The Roundtable

on Religion and Social Welfare Policy

Faith-Based vs. Secular

Using Administrative Data to Compare the Performance of Faith-Affiliated and Other Social Service Providers

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Executive Summary

During the last four years, one of the most widely publicized domestic policy efforts of the administration of President George W. Bush has been his Faith-Based and Community Initiative. Through the regulatory process, executive orders, and other administrative actions, the President has encouraged government funding of services provided by faith-based organizations.[1] This initiative has engendered many questions – constitutional, legal, and otherwise. With the re-election of President Bush, these questions will continue to be a focus of domestic policy debate.

One question that has drawn the attention of policymakers, program managers, and researchers, but remains largely unanswered, involves the relative effectiveness of services provided by faith-based organizations compared to services provided by secular organizations, such as for-profit service providers. For all the interest in the topic, and all the anecdotal stories of accomplishment by individuals and individual organizations, there remains little systematic evidence on the comparative effectiveness of faith-based and other social service providers, and virtually no evidence that demonstrates how differences in performance connect to the faith character of service organizations.

This issue is fundamental. From the perspective of state and local program managers, answering the effectiveness question could have a significant impact on efforts to increase involvement of faith-based organizations (FBOs) in the delivery of government-funded services. Recently the federal government has focused on informing FBOs of funding opportunities, building their capacity to successfully compete for grants and contracts, and ensuring that there is a level playing field when it comes to the availability of federal funding. However, there is little new funding available for actual services.[2] Instead, FBOs compete with other service providers for existing funds. Program managers, sensitive to issues related to performance and outcomes, must consider the efficacy of services and the track record of service providers when determining which to fund.

The Roundtable on Religion and Social Welfare Policy has begun a variety of studies to address questions related to the relative effectiveness of services provided by FBOs and from other providers. As new data are gathered and analyzed, we will be in a better position to address questions of relative efficacy of services and service providers. Until then, there is a dearth of research that uses quantitative measures to examine comparative performance.

Yet many government agencies collect performance data to better manage social service programs. We wondered whether such data might be useful in addressing the policy question above. Are there programs for which data currently being collected could be used to compare the performance of FBOs with other service providers? If such data sets are available, do they include a sufficient number and variety of service providers to permit methodologically sound analysis? And if so, what can we learn about the relative performance of FBOs and other service providers? Additionally, what can we learn from the experience of using currently available data for such purposes?

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[1] See *Expanding the Administrative Presidency: George W. Bush and the Faith-Based Initiative* by Anne Farris, Richard P. Nathan, and David J. Wright, Roundtable on Religion and Social Welfare Policy, August, 2004.

[2] See *In a Time of Fiscal Pressures*, by Courtney Burke, James Fossett, and Thomas Gais, Roundtable on Religion and Social Welfare Policy, October, 2004.

Summary of Findings

- We were able to locate two data sets that include: 1) performance data on individual service providers, 2) a basis for distinguishing between faith-affiliated service providers and other service providers, and 3) sufficient numbers of and variety of types of providers to support statistically significant findings. The data sets providing the basis for the analysis in this paper are compiled by the Centers for Medicare and Medicaid Services (CMS) of the federal Department of Health and Human Services. The data sets are a by-product of efforts to monitor and promote the quality of Medicare and Medicaid-certified home health care agencies and nursing homes.[3]

- Highlights of our analyses of the data on provider performance:

    - For nursing homes, CMS provides data related to resident characteristics and for deficiencies discovered during inspections and from complaints. We found that:

        - Regarding measures of resident characteristics (e.g., the percent of residents whose ability to move about in and around their rooms worsened), there was not a substantial difference between outcomes for residents of church-related[4] and other nursing homes.
        - Regarding data from nursing home inspections, church-related nursing homes had, on average, fewer deficiencies (e.g., nutrition and diet deficiencies) than the average for all other types of nursing homes. On average, church-related nursing homes had 25 percent fewer inspection deficiencies than all other types of nursing homes.
        - Findings related to complaints followed the same pattern as for inspection deficiencies. Church-related nursing homes had, on average, fewer complaint deficiencies than the average for all other types of nursing homes combined – on average, 57 percent fewer complaint deficiencies than all other nursing homes.
        - Church-related nursing homes also had fewer average inspection and complaint deficiencies than other non-profit nursing homes. But the differences between church-related and other non-profit nursing homes were substantially less than the differences between non-profit and other types of nursing homes (which includes both for-profit and government-run nursing homes). Church-related nursing homes had only 6 percent fewer inspection deficiencies than other non-profit nursing homes.

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[3] CMS's Health Care Compare and Nursing Home Compare permit consumers to compare the performance of home health care providers and nursing homes on the CMS website at http://www.medicare.gov.

[4] "Church related" is the term that CMS uses when referring to nursing homes that have a connection with a religious organization. Ownership with a "religious affiliation" is the term CMS uses to distinguish home health agencies that have a connection with a religious organization. The term "faith-based organizations," used earlier in this paper, encompasses a wide range of organizational types, from individual congregations to faith-affiliated non-profit service organizations, such as Catholic Charities, Lutheran Social Services, and the Salvation Army, as well as faith-affiliated hospitals and nursing homes. In this paper, we use the term "faith-affiliated" when referring generally to service providers with a connection to a religious organization. When discussing CMS data, we use CMS terminology.

- As a consequence, it appears that the differences in the number of deficiencies had more to do with institutional characteristics of the different types of nursing homes – between non-profit and other types of nursing homes – such as differences in staffing levels. The religious character of church-related nursing homes appears to have been less of a factor.

- For home health care providers, we found that:
  - Regarding patient outcomes, performance of home health agencies with a "religious affiliation" was generally better than all other types of providers on those measures for which statistically significant differences were found. But the differences were not substantial.

