the Facility Questionnaire can be linked with clinical care processes (e.g., surgeries, medications at discharge) to understand outcomes of care (e.g., 30-day readmission, mortality). For example, patients and families have come to expect shorter lengths of stay, with patients leaving the hospital for home or intermediate care with higher severity of illness than in previous years. Data from the survey can be used to examine the extent to which earlier discharge places a patient at risk for unanticipated (i.e., non-elective) readmission to the hospital. Two parameters that have already been shown to improve risk adjustment of hospital mortality are present-on-admission and key numerical laboratory values (Elixhauser et al., 2007<sup>2</sup>).

Hospital-acquired infections are infections that patients acquire during the course of receiving treatment for other conditions in a hospital. An estimated 100,000 patients die

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<sup>2</sup> Elixhauser, A Enhancing Claims Data to Improve Risk Adjustment of Mortality and Patient Safety Indicators, National Committee on Vital and Health Statistics, AHRQ, June 2007



from hospital acquired infections each year. Approximately 30,000 of these deaths are from bloodstream infections (BSIs). CDC strives to understand how hospital-acquired infections happen and to develop appropriate interventions. Traditional surveillance for prevention and control of infectious diseases in hospitals utilizes a sentinel approach with detailed information collected from participating programs and limited access to institutions that do not participate in these programs. In relation to patient safety, the CDC works with many hospitals to improve the management of multi-drug resistant infections and reduce rates of healthcare associated infections. Gathering information from hospitals that participate in CDC specific programs is an essential part of the life-saving interventions related to infection control. However, to evaluate progress towards CDC's patient safety goals and objectives, data are needed from a representative sample of all hospitals whether or not that hospital participates in a specific CDC intervention. Moreover, in many cases, even obtaining information from all parts of the hospital can be difficult. The proposed redesign expands the survey's clinical information by incorporating laboratory data on bloodstream infections and other clinically relevant variables.

There is considerable interest, within both the government and the private sector, in better adjusting for patient severity in order to evaluate quality performance and appropriate reimbursement. The current focus is on extracting more information from administrative data sources (i.e., primarily diagnosis and procedure codes). The richness of the data contained in the redesigned survey could facilitate policy analyses to determine strategies for incorporating additional, non-administrative variables that better adjust for patient severity. Variables being newly collected in the pretest and the redesigned survey that would improve current risk-adjustment strategies include: lab values on admission (hematocrit, white blood cell count, platelets, sodium, potassium, blood urea nitrogen, and creatinine), as well as medications on admission. Once selected, variables could then be tested to determine their value in quality and pay-for-performance reporting programs.

The redesigned NHDS also provides the opportunity to retrospectively examine adoption trends for new procedures and types of care to assess their effect on quality and outcomes. For example, the current NHDS has been valuable in studying disparities in the adoption of cardioverter defibrillators. (Stanley, DeLia, and Cantor, 2007<sup>3</sup>).

Another important quality issue relates to the training and experience of those providing care. The proposed survey captures the attending and operating physicians' National Provider Identifiers (NPIs) as part of the discharge abstract, offering the ability to link the individual patient's care with the specialty of the providers from whom care was received. Information linking provider identifiers to their characteristics (e.g., specialty, provider age) is available from CMS for research purposes (<https://nppes.cms.hhs.gov/NPPES/>) NCHS will, of course, maintain provider confidentiality in all analyses and public use files.

Another high priority for the government and health care organizations is better understanding of safe practices in the hospital. Our discussions with national patient

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<sup>3</sup> [www.ihhccpar.rutgers.edu/downloads/publications/JoelCantor.pdf](http://www.ihhccpar.rutgers.edu/downloads/publications/JoelCantor.pdf)

safety leaders suggest that the additional proposed clinical variables will facilitate strategies to improve the specificity of the Agency for Healthcare Research and Quality Patient Safety Indicators. For example, death in low-mortality DRGs (defined as expected mortality under 0.5%) is more likely to represent a health care error than a natural event. To increase specificity, the indicator already excludes trauma patients, patients who are immunosuppressed, and patients with cancer. Increased clinical detail, provided through such variables as laboratory values on admission, offers the opportunity to increase the specificity of the indicator by further excluding patients who present with very high acuity, even though their conditions map to low-mortality DRGs. Similar adjustments for confounding conditions could be made to study many patient safety indicators now being used while providing a basis to explore the incorporation of indicators that were initially rejected because administrative data could not distinguish consequences of care from clinically expected events.

The current NHDS lacks sufficient detail to adequately address issues related to appropriateness of care or to fully respond to the wide range of quality indicators either being used or being developed. For example, the assessment of appropriateness of coronary artery bypass surgery (CABG) requires patient findings to be related to established, procedure-specific appropriateness criteria (Fitch et al., 2001)<sup>4</sup>. Because appropriateness criteria are specific to patient condition and procedure, this type of assessment is uniquely amenable to focused modules related to care for patients with known coronary artery disease.

### **Care Delivered Throughout the Hospital**

By incorporating data on patients with “observation status” (those patients that are observed for 1-2 days and traditionally not included as inpatients), the redesigned survey provides a more complete picture of care delivered throughout the hospital than has been possible in recent years. Incorporating these patients into the NHDS will help to reconstitute the patient composition of the survey of previous decades, thereby making possible, for the first time, an understanding of the effect this practice shift has had on the services, intensity of care, costs, payment, and outcomes. For example, the redesigned survey will make it possible to determine whether care differences (e.g., intensity of service and quality of care) exist for patients with similar presenting and treatment situations based on patient admission status.

### **Continuity of Care and Transitions**

Continuity of care, particularly as patients transition from the hospital environment to lower levels of care (e.g., home, assisted living, hospice, intermediate care), is frequently cited by patients as a major weakness. Health policy experts also frequently noted the lack of longitudinal data. Although practical considerations limited the extent to which longitudinal data could be included in the redesigned survey, the redesign will allow for examination of the effect of patients’ discharge arrangements on their use of hospital services (e.g., using variables such as discharge location, length of stay, and 30-day

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<sup>4</sup> <http://jama.ama-assn.org/cgi/content/abstract/274/8/632>

readmission). For example, patients recovering from acute brain injury may be discharged home, to acute rehabilitation, or to a long-term care facility. Although individual patients cannot be followed outside the hospital, data collection in the redesigned survey will not occur until 30 days after discharge (no less than 30 days). This will allow for determination of whether a patient had returned to that hospital in the 30 days after discharge. In addition, by looking back in the records of a sampled discharge, we will be able to determine whether the patients had been in the hospital 30 days prior to the admission date of the sample discharge. Using these data, one may be able to examine the implications of discharge location on mortality and hospital readmission within 30 days.