- CMS uses the term church-related (which it does not define) as one of the designations of type of nursing home ownership. We asked field researchers in five states to independently identify non-profit nursing homes with a connection to a religious organization. There was substantial variation between the numbers of nursing homes that were identified as church-related in the CMS data and those identified as having a connection with a religious organization by the field researchers. We then re-examined the data for these states to determine whether this would make a difference in the measures of comparative performance. Though revising the data altered the calculations slightly, overall, differences between calculations of nursing home performance based on the original CMS data and data from our field researchers were minimal.

- There are a number of lessons that can be drawn from the experience of attempting to locate and use available administrative data to compare performance of service providers.
  - At the national level, there are few data available related to the performance of individual service providers in federally-funded social service programs.
  - There are even fewer data available that permit distinguishing faith-affiliated service providers from other service providers.
  - Care must be taken in drawing conclusions from the CMS data. Because much of the data are self-reported, they are subject to inaccuracy due to differences in understanding of terminology, and the skills and biases of staff responsible for collecting and reporting the data.
  - The data sets do not permit analysis related to the faith character of services. This is a fundamental issue in addressing the relative performance of faith-affiliated and secular service providers. No data were available that would have permitted distinguishing among faith-affiliated service providers in order to understand whether and how faith character affects performance.

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INTRODUCTION

Much has been written, pro and con, about President George W. Bush's Faith-Based and Community Initiative. While there are many issues subject to debate, experts generally agree that there is not a great deal of hard evidence to support a comparison of the effectiveness of services provided by faith-based organizations with similar services provided by secular organizations. The quotation from John DiIulio,[5] who served as the Bush Administration's first director of the White House Office of Faith-Based and Community Initiatives, in many ways sums up the current status of knowledge regarding the effectiveness of social services provided by faith-based organizations (FBOs). There is little research that addresses the question of whether and how services provided by such organizations differ from those of other service providers in terms of programmatic effects and outcomes. According to the U.S. Government Accountability Office (previously the General Accounting Office), a review of relevant literature in 2002 "provide[d] no information on which to assess the effectiveness of FBOs as providers of social services."[6]

> **[W]e do not yet know either whether America's religious armies of compassion, local or national, large or small, measurably outperform their secular counterparts, or whether, where the preliminary evidence suggests that they might, it is the "faith" in the "faith factor," independent of other organizational features and factors, that accounts for any observed differences in outcomes.** *– John J. Dilulio, Jr.*

The Roundtable on Religion and Social Welfare Policy[7] is currently engaged in research to address this question. Such studies, of necessity, take considerable

[5] *Objective Hope - Assessing the Effectiveness of Faith-Based Organizations: A Review of the Literature,* Center for Research on Religion and Urban Civil Society, School of Arts and Sciences, University of Pennsylvania, 2002.
[6] *Charitable Choice – Overview of Research Findings on Implementation*, U.S. Government Accountability Office, GAO-02-337, January, 2002.

time. In the meantime, many federally-funded social service programs have for years required the collection of data regarding administrative processes, inputs, outputs, and more recently, outcomes. For example, the Bush Administration's Program Assessment Rating Tool (PART) "was developed to assess the effectiveness of federal programs and help inform management actions, budget requests, and legislative proposals directed at achieving results."[8] Would it not be reasonable to tap into available data sets to investigate the relative effectiveness of services provided by faith-based organizations?

The Challenge of Locating Data Sets That Include Relevant Data

With so much data being collected in response to efforts to assess the effectiveness of federal programs, we expected that it would be worth the effort to explore whether data were available that would provide a basis for comparative analysis. The search was not limited to particular programs or program categories; instead, we contacted federal officials in a range of social service programs. Among the agencies contacted were:

- The Department of Health and Human Services
  - Administration for Children and Families, responsible for many federally-funded programs for low-income families, including
    - Head Start,
    - Temporary Assistance for Needy Families,
    - Child Welfare programs,
    - Child Care programs, and
    - Child Support Enforcement.
  - Centers for Medicare and Medicaid Services.
  - Substance Abuse and Mental Health Services Administration, which funds a range of programs to address alcohol and substance abuse, as well as mental health programs.
- The Department of Justice, which funds youth mentoring and other programs.
- The Department of Labor, which funds employment and training programs.

In addition to program and research staff in the agencies listed above, we contacted staff in the agencies' offices of faith-based and community initiatives.

[7] The Roundtable conducts in-depth nationwide research on the role and efficacy of faith-based social service programs. The goal is to fill broad gaps in knowledge about the relative effectiveness and capacity of faith-based services and the constitutional issues involved in public funding. The Roundtable's independent and non-partisan research seeks to contribute to a more informed debate on this important issue among policymakers, stakeholders, journalists and the public. Additional information on the Roundtable, as well as publications, policy analyses, news updates, and interviews, can be found at http://www.religionandsocialpolicy.org.

[8] U.S. Office of Management and Budget guidance at http://www.whitehouse.gov/omb/part/2004_program_eval.pdf.

State and local agencies in selected states, and representative organizations, such as the Child Welfare League, were also contacted.

The data used for the analysis in this paper were collected on Medicare- and Medicaid-certified nursing homes and home health agencies. For other programs, we found that much of the data collected relates either to individual recipients of benefits and services or to statewide program performance. There are few data on individual service provider performance available at the national level. More limiting, though not quite as surprising, is the fact that few of the potentially-useful data sets include elements that permit distinguishing between faith-based and other types of service providers.

In addition to the difficulty of locating data, securing information about the data, such as clarification of terminology and descriptions of data collection processes, was also challenging. Staff responsible for maintaining the data were not able to answer specific questions about the data. Responses to requests for information were often delayed, if answered at all. These problems are likely typical when attempting to use data collected by a large bureaucracy for analytical purposes by a third-party organization. The lesson is that even when data are located for a purpose such as the analysis in this paper, securing information that could affect the analysis can be an additional stumbling block.

Analysis of Available Data Comparing Performance of Faith-Affiliated Service Providers with Secular Service Providers

The most useful data sets located for this study are provided by the Centers for Medicare and Medicaid Services (CMS) of the federal Department of Health and Human Services. The two data sets, one for nursing homes and another for home health agencies, are available for the stated purpose of permitting consumers to compare the characteristics, and more importantly for this study, the performance of service providers. The data sets include multiple performance measures that reflect the effectiveness of services, a large number of service providers located throughout the country, and a range of types of provider ownership (e.g., local government, non-profit with religious affiliation). The analysis of each data set is described below.

Nursing Home Providers – Nursing Home Compare

Background Information

The data and related data collection processes are part of a larger CMS initiative to monitor and improve the quality of nursing home care. CMS has made quality of care information available for all 50 states since November of 2002 on the Nursing Home Compare website. Data related to patient characteristics are required to be collected by Medicare/Medicaid-certified nursing homes.

The nursing home quality measures are calculated from the Minimum Data Set (MDS) resident assessment data that nursing homes routinely collect on all residents. Since 1991, CMS has required that all nursing homes complete the MDS for every resident at admission and periodically thereafter. The MDS is a standardized resident assessment instrument that collects detailed demographic and clinical information, as well as information on treatments. The quality measures for each facility are reported as the percentage of nursing home residents in that facility with the clinical condition measured (e.g., percentage of residents with pain, pressure sores, etc.).[9]

The CMS nursing home data include the following types of nursing home ownership:

- For-Profit
  - Individual
  - Partnership
  - Corporation
- Non-Profit
  - Church-Related
  - Non-Profit Corporation
  - Other Non-Profit
- Government
  - Federal
  - State
  - County
  - City
  - City/County
  - Hospital District

Table 1 shows the total number of nursing homes, the number of nursing homes with church-related ownership, and the percentages that the latter represent, by state, in the CMS data. The state with the largest number of nursing homes, not surprisingly, is California, with 1,332. Other states with large numbers of nursing homes include Texas, Ohio, Illinois, Pennsylvania, and New York.

The percentage of church-related nursing homes in each state varied considerably. In North Dakota more than 25 percent of nursing homes were reported as being church-related, while seven states (and territories) had none. The two states with the largest number of nursing homes had relatively low percentages of church-

[9] From the Medicare Quality Improvement Community website at http://www.medqic.org/content/nationalpriorities/topics/projectdes.jsp?topicID=413&pageID=3.

related nursing homes – California had 4.6 percent and Texas had 3 percent. The national average was 5.8 percent.[10]

Table 1: Church-Related and Other Nursing Home Ownership by State

State	Total Nursing Homes	Church-Related Nursing Homes	% of State Total	State	Total Nursing Homes	Church-Related Nursing Homes	% of State Total
AK	14	1	7.1%	**MT**	101	6	5.9%
AL	228	9	3.9%	**NC**	421	24	5.7%
AR	240	3	1.3%	**ND**	83	21	25.3%
AZ	135	1	0.7%	**NE**	228	6	2.6%
CA	1,332	61	4.6%	**NH**	81	6	7.4%
CO	216	8	3.7%	**NJ**	356	22	6.2%
CT	251	7	2.8%	**NM**	82	2	2.4%
DC	21	-	0.0%	**NV**	43	-	0.0%
DE	42	4	9.5%	**NY**	670	42	6.3%
FL	693	24	3.5%	**OH**	991	65	6.6%
GA	362	11	3.0%	**OK**	368	15	4.1%
GU	1	-	0.0%	**OR**	140	7	5.0%
HI	45	1	2.2%	**PA**	734	71	9.7%
IA	455	39	8.6%	**PR**	6	-	0.0%
ID	80	3	3.8%	**RI**	95	3	3.2%
IL	825	65	7.9%	**SC**	178	10	5.6%
IN	519	35	6.7%	**SD**	113	13	11.5%
KS	374	27	7.2%	**TN**	337	16	4.7%
KY	296	22	7.4%	**TX**	1,144	34	3.0%
LA	313	14	4.5%	**UT**	88	1	1.1%
MA	478	16	3.3%	**VA**	277	18	6.5%
MD	244	19	7.8%	**VI**	1	-	0.0%
ME	120	-	0.0%	**VT**	42	-	0.0%
MI	431	25	5.8%	**WA**	256	17	6.6%
MN	420	74	17.6%	**WI**	407	47	11.5%
MO	535	28	5.2%	**WV**	135	2	1.5%
MS	204	2	1.0%	**WY**	39	1	2.6%
				US	**16,290**	**948**	**5.8%**

CMS includes information related to the institutional characteristics of nursing homes in the data set. This information, shown in Table 2, is useful in that variations in institutional characteristics may explain some of the differences in performance noted later in this paper. For example, the number of nursing staff hours per resident per day and the total staff hours per resident per day were higher in church-related nursing homes. On average, church-related nursing homes had 10.65 fewer beds than all other types of nursing homes, though a higher percentage of beds were occupied. Table 2 also shows that there were only

[10] The numbers and percentages of church-related nursing homes in this part of the analysis are based on the CMS data. We found that the identification of nursing homes as church-related was error-prone. We discuss this finding below.

minimal differences between church-related and other types of non-profit nursing homes for these characteristics.