### **Disparities and Access**

The Institute of Medicine has included equity among the six key properties or domains of quality. Equitable treatment of patients requires that each individual receive health care of equal quality, irrespective of personal characteristics other than their clinical condition and preferences for care. The redesigned survey will facilitate studies of equity in care by providing additional detail by which to identify patient personal characteristics unrelated to their clinical condition. A better understanding of patient socioeconomic status will be possible, because the inclusion of the address variable in addition to ZIP Code will facilitate sophisticated geocoding, thus allowing for better estimates of patient and family income, race and ethnicity, and education. This detailed patient information, of course, must be de-identified by the NHDS to be available for public use. Data from the redesigned NHDS can also be used to address whether longer lengths of stay occur for some patients with lower socioeconomic status (SES) who cannot be triaged to an appropriate lower level of care. Relating patient SES to insurance status and hospital type (e.g., rural or urban) will offer insight regarding the extent of differences in care that patients of different SES receive.

### **Other Issues**

In the discussion above, we elected to focus on five important policy issues. The redesigned survey, however, offers both the depth and flexibility to address components of many issues. For example, the survey can help inform discussions on the role and value of the electronic health record. The Facility Questionnaire will provide data on the extent to which electronic health records have been adopted within a facility, and this information can then be linked to the efficiency and quality of care provided, using the cost and quality metrics discussed above.

Similarly, the redesigned NHDS should continue to be an extremely valuable public health resource by providing trended data on hospital use, including diagnoses and procedures of particular interest (e.g., Cesarean section rates, use of coronary stents). The inclusion of observation care and potentially other outpatient care when patients occupy hospital beds will facilitate comparison of services provided by America's hospitals over time. We will continue to collect current NHDS data items and will continue to calculate trends.

### **3. Use of Improved Information Technology and Burden Reduction**

#### Current NHDS

Substantial activities have been undertaken to use improved information technology to reduce the burden to hospitals that provide data to the current NHDS. The traditional method of data collection in the NHDS has required manual data abstraction by hospital personnel. Currently, however, information from approximately 41 percent of the participating hospitals (180 hospitals) is being purchased by NCHS, with the hospitals' approval, from abstract service organizations or state data systems to which the hospitals submit data. This reduces those hospitals' respondent burden to almost zero. In addition, approximately 77 hospitals with in-house computer capability submit their data to NCHS via computer file or printout, thereby drastically reducing their respondent burden. For the 2006 NHDS data collection, only 51 hospitals submitted data which were manually abstracted by facility staff (primary procedure: the sampling and abstracting of data, as well as the pulling and re-filing of the medical records, are done by hospital personnel; this procedure is followed by about 12 percent of the participating hospitals). Although these facilities were given the option of submitting data via computer tape or printout during their induction visit, this small percentage (12%) of participating hospitals chose to manually abstract their data.

#### Redesigned NHDS

In the redesigned NHDS, a PC-based tool for discharge level data collection will be designed that will support survey operations. For the redesigned NHDS, burden on hospital personnel will be reduced as the data abstraction will be conducted by contract staff. This computerized system will speed the flow of data, making it possible to release information on a timelier basis. Additionally, an average of only 10 discharge records will be collected per month, a reduction from the current NHDS of 25 records.

### **4. Efforts to Identify Duplication and Use of Similar Information**

#### Current NHDS

There are currently no other data collection mechanisms either within the Federal Government or in the private sector that annually provide statistically valid national estimates of short-stay hospital utilization by the patient characteristics and detailed diagnoses and procedural information collected by the current NHDS. Although the Healthcare Cost and Utilization Project (HCUP), which is sponsored by the Agency for Healthcare Research and Quality (AHRQ), collects similar data to the NHDS in their Nationwide Inpatient Sample (NIS), the HCUP data are not a national probability sample.

#### Redesigned NHDS

Although other data exist that cover many hospital admissions or large geographic segments of the United States, none provides the detail needed by many health care researchers and policymakers. The redesign adds clinical depth enough to answer

questions such as, “Which medications were prescribed at discharge?” or, “Did this patient spend time in the intensive care unit of the hospital?” The redesigned NHDS will provide clinical variables that may reflect the true acuity of a patient. Outcome measures after one has left the hospital, such as readmission or death, which may reflect the quality of hospital care provided, are not possible to examine in the current survey, but will be in the redesign.

## **5. Impact on Small Businesses or Other Small Entities**

### Current NHDS

Methods currently used to minimize burden on hospitals, many of which are small hospitals, are six-fold:

- a) The questions on the Medical Abstract Form have been held to the absolute minimum. As discussed in further detail in Section B.2, the requested NHDS data items are the Uniform Hospital Discharge Data Set (UHDDS), which is a core set of variables that are of value to many potential users and are readily and reliably obtained. Beginning with 2007 NHDS data, two additional data items have been collected: admitting diagnosis and present on admission indicators for each of the maximum of seven diagnoses currently collected. Because these data items are identical to those needed for billing of inpatient services provided to Medicare patients, they are routinely collected and recorded by NHDS sample hospitals.
- b) The NHDS is a sample survey. Less than 2 percent of all hospitals actively participate (i.e., select a sample of medical records, pull the sampled records and complete an abstract form for each, and re-file the records) in the survey, and only a sample of their discharges is selected.
- c) Prior to 1988, hospitals were asked to submit approximately 45 abstracts monthly. Beginning in 1988, however, this burden was decreased by almost 50 percent. Hospitals which abstract data manually now submit approximately 25 abstracts per month, which is the minimum necessary to produce reliable estimates in the current sample design.
- d) Hospitals that are unable to complete the NHDS abstracting themselves are offered assistance from the NCHS field agent, the Bureau of the Census, thus significantly reducing the hospitals' time involvement. For these hospitals, the only work done by the hospital personnel is to pull and re-file the medical records that are selected for the survey.
- e) Hospitals of all sizes may submit previously abstracted data through abstract service organizations or state data systems, thus eliminating their response burden almost entirely.