Table 2: Institutional Characteristics of Nursing Homes
(Larger numbers in bold; * denotes statistical significance at 0.05 level)

	All Nursing Homes			*Non-Profit Nursing Homes*		
	Non-Religious	**Church-Related**	**Difference**	**Other Non-Profits**	**Church-Related**	**Difference**
Number of Beds	**104.56**	93.91	10.65*	**93.95**	93.91	0.04
Number of Residents	**89.28**	84.82	4.46	83.16	**84.82**	1.66
Percent of Beds Occupied	84.39	**87.32**	2.93*	85.90	**87.32**	1.41
RN Hours per Resident per Day	0.71	**0.98**	0.27*	**1.02**	0.98	0.04*
LPN/LVN Hours per Resident per Day	0.76	**0.82**	0.05*	**0.83**	0.82	0.01*
CAN Hours per Resident per Day	2.37	**2.62**	0.25*	2.53	**2.62**	0.08*
Total Staff Hours per Resident per Day	3.84	**4.42**	0.58*	4.38	**4.42**	0.04*

CMS nursing home quality measures fall into two categories:

- Resident Characteristics – Data regarding residents' physical and clinical conditions and abilities are collected at specified intervals by nursing homes for all residents and include such characteristics as "residents who were physically restrained" and "residents who are more depressed or anxious."[11]
- Deficiencies –
  - Inspections Deficiencies – State survey agencies perform onsite evaluations at least once during a 15 month period, in most cases every year. Data collected include the type of inspection deficiency and the severity of the deficiency.[12]
  - Complaint Deficiencies – Complaint data include the same data elements as inspections data; however, these data result from complaints about nursing home performance which are investigated by state agencies, as opposed to data from regular inspections. [13]

[11] From the CMS website at www.medicare.gov, Nursing Home Compare.
[12] Ibid.
[13] Nursing home data for this paper were accessed in May of 2004. According to CMS staff, nursing home data from inspections, including data on resident characteristics, are updated no less than quarterly, though there may be

Findings – Nursing Homes

Resident Characteristics

For each of the fourteen resident characteristics in the CMS data set, after eliminating nursing homes for which no data were available,[14] we calculated the average percentages of residents with the measured characteristics and tested the statistical significance of the differences for three groupings: church-related nursing homes, all other nursing homes, and other non-profit nursing homes.[15] We compared the performance of church-related nursing homes with other non-profit nursing homes, theorizing that it would be less likely that factors other than connection with a religious organization, such as an emphasis on maximizing profits, would influence performance.

Based on an analysis of CMS data on nursing home resident characteristics, it appears that there is not a substantial difference between performance of church-related and all other types of nursing homes.

Table 3 compares the characteristics of residents of church-related nursing homes with residents of all other types of nursing homes and with residents of other types of non-profit nursing homes. The table shows the average percent of residents with the measured characteristics, and compares the differences between the averages for different types of nursing homes.

For 6 of 14 quality measures, characteristics of church-related nursing home residents were on average slightly better than those of residents of all other types of nursing homes; for the other 8, they were slightly worse. Although the differences computed for 13 of the 14 resident characteristics were statistically significant, the greatest difference was 3.45 percent for residents who have

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a time lag from the time that data are collected until they are input into the data base. The data set includes data from the most recent three inspections for each nursing home, but only for nursing homes that were in operation when the data set was accessed. Thus nursing homes that were operating in 2003, but not in May of 2004, were not included in the analysis. We chose to analyze data from the most recent inspection in the data set to preclude counting individual nursing homes multiple times. The majority of inspections occurred in 2003, with a few from 2002 and 2004. Data related to complaints, which can occur at any time, are maintained in the data set for 39 months. All of the data from complaints are included in the analysis.

[14] The CMS nursing home data set provides two reasons that data were missing: "The number is too small to report" and "The data for this outcome is missing." More information on missing data is included in the Appendix.

[15] The test of statistical significance used for this paper, called the t-test, gives the probability that the difference between two means (e.g., average percentages of a characteristic) is caused by chance. It is customary to say that if this probability is less than 0.05, the difference is 'significant' - that is, the difference is not caused by chance. As the number of observations increases, it becomes more likely that a difference between two means is statistically significant. The policy question then becomes whether the difference is substantively significant. For example, a difference of 0.1 percent between two means, though it could be statistically significant, would equate to a difference of 1 in 1,000 residents.

moderate to severe pain. (Residents of church-related nursing homes were on average 3.45 percent more likely to exhibit this characteristic.) The differences in means for 6 of the 14 characteristics were less than 1 percent. Considering the relatively small differences in individual outcome measures, and the balance between measures indicating better performance and measures indicating worse performance, there does not appear to have been a substantial difference between the performance of church-related and all other types of nursing homes. Although there are statistically significant differences in performance for all but one characteristic, it would be difficult to conclude that church-related nursing home performance was, overall, better or worse than that of other types of nursing homes.

Results were similar when we compared the performance of church-related and other non-profit nursing homes: characteristics of church-related nursing home residents were on average better than for residents of other non-profit nursing homes in 5 of the 9 characteristics for which a statistically significant difference was found. But although there were statistically significant differences in means for 9 characteristics, the greatest difference was 1.05 percent for low-risk residents who have pressure sores. Given that the differences in performance were small, and that positive and negative differences were balanced, overall there was not a substantial difference in the performance of church-related and other non-profit nursing homes.

Table 3: Differences in Characteristics of Residents of Nursing Homes, Church-Related Versus Other Types of Nursing Home Ownership
(Better percentages in bold; * denotes statistical significance at 0.05 level)

	All Nursing Homes			*Non-Profit Nursing Homes*		
Resident Characteristics	**Non-Religious**	**Church-Related**	**Difference**	**Non-Religious**	**Church-Related**	**Difference**
Percent of Residents Who Spend Most of Their Time in Bed or in a Chair	4.47	**2.97**	1.5*	3.66	**2.97**	0.69*
Percent of Residents Who Were Physically Restrained	8.10	**5.79**	2.31*	6.45	**5.79**	0.66*
Percent of Low-Risk Residents Who Lose Control of Their Bowels or Bladder	**46.16**	48.86	2.7*	**47.96**	48.86	0.9
Percent of Low-Risk Residents Who Have Pressure Sores	**2.76**	2.95	0.19*	**2.84**	2.95	0.11*
Percent of Residents Whose Ability to Move About in and Around Their Room Got Worse	**11.87**	13.84	1.96*	**12.78**	13.84	1.06*
Percent of Residents Who Have/Had a Catheter Inserted and Left in Their Bladder	5.68	**5.26**	0.42*	5.46	**5.26**	0.19*
Percent of Residents Whose Need for Help With Daily Activities Has Increased	**15.21**	15.87	0.67*	**15.60**	15.87	0.27
Percent of Residents Who Have Moderate to Severe Pain	6.76	**6.32**	0.44*	6.55	**6.32**	0.23*
Percent of Residents Who are More Depressed or Anxious	**14.47**	16.21	1.74*	**15.44**	16.21	0.76*
Percent of Residents With a Urinary Tract Infection	8.40	**8.23**	0.18*	**8.15**	8.23	0.07
Percent of High-Risk Residents Who Have Pressure Sores	13.94	**11.95**	1.99*	13.01	**11.95**	1.05*
Percent of Short-Stay Residents Who Had Moderate to Severe Pain	**22.76**	26.21	3.45*	**25.84**	26.21	0.37
Percent of Short-Stay Residents With Delirium	**3.28**	4.45	1.17*	**3.78**	4.45	0.67*
Percent of Short-Stay Residents With Pressure Sores	**20.39**	21.08	0.69	21.40	**21.08**	0.32

Nursing Home Inspections

The CMS data from nursing home inspections include the type of deficiency (e.g., nutrition deficiencies), the level of harm (e.g., potential for minimal harm), scope of harm (i.e., actual or potential number of residents affected by the deficiency), and the severity of the deficiency, which is a combination of scope and level of harm. Within each type of deficiency are multiple elements. For example, the resident rights deficiency category includes such elements as informing residents of their health status and allowing residents to see the results of the latest nursing home inspection. As with resident characteristics, we compared the performance of church-related nursing homes with all other nursing homes and with other non-profit nursing homes. Table 4 shows the average number of deficiencies and the differences between the average number of deficiencies for church-related, all other, and other non-profit nursing homes.

Church-related nursing homes had, on average, fewer inspection deficiencies in every deficiency category than the average for all other types of nursing homes combined. Church-related nursing homes also had fewer deficiencies on average than other non-profit nursing homes in all seven of the deficiency categories for which a statistically significant difference was found. On average, church-related nursing homes had 25 percent fewer deficiencies than the combined average for all other nursing homes.

The analysis revealed substantial differences in the number of deficiencies between church-related and other types of nursing homes. The most obvious finding is that on average church-related nursing homes had fewer deficiencies in every category than the average for all other types of nursing homes. Overall, all other nursing homes had an average of 5.934 inspection deficiencies, while church-related nursing homes had 4.401, or 25 percent fewer deficiencies.

Church-related nursing homes also had fewer deficiencies than other non-profit nursing homes in all seven deficiency categories for which a statistically significant difference was found. But the largest difference was .096 deficiencies, for resident assessment deficiencies. On average, other non-profits had 4.702 deficiencies, while church-related nursing homes had 4.401 deficiencies. The difference represents approximately 6 percent fewer deficiencies. The fact that the differences between church-related and other non-profit nursing homes were substantially smaller than the differences between church-related and all other nursing homes is discussed below.

As shown in Table 4, the relative number of deficiencies of each type was similar for church-related and all other types of nursing homes. For example, there were approximately three times as many quality care deficiencies as pharmacy deficiencies for church-related nursing homes and for all other types of nursing homes. This pattern was also true in the comparison of church-related with other non-profit nursing homes.

In addition, Table 4 table shows the average number of the various ratings for scope, level of harm, and severity of deficiencies. The total of the means for these

factors is directly related to the number of deficiencies. A simple way to express the relationship is that an increase in deficiencies produces an increase in ratings of scope, level of harm, and severity. Larger means for these factors would naturally occur for nursing homes that had a larger number of deficiencies. Thus the greater frequency in nearly all variations of scope, level of harm, and severity for non-religious nursing homes is not surprising. The data are nevertheless useful because they also indicate the distribution of ratings. An examination of these factors shows that their distribution is similar for church-related and all other types of nursing homes. For example, for scope (number of residents affected), deficiencies for both church-related and all other nursing homes were most frequently isolated to a few residents, less frequently a pattern for some residents, and least frequently widespread for many residents. A similar pattern emerges in the comparison of church-related and other non-profit nursing homes.

Table 4: Comparison of Inspection Deficiencies, All Other versus Church-Related and Other Non-Profit Versus Church-Related Nursing Homes
(Lower value in bold; * denotes statistical significance at 0.05 level)

	All Nursing Homes			*Non-Profit Nursing Homes*		
Deficiencies	**All Other**	**Church-Related**	**Difference**	**Other Non-Profit**	**Church-Related**	**Difference**
Administration Deficiencies	0.427	**0.246**	0.182*	0.297	**0.246**	0.051*
Environmental Deficiencies	1.094	**0.750**	0.344*	0.800	**0.750**	0.05*
Mistreatment Deficiencies	0.313	**0.250**	0.063*	0.257	**0.250**	0.007*
Nutrition and Dietary Deficiencies	0.578	**0.477**	0.101*	0.478	**0.477**	0.001
Pharmacy Service Deficiencies	0.545	**0.431**	0.113*	0.443	**0.431**	0.012*
Quality Care Deficiencies	1.667	**1.342**	0.325*	1.350	**1.342**	0.009*
Resident Assessment Deficiencies	0.600	**0.427**	0.173*	0.523	**0.427**	0.096*
Resident Rights Deficiencies	0.707	**0.476**	0.231*	0.553	**0.476**	0.077*
Total Deficiencies	5.934	**4.401**	1.533*	4.702	**4.401**	0.302*
Deficiencies Reported Between Inspections	0.004	**0.002**	0.002*	**0.0016**	0.0021	0.0005*
Level of Harm						
Actual harm	0.245	**0.181**	0.064*	0.191	**0.181**	0.009*
Immediate jeopardy to resident health or safety	0.042	**0.030**	0.012*	**0.020**	0.030	0.009*