- f) Hospitals with in-house computer capability may submit their data to NCHS via computer file or printout. Once the initial programming is completed, the burden to these hospitals is minimal.

### Redesigned NHDS

For the redesigned NHDS, efforts to minimize the burden, particularly on small hospitals, will include:

- a) Part of the new information for the redesigned NHDS will come from the Uniform Bill (UB) 04, which is needed for inpatient billing purposes and routinely collected and recorded by sampled hospitals.
- b) The redesigned NHDS will also be a sample survey. Less than 4 percent of all hospitals in the US will actively participate (i.e., select a sample of medical records, pull the sampled records and re-file the records) in the survey, and only a sample of their discharges is selected.
- c) Hospitals will be asked to submit approximately 10 abstracts per month, which is the minimum necessary to produce reliable estimates.
- d) Field representatives from the contractor will input data for all the sampled hospitals into the CAPI system, thereby reducing the hospitals' time involvement. Hospitals will be responsible only for sampling discharges and for pulling and re-filing the medical and financial records that are selected for the survey.

## **6. Consequences of Collecting the Information Less Frequently**

### Current and Redesigned NHDS

There are no legal obstacles to reducing the burden. There are three major reasons to continue to collect data on an annual basis: availability of annual estimates; budgetary considerations; and data quality.

#### Current and Redesigned NHDS

A. Availability of annual estimates - The collection of data on an annual basis provides the most current data possible for NCHS and for the numerous users of NHDS data. Annual estimates are critical for modeling health care delivery and for studying specific diseases. A continuous annual survey provides optimum data for trend analysis that is often the basis on which to evaluate the effects of change in Federal programs and policies. One of the most striking examples of this effect, which was tracked by the NHDS, was the dramatic decline in inpatient procedures for lens extractions at the time the Medicare Prospective Payment System was implemented. In addition, many years of data on hysterectomies were needed to model the effects of this procedure on the female population. Multiple years of NHDS data were essential to study trends in the incidence of

prostate cancer. NHDS data were used to detect the first decline in hospital use for patients with human immunodeficiency virus (HIV), and, of great public interest, the first increase in the average length of stay for childbirth in the past two decades. With the redesigned NHDS, NCHS plans to continue to make annual estimates of critical utilization statistics for the health care community.

#### Current and Redesigned NHDS

B. Budgetary considerations - Extensive information has shown that, under current data collection procedures, the cost to the government is less when data are collected annually. To conduct this survey periodically would require the very expensive process of re-inducting hospitals into the survey every 2-3 years and training new field staff.

#### Current and Redesigned NHDS

C. Data quality - The highest quality of data can best be maintained when data are collected on an ongoing basis. NHDS data indicate that it usually takes approximately one year of abstracting experience for data quality to reach and maintain an adequate level. These coders are responsible for coding diagnoses and procedures for a portion of the hospitals and monitoring quality of coding in all sample hospitals.

### **7. Special Circumstances Relating to the Guidelines of 5 CFR 1320.5**

There is one special circumstance under which NHDS data are collected. The NHDS collects the OMB race and ethnicity codes with one exception. Since the data are found in records, the forms have a "not stated" category. By adding this category, we can ensure that the record was reviewed for the race data.

### **8. Comments in Response to the Federal Register Notice and Efforts to Consult Outside the Agency**

a) The National Hospital Discharge Survey 60-day public comment notice was published in the *Federal Register*, Volume 73, Number 5, Pages 1354-1355, on January 8, 2008. A copy of the notice is included as Attachment C. No public comments were received.

#### Current NHDS

b) For the current NHDS, communication is maintained with hospitals; the American Hospital Association (AHA), the American Health Information Management Association (AHIMA, formerly the American Medical Record Association); and other professional organizations, e.g., the National Association of Health Data Organizations (NAHDO), concerned with the collection of hospital data. Both solicited and unsolicited comments and suggestions have been received from many Federal agencies such as the National Institutes of Health (NIH), the Centers for Medicare & Medicaid Services (CMS), and various Centers within the Centers for Disease Control and Prevention (CDC). However,

many of the more recent consultations with outside agencies have centered on ways to improve the data collected by the NHDS, which is discussed below.

### Redesigned NHDS

b) The redesigned NHDS is intended to provide improved data for the use of policymakers (both governmental and non-governmental), federal and state agencies, clinical researchers, health services researchers, commercial institutions, and private citizens. Due to the broad audience and stakeholders for this project, NCHS solicited a wide spectrum of views concerning the focus of the redesign.

In 2006 NCHS selected Rand Health, a division of Rand Corporation, to assist in developing an approach to redesigning the NHDS. Input from Rand researchers, policy experts, and a workgroup of government and private sector health policy experts was used to identify critical research questions that might be answered through a redesigned survey. On March 29-30, 2006, NCHS held a workshop composed of government and non-government experts to develop a conceptual framework for a redesigned NHDS. Participants are listed in Attachment D.

In 2006 Rand Health produced a conceptual framework for the redesign and conducted a feasibility study. A final report was produced in 2007.

During 2005-06 NCHS staff held informal discussions and consultations with many organizations, both Federal and non-Federal, to discuss the redesign of the NHDS. In addition to the workshop discussions were conducted with experts in health research, economics, and policy. Please see Attachment D for a partial list of persons consulted.

There were no major problems about which agreement could not be reached, by any of the groups that provided input into the redesign.

## **9. Explanation of Any Payments or Gifts to Respondents**

### Current NHDS

Hospitals are compensated for participation in the current survey. Approximately \$154,000 is paid annually to manually participating hospitals. Primary manual procedure hospitals, in which the hospital staff completes the abstracts, receive an average of \$4.00 per abstract submitted. Alternate procedure hospitals, in which a Census Bureau representative completes the abstracts, receive about \$2.64 per abstract submitted for pulling and re-filing records. The NHDS requires compensation of these hospitals for the following reasons:

- a) A large part of the success of the NHDS depends on the good will of the hospitals for the continuing voluntary activities that they perform. Once inducted into the survey, hospitals participate for a number of years. To this end, compensation is a necessity. A substantial amount of work is involved, including



sampling of the discharge lists, pulling and re-filing of medical records, and actual abstracting of approximately 25 records monthly. In the report of findings of the NHDS pretest, it was concluded that, "While some hospitals indicated they might be willing to collaborate in the survey without payment, it was clear that most would expect some compensation for this contribution." (*Participation of Hospitals in the Pilot Study of the Hospital Discharge Survey*, Series 2, No. 19, p. 5).

b) During FY 2006 the estimated additional cost of having the Census Bureau sample and abstract the data in the alternate procedure hospitals (defined in Section B.2) was \$22 per record. If the Census Bureau performed this work in all of the sample hospitals, the cost of the NHDS would substantially increase.

In addition, data files providing NHDS data for all discharges for automated hospitals are purchased directly from abstract service organizations. The cost of these data range from \$.25 to \$.75 per discharge record. A sample of these discharges is then selected for inclusion in the survey.

### Redesigned NHDS

The pretest for the redesigned NHDS will need the voluntary participation of 30 hospitals and does not need to be nationally representative. For the pretest, there will be no compensation offered to hospitals since only one month of records will be collected.

For the 2010 and 2011 surveys, NCHS proposes to compensate each of the 240 sampled hospitals \$500 after the hospital completes each full year (12 months of abstracted data) of participation (\$500 each year the hospital is in the study)<sup>5</sup>. This comes out to an average of \$4.15 per abstract and all the hospitals will be compensated at the same rate.

## **10. Assurance of Confidentiality Provided to Respondents**

### Current NHDS

The current NHDS does not collect any personal identifiers, such as name, address, or social security number (SSN) of individual patients. The Health Insurance Portability and Accountability Act (HIPAA) of 1996 and its Privacy Rule which went into effect on April 14, 2003, have further ensured the privacy of individual inpatients. Beginning with the 2002 data collection, the NHDS no longer collects the medical record number for individual patients selected into the sample. Medical record numbers are used to locate sample cases, but they are not released to the Census Bureau or to NCHS.

The confidentiality of patient information and the identity of individual hospitals participating in the NHDS are protected by section 308(d) of the Public Health Service Act (42 USC 242m), which states:

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<sup>5</sup> There are no partial payments unless the hospital closes its doors, changes to an entity not eligible for NCHS, or merges with another entity and is no longer eligible for inclusion in the NHDS.

"No information, if an establishment or person supplying the information or described in it is identifiable, obtained in the course of activities undertaken or supported under section...306,...may be used for any purpose other than the purpose for which it was supplied unless such establishment or person has consented (as determined under regulations of the Secretary) to its use for such other purpose and (1) in the case of information obtained in the course of health statistical or epidemiological activities under section...306, such information may not be published or released in other form if the particular establishment or person supplying the information or described in it is identifiable unless such establishment or person has consented (as determined under regulations of the Secretary) to its publication or release in other form..."

In addition, legislation covering confidentiality is provided according to section 513 of the Confidential Information Protection and Statistical Efficiency Act of 2002 (CIPSEA) (PL-107-347), which states:

"Whoever, being an officer, employee, or agent of an agency acquiring information for exclusively statistical purposes, having taken and subscribed the oath of office, or having sworn to observe the limitations imposed by section 512, comes into possession of such information by reason of his or her being an officer, employee, or agent and, knowing that the disclosure of the specific information is prohibited under the provisions of this title, willfully discloses the information in any manner to a person or agency not entitled to receive it, shall be guilty of a class E felony and imprisoned for not more than 5 years, or fined not more than \$250,000, or both."

This submission has been reviewed for Privacy Act applicability and it has been determined that the Privacy Act applies under Systems of Record Notice 09-20-0167: Health Care Statistics HHS/CDC/NCHS.

### Redesigned NHDS

The redesigned survey conforms to the confidentiality standards stated above. An updated assurance of confidentiality will be on each pretest form:

"Assurance of Confidentiality - All information which would permit identification of any individual, a practice, or an establishment will be held confidential, will be used for statistical purposes only by NCHS staff, contractors, and agents only when required and with necessary controls, and will not be disclosed or released to other persons without the consent of the individual or the establishment in accordance with section 308(d) of the Public Health Service Act (42 USC 242m) and the Confidential Information Protection and Statistical Efficiency Act (PL-107-347)."

Unlike the current NHDS, however, the redesigned NHDS will be collecting Protected Health Information (PHI). A primary approach for a redesign of the NHDS suggested by

experts was to conduct longitudinal studies of patients after discharge. Among other things, longitudinal data would allow researchers to study quality of care and outcomes for care provided in hospitals in the United States. There are virtually no measures of outcomes after discharge from a hospital other than for the Medicare population. Although highly desirable, a longitudinal design that entailed contacting patients and following them over time is impractical with current resources. As an alternative we will collect the last 4 digits of each patient's social security number (SSN), name, and birth date, along with gender and state of residence, which are required to be able to link sampled patients to NCHS' National Death Index (NDI). The NDI (OMB No. 0920-0215) is a computerized central file of death record information. It is compiled from tapes obtained by NCHS from State vital statistics offices. The tapes contain a standard set of identifying information on decedents from 1979 to the present. This linkage will provide information about 30-day mortality without actually following patients over time. The data are used to identify and locate death records filed in the State offices. For more information on the National Death Index see the weblink, [NCHS National Death Index Home Page](#).<sup>6</sup>

The NHDS Data Security Plan (DSP) describes the survey procedures and data handling protocols that will be implemented to secure study data and protect confidentiality. The NHDS DSP and the RTI DSP follow the same protocol, as described below.