Minimal harm or potential for actual harm	4.738	**3.581**	1.156*	3.806	**3.581**	0.225*
Potential for minimal harm	0.909	**0.609**	0.301*	0.685	**0.609**	0.076*
Scope						
Isolated for Few	3.286	**2.583**	0.703*	2.673	**2.583**	0.090*
Pattern for Some	2.050	**1.421**	0.629*	1.560	**1.421**	0.139*
Widespread for Many	0.598	**0.397**	0.201*	0.469	**0.397**	0.073*
Severity						
Pattern/Potential for minimal harm	0.586	**0.384**	0.202*	0.429	**0.384**	0.045*
Widespread/ Potential for minimal harm	0.324	**0.225**	0.099*	0.255	**0.225**	0.031*
Isolated/Minimal harm or potential for actual harm	3.042	**2.390**	0.651*	2.480	**2.390**	0.09*
Pattern/Minimal harm or potential for actual harm	1.429	**1.019**	0.41*	1.116	**1.019**	0.097*
Widespread/ Minimal harm or potential for actual harm	0.267	**0.172**	0.095*	0.210	**0.172**	0.038*
Isolated /Actual harm	0.228	**0.170**	0.058*	0.182	**0.170**	0.012*
Pattern/Actual harm	0.017	**0.012**	0.005*	**0.009**	0.012	0.003*
Widespread/Actual harm	0.0005	**0.000**	0.0005*	0.0003	**0.000**	0.0003*
Isolated/Immediate jeopardy to resident health or safety	**0.016**	0.023	0.007*	**0.011**	0.023	0.012*
Pattern/Immediate jeopardy to resident health or safety	0.018	**0.006**	0.012*	**0.005**	0.006	0.001*
Widespread/ Immediate jeopardy to resident health or safety	0.007	**0.000**	0.007*	0.004	**0.000**	0.004*

As noted above, the differences between church-related and other non-profit nursing homes were substantially smaller than the differences between church-related and all other nursing homes. For example, the difference between church-related and all other nursing home quality care deficiencies was .325, while the difference between church-related and other non-profit nursing homes was .009. This pattern was true for all of the deficiency categories. As a consequence, we compared the performance of for-profit and government nursing homes with that of all non-profit nursing homes. The result is shown in Table 5. The first three columns repeat the analysis of differences between all other (non-religious) and

church-related nursing home deficiencies from Table 4. The three columns on the right list the numbers and differences in average deficiencies, comparing for-profit and government nursing homes with that of all non-profit nursing homes.

For five of the eight deficiency categories, and for total deficiencies, the differences between the average deficiencies for non-profit and all other nursing home types (for-profit and government) were greater than the differences between church-related and all other types of nursing homes. For example, looking at total deficiencies, the difference between the average number of deficiencies for church-related and all other types of nursing homes was 1.533, whereas the difference between the average number of deficiencies for non-profit and all other nursing home types was 1.679. Average deficiencies for the different categories of nursing homes are shown in Figure 1.

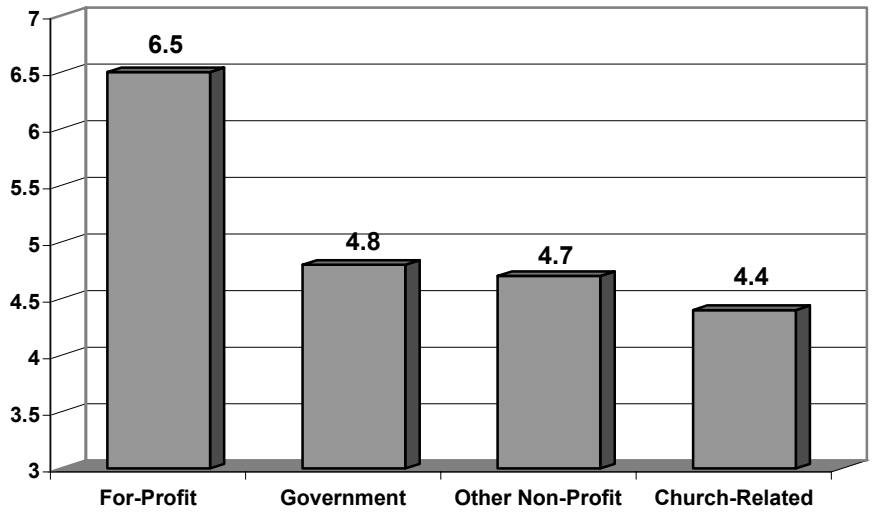
This analysis suggests that characteristics other than the religious nature of church-related nursing homes accounted for a larger proportion of the differences in the numbers of deficiencies. Institutional characteristics noted above in Table 2 (e.g., the number of beds and the amount of nursing and total staff time per resident) may have had an impact. In addition, other factors not directly reflected in the data, such as an emphasis on profits in for-profit nursing homes and the number of layers of bureaucracy in government-run nursing homes, may have affected performance.

Table 5: Comparison of Inspection Deficiencies, All Other versus Church-Related and All Other versus Non-Profit Nursing Homes

(Lower value in bold; * denotes statistical significance at 0.05 level)

	All Other versus Church-Related Nursing Homes			*For-Profit and Government versus Non-Profit Nursing Homes*		
Deficiencies	**All Other**	**Church-Related**	**Difference**	**All Others**	**Non-Profit**	**Difference**
Administration Deficiencies	0.427	**0.246**	0.182*	0.468	**0.286**	0.182*
Environmental Deficiencies	1.094	**0.750**	0.344*	1.186	**0.790**	0.396*
Mistreatment Deficiencies	0.313	**0.250**	0.063*	0.331	**0.255**	0.076*
Nutrition and Dietary Deficiencies	0.578	**0.477**	0.101*	0.609	**0.478**	0.131*
Pharmacy Service Deficiencies	0.545	**0.431**	0.113*	0.576	**0.441**	0.136*
Quality Care Deficiencies	1.667	**1.342**	0.325*	1.766	**1.349**	0.417*
Resident Assessment Deficiencies	0.600	**0.427**	0.173*	0.624	**0.503**	0.121*
Resident Rights Deficiencies	0.707	**0.476**	0.231*	0.755	**0.537**	0.218*
Total Deficiencies	5.934	**4.401**	1.533*	6.319	**4.640**	1.679*