The RTI DSP (Attachment E) describes the survey procedures and data handling protocols that will be implemented to secure study data and protect confidentiality. The plan follows the structure and guidelines established by the National Institute of Standards and Technology (NIST; 800-series)<sup>7</sup> for meeting the requirements of the Federal Information Security Management Act (FISMA).<sup>8</sup> The DSP complies with all relevant laws, regulations, and policies governing the security of data and the protection of confidentiality, including the Privacy Act of 1974 (5 USC 552a), Section 308(d) of the Public Health Service Act (42 USC 242m) and the Confidential Information Protection and Statistical Efficiency Act (CIPSEA, PL 107-347) of 2002.

The RTI DSP considers all known data security and confidentiality protection risks. However, our approaches and specific procedures will evolve as we identify new data security threats and implement improved practices. The DSP will be updated before each subsequent phase of the project with more detailed, process-oriented data security protocols. The updated plans will be developed, reviewed, and approved before the Pretest and two main survey phases.

Information technology products and systems will comply with the Federal Information Security Management Act (FISMA) regulations and supporting National Institute of Standards and Technology (NIST) guidelines (NIST Special Publication (SP) 800-60).

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<sup>6</sup> See <http://www.cdc.gov/nchs/ndi.htm>

<sup>7</sup> See <http://csrc.nist.gov/sec-cert/ca-compliance.html>.

<sup>8</sup> See <http://csrc.nist.gov/policies/FISMA-final.pdf>.

## 11. Justification for Sensitive Questions

### Current NHDS

Hospital discharges drawn into the current NHDS are based on a sample of patients discharged from selected hospitals. Patients are not selected based on their diagnoses. Although certain diagnoses obtained from sampled medical records (i.e., mental disorder, HIV, etc.) may be considered to be of a sensitive nature, patient identity is not collected and hospital identity is not released. The NHDS data collection plan has been reviewed by CDC's Research Ethics Review Board (IRB). The Board has granted: 1) a waiver of the requirement to obtain informed consent and 2) in accordance with the HIPAA Privacy Regulation (45 CFR 164.512), a waiver of patient authorization for release of patient medical records data by health providers. The Research IRB approval notification is included in Attachment F.

### Redesigned NHDS

We will be asking for confidential information defined as "private medical information" by the HIPAA Privacy Rule from medical records (name, address, ZIP Code, dates of admission and discharge, procedures, partial SSN, medical record number, Medicare health insurance benefit/claim number and birth date). We requested a waiver of patient authorization for release of medical record information as required by the HIPAA Privacy Rule (45 CFR 164.512 (i)) and we requested a waiver of informed consent from patients under 45CFR 46.116 (d). In their approval of the pilot test for the redesign of the NHDS, the NCHS Research Ethics Review Board agreed, among other things, that this research could not practicably be conducted without access to and use of the protected health information (Attachment S). The list of requested items considered to be sensitive includes:

1. Name
2. Address
3. ZIP Code
4. Dates of admission & discharge
5. Procedure dates
6. Social security number (last 4 digits only)
7. Medical record number
8. Medicare health insurance benefit / claim number
9. Birth date

**Patient name and SSN** are not currently collected as part of the NHDS, but are protected health information proposed for inclusion in the NHDS redesign. In order to accurately link sampled patients to the NCHS National Death Index (NDI), first and last names of subject will be necessary in addition to the last 4 digits of the SSN, address, birth date, gender, and state. Although linkages could be made to the NDI without name or the last 4 digits of the SSN, researchers planning to use the NDI are encouraged to collect or compile as many of the NDI data items as possible. Because of the importance of being able to provide the best possible linkage to the National Death Index, the feasibility of

collecting patient first and last names is being tested. For more information on the National Death Index see the weblink, NCHS -National Death Index Home Page at <http://www.cdc.gov/nchs/ndi.htm>. We will likely need all variables listed above to create an adequate match to the NDI. However, to be sure, we will evaluate the linkage to NDI after the NDI becomes available for the time period that corresponds to the first full year of data collection for the redesigned NHDS. This evaluation will allow us to determine whether less information can create an adequate match to the NDI.

**Patient address and ZIP Code of residence** can be linked to data from the U.S. Census Bureau. It is well known that health status and the use of health services vary strongly by socioeconomic status (SES). Those with lower income and less education, for example, are generally in worse health and sometimes have reduced access to medical care compared to others. It is therefore important to be able to use the NHDS to track the use of hospital care by SES. Unfortunately, however, measures of an individual's SES, such as family income or education level, are not routinely recorded in medical records. Geocoding complete patient addresses to the census tract or block group level and using Census measures of area SES at these levels will yield accurate proxies for individual-level SES (Krieger N, et al., 2002)<sup>9</sup>.

**Dates of admission and discharge**, which are currently collected in the NHDS, are essential to calculate days of care, which are needed to measure total inpatient utilization in the United States and to measure average length of stay. Trends in both of these measures are critical to assessing changes in the health care system. For example, they may reflect factors associated with new Federal programs and policies, such as the implementation of the Prospective Payment System or laws that regulate the early discharge of mothers and newborns. Although it may be possible to measure the number of days of care from admission and discharge dates during the medical abstracting process, this introduces error. With precise dates in hand, NCHS can calculate days of care per patient regardless of the number of days in a month, leap years, or other nuances. Performing these operations once under the control of NCHS is far superior to having hundreds of people in the field calculating this information independently.

**Procedure dates** are necessary, in conjunction with admission and discharge dates, to determine the timing of procedures within a hospitalization. Procedure dates are currently collected as part of the NHDS, and help provide a much clearer picture of a surgical patient's hospital course than would otherwise be available. For example, without procedure dates, a patient who dies from a severe post-operative infection many days after a planned surgery may look identical to a patient who is rushed to the operating room many days into a hospitalization for an emergency procedure and dies in the operating room. Procedure dates provide crucial data for researchers in many areas, including the measurement of complications and medical errors, as well as for those interested in risk-adjusted outcomes of hospitalizations.

**Medical record number** is collected and used for sampling purposes in the current NHDS, but not retained. Under a redesigned NHDS, collection of medical record number

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<sup>9</sup> [www.hsph.harvard.edu/thegeocodingproject/webpage/monograph/publications.htm](http://www.hsph.harvard.edu/thegeocodingproject/webpage/monograph/publications.htm)

would allow the collection of a single patient's data from several sources within a hospital, such as the medical record, laboratory records, and hospital billing records. This will provide access to more detailed clinical information, as well as additional outcomes and quality measures. Direct abstraction from hospital billing records may provide improved utilization data for hospital stays, potentially describing utilization by different cost-centers (or areas) within a hospital rather than being limited to an overall charge for a hospitalization. To this end, billing number, the internal number used assigned to a patient's inpatient stay for billing purposes, will also be collected to allow direct abstraction from billing records.