Figure 1: Average Inspection Deficiencies by Nursing Home Type



Nursing Home Complaints

CMS data on nursing home complaints include the same elements as for inspections – deficiencies, scope, level of harm, and severity. Table 6, which compares numbers of complaints and related factors, reveals the same pattern as for inspection deficiencies. For each of the eight deficiency categories, the average number of deficiencies for church-related nursing homes was less than the average for all other types of nursing homes combined. All other nursing homes had, on average, 3.440 complaint deficiencies. Church-related nursing homes had, on average, 1.464 complaint deficiencies, or approximately 57 percent fewer deficiencies.

Church-related nursing homes also had fewer average complaint deficiencies than other non-profit nursing homes in all eight deficiency categories. On average, church-related nursing homes had .429 fewer complaint deficiencies, or approximately 23 percent fewer deficiencies.

Table 6: Comparison of Complaint Deficiencies, All Other versus Church-Related and Other Non-Profit Versus Church-Related Nursing Homes
(Lower value in bold; * denotes statistical significance at 0.05 level)

	All Nursing Homes			*Non-Profit Nursing Homes*		
Deficiency	**All Others**	**Church-Related**	**Difference**	**Other Non-Profit**	**Church-Related**	**Difference**
Administration Deficiencies	0.303	**0.128**	0.175*	0.158	**0.128**	0.03*
Environmental Deficiencies	0.322	**0.095**	0.227*	0.162	**0.095**	0.067*
Mistreatment Deficiencies	0.439	**0.220**	0.219*	0.261	**0.220**	0.041*
Nutrition and Dietary Deficiencies	0.092	**0.023**	0.069*	0.045	**0.023**	0.022*
Pharmacy Service Deficiencies	0.143	**0.050**	0.094*	0.074	**0.050**	0.024*
Quality Care Deficiencies	1.371	**0.636**	0.735*	0.775	**0.636**	0.139*
Resident Assessment Deficiencies	0.260	**0.100**	0.16*	0.139	**0.100**	0.039*
Resident Rights Deficiencies	0.472	**0.201**	0.271*	0.261	**0.201**	0.059*
Total Deficiencies	3.440	**1.464**	1.976*	1.893	**1.464**	0.429*
Deficiencies Reported Between Inspections	0.037	**0.011**	0.026*	0.018	**0.011**	0.007*
Level of Harm						
Actual harm	0.569	**0.276**	0.293*	0.336	**0.276**	0.060*
Immediate jeopardy to resident health or safety	0.145	**0.065**	0.080*	0.073	**0.065**	0.008*
Minimal harm or potential for actual harm	2.464	**1.037**	1.427*	1.360	**1.037**	0.323*
Potential for minimal harm	0.261	**0.085**	0.176*	0.124	**0.085**	0.038*
Scope						
Isolated for Few	2.462	**1.091**	1.371*	1.415	**1.091**	0.325*
Pattern for Some	0.769	**0.305**	0.464*	0.380	**0.305**	0.075*
Widespread for Many	0.209	**0.069**	0.140*	0.097	**0.069**	0.029*
Severity						
Pattern/Potential for minimal harm	0.177	**0.062**	0.115*	0.086	**0.062**	0.023*
Widespread/ Potential for minimal harm	0.085	**0.023**	0.061*	0.038	**0.023**	0.015*

Isolated/Minimal harm or potential for actual harm	1.830	**0.795**	1.035*	1.043	**0.795**	0.248*
Pattern/Minimal harm or potential for actual harm	0.525	**0.210**	0.315*	0.267	**0.210**	0.057*
Widespread/ Minimal harm or potential for actual harm	0.108	**0.032**	0.077*	0.049	**0.032**	0.018*
Isolated/Actual harm	0.539	**0.261**	0.278*	0.326	**0.261**	0.065*
Pattern/Actual harm	0.028	**0.016**	0.012*	**0.009**	0.016	0.007*
Widespread/Actual harm	0.002	**0.000**	0.002*	0.001	**0.000**	0.001*
Isolated/Immediate jeopardy to resident health or safety	0.093	**0.035**	0.058*	0.046	**0.035**	0.011*
Pattern/Immediate jeopardy to resident health or safety	0.039	**0.017**	0.022*	0.018	**0.017**	0.001*
Widespread/ Immediate jeopardy to resident health or safety	0.0138	**0.0137**	0.0001*	**0.0088**	0.0137	0.0051*

For complaint deficiencies, we compared the performance of for-profit and government nursing homes with that of all non-profit nursing homes. The result is shown in Table 7. The first three columns repeat the analysis of differences between all other (non-religious) and church-related nursing home deficiencies from Table 6. The additional columns list the numbers and differences in average deficiencies, comparing for-profit and government nursing homes with that of all non-profit nursing homes. The results are consistent with the analysis of inspection deficiencies.

For six of the eight deficiency categories, and for total deficiencies, the differences between the average complaint deficiencies for non-profit and for all other nursing home types (for-profit and government) were greater than the differences between church-related and all other types of nursing homes. For example, for total deficiencies, the difference between the average number of deficiencies for church-related and all other types of nursing homes was 1.976 (1.464 versus 3.440), whereas the difference between the average number of deficiencies for non-profit and all other nursing home types was 2.119 (1.805 versus 3.924). For-profit and government-run nursing homes had on average 117 percent more complaint deficiencies than non-profit nursing homes.