**Medicare health insurance benefit/claim (HIB/HIC) number** is another piece of protected health information proposed for inclusion in the NHDS redesign. The Centers for Medicare and Medicaid (CMS) is in the process of collecting data from hospitals on the quality of care that is provided to each patient admitted to any Medicare certified hospital who has one of a particular set of diagnoses. In cases of hospitals with a very large number of patients with a particular diagnosis, a sampling strategy may be used. However, most hospitals have indicated that this is rare and most provide complete data. For example, for all cases of pneumonia, Medicare would collect data on whether each patient admitted received antibiotics within 4 hours of presentation. We intend to discuss with CMS the possibility of linking with their database in order to provide measurements of quality for the patients that are sampled in the NHDS, as we are doing for the data from the 2004 National Nursing Home Survey. This would provide additional important data on quality of care without requiring further primary data collection. In addition, we will discuss linking to the CMS database that contains longitudinal utilization data for all Medicare patients, adding additional utilization data to our dataset but providing clinical detail that CMS data does not have in its database.

**Birth date** will be converted to age at NCHS during processing. This is done to minimize error that can be introduced by doing this manually in the field at the time of data collection. This is especially important in going across centuries and for newborns in going across years. Age is, of course, very important to analyze because of its relation to health conditions and treatments which vary by age.

NCHS is experienced in working with hospitals to explain HIPAA, and help them overcome concerns they might have. NCHS understands that hospitals will ask questions during the induction process about the privacy and confidentiality of the data. NCHS will include, in advance, materials and information explaining how hospitals are authorized under HIPAA to release the abstracted medical chart information. Hospital staff will also be given a copy of our NCHS IRB approval letter.

## **12. Estimates of Annualized Burden Hours and Costs**

### **A. Burden Hours**

#### Current NHDS

The NHDS has been in the field for many years; thus, in only a few cases is induction needed. Each primary hospital begins by drawing a sample of patients which are listed on the Sample Listing Sheet (Attachment G 2). This activity takes about 25 minutes monthly including the time required for drawing the sample. The average time for hospital personnel to complete the medical abstract (Attachment G 1) is estimated to be 5 minutes including time required for pulling and re-filing the medical records that fall into the sample. A Transmittal Notice (Attachment G 3) is completed for each monthly submission taking about 1 minute. The time estimates above are based on early studies and informal consultations with medical record administrators.

For hospitals in which Bureau of the Census personnel complete the medical abstract (alternate procedure hospitals), it is estimated that hospital personnel take approximately 1 minute to pull and re-file each medical record that falls into the sample. That is the hospitals' only burden (see instruction manual G4).

For hospitals which submit abstract data via printout or in-house tape, it is estimated that the initial start-up time involved is 20 hours. This estimate, an average based on actual estimates received from hospital personnel, includes reading the hospital instruction manual and programming the in-house system accordingly and submitting data (Attachment G 5). It was estimated that each hospital would remain in the survey for at least 10 years, thus the response burden per year for the initial programming and updates, plus data transmittal is approximately 2.3 hours (13 minutes per monthly submission).

It is estimated that 15 hospitals per year will be inducted (or re-inducted) into the survey. There will be a total of 30 hospitals inducted over the two year period, but divided by three years in the burden table to obtain an annual estimate of 10. These include hospitals which have previously refused to participate in the survey or hospitals which previously provided data through abstract service organizations with which they no longer have contracts. The induction interviews take about 2 hours to complete. Interviews, conducted by Census Bureau staff with the hospital staff, include explaining the survey, gaining cooperation, completing the interview form (Hospital Interview Form, Attachment G 6), and reviewing instructions for collection of information.

The 2006 NHDS sample consisted of 501 hospitals of which 478 were in scope. Of these 478 in scope hospitals, 438 responded to the survey: 51 were primary procedure hospitals (excluding in-house tape or printout); 77 responded via in-house tape or printout; 130 were alternate procedure hospitals; and 180 reported through abstract service organizations (including state data systems) for which there are no burden levels attached to the facility. For the 2007 NHDS data collection, still in the field, the sample size remained at 501 hospitals.

Due to budget constraints, the sample size for the 2008 NHDS was reduced from 501 to 239 hospitals. The 239 hospitals were a random sample of the 477 in scope hospitals at the time the reduction was made. For the 2009 NHDS, assuming adequate funding, the sample size will be also 239 hospitals. In 2010, the redesigned NHDS survey will be fielded.

The following paragraph describes how the two years of data collection are manipulated to provide the annual estimates in the burden table, which is based on a three year approval. It is estimated that for 2008 and 2009 (using the reduced sample size), assuming a 90 percent response rate, 20 hospitals (an average annual of 13) will be primary procedure by abstracting their own data, 61 hospitals (annual average of 41) will be alternate procedure with Census abstracting their data, 43 (annual average of 29) hospitals will provide in-house data files or print-outs, and 92 hospitals will provide their data through an abstract service. These last 92 hospitals are not shown in the table, as data files are purchased from an outside source; there is no burden to the hospital.

### Redesigned NHDS

*Pretest:* Thirty (30) hospitals will be inducted during the pretest (annual average of 10). We anticipate there may be some hospitals that will require additional information about participating in the survey and a one hour survey presentation has been designed for them. A portion of the induction interview will be used for this survey presentation (Attachment R1). The induction interview takes approximately 4 hours to complete, including 2 hours in-person discussion and 2 hours for staff to obtain additional information once the interview is complete (Pretest Facility Questionnaire, Attachment I). RTI personnel will meet with the CEO and the director of medical records to explain the survey, gain cooperation, and review instructions for collection of information. Part C of the Facility Questionnaire will be left to be completed after the interview.

It is estimated that hospital personnel will take an average of 14 minutes per sampled discharge to select the sample (Attachment J) and print out the UB-04 and payment data for that discharge. Annualized over 3 years, this equals 23 burden hours. RTI personnel will perform the detailed patient abstraction (Attachment L) of data with no additional burden to the hospital.

RTI will conduct a verification and reabstraction of 10 discharge abstracts (from the original sampled discharges) in 5 hospitals (an annual average of 2). We expect that hospital staff will take an average of 14 minutes per discharge to re-select the sample and print out the UB-04 and payment data for that discharge (Attachment T1). Annualized over 3 years this comes to 5 hours.

RTI will conduct a 1 hour debriefing with hospital staff and others to discuss the hospital staffs' perceptions regarding the time and burden of sampling, the abstraction process, and overall communication issues (Attachment U). Averaged over 3 years this is 10 hours in the table below.

*2010 and 2011 Surveys:* There will be a total of 240 hospitals (annual average of 80) inducted into the 2010 & 2011 redesigned HDS (Attachment N). The same procedures, as outlined above, will be followed (Attachment R2). The induction interview takes approximately 4 hours to complete, including 2 hours in person discussion and 2 hours for staff to obtain additional information once the interview is complete. RTI personnel will meet with the CEO and the director of medical records to explain the survey, gain



cooperation, and review instructions for collection of information. Part C of the Facility Questionnaire will be left to be completed after the interview.

It is estimated that hospital personnel will take an average of 14 minutes per sampled discharge to select the sample (Attachment O) of 120 discharges per year within the hospital and print out the UB-04 and payment data for that discharge. Annualized over three years, this is 4,480 hours. RTI personnel will perform the detailed medical abstraction of data with no additional burden to the hospital.

RTI will conduct verification and reabstraction of 25 discharge abstracts per year (from the original sampled discharges) in 10 hospitals (annual average of 3 hospitals). We expect that hospital staff will take an average of 14 minutes per sampled discharge to re-select the sample and print out the UB-04 and payment data for that discharge (Attachment T2). This equals 18 annual hours over three years.

Table 1. Estimated Annualized Burden Hours

Type of Respondent	Form name	Number of responding hospitals	Number of responses per hospital	Hours per response	Response burden (hours)
Medical Coder	<b>Current NHDS</b> 2008 & 2009 Primary Procedure Hospitals Sample Listing Sheet	13	12	25/60	65
Medical Coder	Primary Procedure Hospitals Medical Abstract Form	13	250	5/60	271
Medical Coder	Primary Procedure Hospitals Transmittal Notice	13	12	1/60	3
Medical Coder	Alternate Procedure Hospitals locating medical records	41	250	1/60	171
Medical Coder	In-House Tape or Printout Hospital – computer programming and submission	29	12	13/60	75
Hospital CEO/CFO	Hospital Interview Questionnaire	10	1	2	20
	Sub-total				605
	<b>Redesigned NHDS Pretest – summer 2008</b>				
Hospital	Survey presentation	10	1	1	10

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CEO/CFO	to hospital				
Director of Medical Records	Facility questionnaire	10	1	4	40
Director of Medical Records	Sample discharges within hospital, obtain UB-04 & payment data	10	10	14/60	23
Director of Medical Records	Verify sampling & reabstract medical records	2	10	14/60	5
Director of Medical Records	Debrief hospital staff	10	1	1	10
	Sub-total				88
	<b>Redesigned Survey 2010 &amp; 2011</b>				
Hospital CEO/CFO	Survey presentation to hospital	80	1	1	80
Director of Medical Records	Facility questionnaire	80	1	4	320
Director of Medical Records	Sample discharges within hospital, obtain UB-04 & payment data	160	120	14/60	4,480
Director of Medical Records	Verify sampling & re-abstract medical records	3	25	14/60	18
	Sub-total				4,898
	<b>Total</b>				<b>5,591</b>

**B. Burden Costs**

The average annual response burden cost for the current & redesigned NHDS is estimated to be \$204,161 for each survey year. The hourly wage estimate for directors of medical records and medical coders is based on the 2006 American Health Information Management Association (AHIMA) Membership Profile. The hourly wage rate for hospital executives is based on the 2006 Clark Consulting Hospital Compensation Survey. The following table shows how the respondent cost was calculated:

Table 2. Estimated Annualized Burden Costs

Type of Respondent	Response burden hours	Hourly Wage Rate	Respondent Cost*
Medical coder	585	\$ 21.00	\$12,285
Hospital CEO/CFO	110	\$142.00	\$15,620
Director of medical records	4,896	\$ 36.00	\$176,256
<b>TOTAL</b>			<b>\$204,161</b>

\*Hospitals in the current survey are compensated for their participation as described in Section A.9. Plans are proposed to compensate hospitals in the redesigned survey also.

**13. Estimates of Other Total Annual Cost Burden to Respondents or Record keepers**

Current NHDS

N/A. No additional respondent capital and maintenance costs are incurred by NHDS reporting because all hospital purchases of equipment or services are made for reasons other than to provide information or keep records for the government and are part of their usual or customary business practices. The data items on the NHDS Medical Abstract Form are standard data items which are used by numerous corporations, e.g., billing companies and state data systems.

Redesigned NHDS

N/A. No additional respondent capital and maintenance costs are incurred by NHDS reporting because all hospital purchases of equipment or services are made for reasons other than to provide information or keep records for the government and are part of their usual or customary business practices.

**14. Annualized Cost to the Government**

The estimated total average annual cost of the NHDS will be \$4.5 million. Average Annual Costs for the NHDS Annualized Over Three Years

<b>Current NHDS</b>	
Coding	\$189,937.00
Census Bureau (data collection)	\$1,237,900.00
Verispan file (frame)	\$9,000.00
<b>Redesigned NHDS</b>	
Data collection content	\$2,014,275.00
Staff Salaries	\$1,010,000.00
<b>Total</b>	<b>\$4,461,112.00</b>

**15. Explanation for Program Changes or Adjustments**

The 3,460 annual increase in burden hours (from 2,131 to 5,591) is primarily due to the concurrent redesign of the NHDS with current survey operations. We are including a pretest of the redesign and we are returning to manual data collection for sampling discharges (obtaining the UB-04 and payment data by hospital staff). In addition, a substantially more complex sampling design and data items from more locations in the hospital will increase the burden.

**16. Plans for Tabulation and Publications and Project Time Schedule**

Current NHDS

Data are published annually as NCHS *Vital and Health Statistics Series 13* reports, *National Health Statistics Reports (NHSRs)*, articles in professional journals, and other special reports. At a minimum, the annual NHDS publication plan is to update the non-medical, the medical, and the surgical data by characteristics of patients and hospitals. Special reports on utilization trends, specific diagnoses, selected patient and hospital characteristics, source of payment, and methodology are also published in *Series 2, 5, or 13* of the NCHS *Vital and Health Statistics, NHSRs*, or journal articles.

Staff of the Ambulatory and Hospital Care Statistics Branch, NCHS, present data from the NHDS at meetings and conferences of professional organizations, such as the American Public Health Association, Academy Health, the Gerontological Society of America, the National Association of Health Data Organizations, and the National Rural Health Association. These presentations deal with specific aspects of the survey or special analyses of survey data.

Annual public use files containing information collected by the NHDS since 1970 are available. To facilitate trend analysis, multi-year public use files provide multiple years of NHDS data in a standard format with standard definitions across survey years. CD-ROMs for 1970-78 and 1979-2004 in ASCII format are currently available. A multi-year CD-ROM containing NHDS data from 1979-2006 is being prepared. Many of the public use files and reports as well as detailed descriptions of the survey design and data collection methodology are available on the National Hospital Discharge Survey website at: [www.cdc.gov/nchs/about/major/hdasd/nhds.htm](http://www.cdc.gov/nchs/about/major/hdasd/nhds.htm).

Tabulations are prepared annually and are used by the Ambulatory and Hospital Care Statistics Branch in answering requests for unpublished data from the NHDS. These tabulations provide detailed data on discharges by patient characteristics (age, gender, race, and discharge status) and hospital characteristics (geographic region, type of ownership, and number of beds). Detailed diagnostic and surgical information is also available by patient and hospital characteristics. In addition, special tabulations can be produced upon request.

This clearance request covers three years of data collection beginning in mid-2008. The data collection and analysis processes are ongoing. Based on prior experience as well as activities currently underway the following is a projected schedule for the NHDS 2009 data collection. At the completion of the 2009 data collection, the current NHDS will be replaced by the redesigned survey.

Data collection.....	May 2009 - July 2010
Automated data pre-editing .....	June 2009 - August 2010
Manual data coding and entering.....	September 2009 - June 2010
Data editing and weighting.....	August 2010 - September 2010
Final internal data set available.....	October 2010
Public use data set released on website.....	December 2010
CD ROM released.....	January 2011
First 2009 published report.....	April 2011
Other reports published.....	May 2011 and ongoing

### Redesigned NHDS

There are two data collection activities in the redesigned NHDS: hospital level (using a facility questionnaire) and discharge-level (using a patient-level discharge questionnaire). For all phases of the redesign, the contractor, RTI, will provide to NCHS final reports of the results, including results of debriefings, observations, and recommendations.

For the 2010 survey year, RTI will supply the government with all data collected from the survey. Specifications of the format of files will be determined with input from the NHCS Project Officer. Frequencies of all variables and basic tabulations of the data will be provided as well. Public use files containing information collected by the 2010 and 2011 NHDS will be made available for each year of data. The public use file and reports as well as detailed descriptions of the survey design and data collection methodology will be made available on the National Hospital Discharge Survey website at [www.cdc.gov/nchs/about/major/hdasd/nhds.htm](http://www.cdc.gov/nchs/about/major/hdasd/nhds.htm). The general manner of data dissemination will follow that described above for the current NHDS.

It is important to recognize that some of the new variables being collected in the redesigned NHDS are not intended to produce national estimates of that variable alone. Instead, there are three key reasons why variables should be collected for which national estimates are not made.

First, some variables can help to measure the severity of patients. There is little value to knowing the mean platelet count on admission across all discharges in the United States. Instead, variables such as laboratory values (hematocrit, white cell count, platelets, sodium, potassium, blood urea nitrogen, and creatinine) can be used to help determine the severity of patients as they are admitted. This type of risk-adjustment then allows researchers to determine whether some hospitals or types of hospitals have sicker patients than others, and should therefore, expect worse outcomes in those areas.

Second, some data elements can be used for linking to other databases. Birth statistics, for example, such as time of delivery and maternal date of birth, may provide little valuable information themselves, but may allow linkage of births to national natality files kept by NCHS. This linkage will provide detailed pre-natal information on mothers, as well as other clinical birth information that we will not collect. The combination of data from the birth certificate and birth hospitalization will provide a robust database for

analysis of maternal-child health.

Third, some data elements may be useful in assessing quality of care in sub-samples of patients, but have little value for creating national estimates of the variable as a whole. For example, estimates of the top medications prescribed upon discharge from a hospital is of far less value than knowing the percent of discharges for acute myocardial infarction that were prescribed a beta-blocker upon discharge, or what percent of asthmatic discharges received an inhaled steroid upon discharge, both potentially important measures of quality of care in a hospital. Similarly, understanding the number of asthma admissions of patients who are not taking inhaled steroids upon admission provides insight into the quality of outpatient care in the United States.

This clearance request covers three years of data collection. The data collection and analysis processes will be ongoing. Based on prior experience as well as activities currently underway, the following is a projected schedule for the NHDS redesign data collection for the pretest and the 2010 National Survey.

**Pretest**

- Conduct Pretest.....September 2008 – February 2009
- Plan for data file preparation, layout & documentation .....March 2009
- Final revised data collection system instruments.....July 2009

**NHDS Redesign 2010**

- Sampling of discharges within hospitals.....January 2010 – March 2011
- Abstraction of discharge level data.....June 2010 – March 2011
- Final edited data files.....July 2011
- First tabulations from the 2010 National Survey.....August 2011

**17. Reason(s) Display of OMB Expiration Date is Inappropriate**

On March 2, 2008, the NHDS received permission to print forms for 2008 that did not include the OMB expiration date.

**18. Exceptions to Certification for Paperwork Reduction Act Submission**

No exceptions to certification are requested.