Table 7: Comparison of Complaint Deficiencies, All Other versus Church-Related and All Other versus Non-Profit Nursing Homes

(Lower value in bold; * denotes statistical significance at 0.05 level)

	All Other versus Church-Related Nursing Homes			*For-Profit and Government versus Non-Profit Nursing Homes*		
Deficiency	**All Other**	**Church-Related**	**Difference**	**Others**	**Non-Profits**	**Difference**
Administration Deficiencies	0.303	**0.128**	0.175*	0.348	**0.152**	0.196*
Environmental Deficiencies	0.322	**0.095**	0.227*	0.372	**0.148**	0.223*
Mistreatment Deficiencies	0.439	**0.220**	0.219*	0.495	**0.253**	0.241*
Nutrition and Dietary Deficiencies	0.092	**0.023**	0.069*	0.107	**0.040**	0.067*
Pharmacy Service Deficiencies	0.143	**0.050**	0.094*	0.165	**0.069**	0.096*
Quality Care Deficiencies	1.371	**0.636**	0.735*	1.558	**0.747**	0.811*
Resident Assessment Deficiencies	0.260	**0.100**	0.16*	0.298	**0.131**	0.167*
Resident Rights Deficiencies	0.472	**0.201**	0.271*	0.539	**0.248**	0.29*
Total Deficiencies	3.440	**1.464**	1.976*	3.924	**1.805**	2.119*

Imprecision in the Identification of Church-Related Nursing Home Ownership

The designation of the type of nursing home ownership, an essential data element for comparing nursing home performance, is self-reported by nursing home staff. The instruction for designating the type of nursing homes used in the reporting process is found on CMS Form 671. For non-profit nursing homes, the instruction reads "If operated under voluntary or other non-profit auspices, indicate whether church related, non-profit corporation or other non-profit."[16] There is no definition of the term "church related." The term is thus subject to the interpretation of staff completing the form.

Based on earlier research, we had reason to question the reliability of this data element. We asked field researchers who have previously been involved in the Roundtable's research on faith-based services to test the accuracy of the designation of church-related nursing home ownership in five states – Arizona, Michigan, Texas, Wisconsin, and West Virginia. They compiled lists of nursing homes that have 501(c)(3) non-profit status with a connection to a religious

[16] Source – CMS Form 671, Long Term Care Facility Application for Medicare and Medicaid.

community or organization. When we compared these lists with the data in the CMS data set, we found that the CMS data seriously undercounted church-related nursing homes; most of the inaccurately identified nursing homes were instead listed simply as non-profit corporations.

Table 8 compares the total number of nursing homes listed as church-related in the CMS data set with the number identified by the field researchers. For each state, the field researchers identified a significantly larger number of church-related nursing homes than is reflected in the CMS data. For these five states, a total of 81 additional church-related nursing homes were identified, raising the total from 109 to 190, an increase of 74 percent. The data do not provide a basis for determining the reasons for the difference. One possible explanation is that the term church-related suggests affiliation of the nursing home with a congregation, as opposed to affiliation with other types of religious organizations, the former being less common than the latter (i.e., nursing homes associated with congregations are less common than nursing homes associated with other religious organizations).

Table 8: Change in the Number of Church-Related Nursing Homes after Independent Identification of Type of Nursing Home Ownership

State	CMS Data	Modified Data	Percent Change
Arizona	1	20	+2000%
Michigan	25	46	+84%
Texas	34	51	+50%
West Virginia	2	7	+250%
Wisconsin	47	66	+40%
Total	**109**	**190**	**+74%**

The data set was modified for these five states in order to determine how the change in designation would affect the findings. Although the means calculated for resident characteristics, complaints, and inspections changed, the changes were relatively minor. Table 9 shows how changing the designation altered the findings related to resident characteristics for these five states. For the majority of characteristics, there were only minor changes in the difference between means for resident characteristics. As with the national-level data, the difference between the average numbers of residents with the reported characteristics in church-related nursing homes compared with those in all other types of nursing homes was not substantial. For a few of the characteristics, changing ownership type increased the differences. For example, the difference in the percent of residents who had moderate to severe pain doubled, from 1.35 to 2.7 percent, and the percent of low-risk residents who lost control of their bowels or bladder decreased from 2.44 to .46 percent. However, for neither of these characteristics

was the difference statistically significant. After modification of the data, the differences between church-related and other nursing homes decreased for 8 of the 14 characteristics. As Table 9 illustrates, better identification of the type of nursing home had little effect on the findings.

Table 9: Comparison of Differences in Client Characteristics, CMS Data Versus Data After Modification of Type of Nursing Home for AZ, MI, TX,WI, & WV
(Better percentages in bold; * denotes statistical significance at 0.05 level)

	Original Data –All Nursing Homes			*Modified Data – All Nursing Homes*		
Resident Characteristics	**Non-Religious**	**Church-Related**	**Difference**	**Non-Religious**	**Church-Related**	**Difference**
Percent of Residents Who Spend Most of Their Time in Bed or in a Chair	3.79	**2.58**	1.22*	3.93	**2.87**	1.06*
Percent of Residents Who Were Physically Restrained	7.12	**5.54**	1.58	7.28	**6.09**	1.19
Percent of Low-Risk Residents Who Lose Control of Their Bowels or Bladder	46.22	**43.78**	2.44	45.94	**45.48**	0.46
Percent of Low-Risk Residents Who Have Pressure Sores	2.97	**2.44**	0.53*	3.03	**2.73**	0.3
Percent of Residents Whose Ability to Move About in and Around Their Room Got Worse	**11.10**	11.57	0.47	11.21	**11.09**	0.11
Percent of Residents Who Have/Had a Catheter Inserted and Left in Their Bladder	5.47	**5.29**	0.19	5.55	**5.29**	0.25
Percent of Residents Whose Need for Help With Daily Activities Has Increased	**14.16**	14.17	0.01	**14.09**	14.20	0.11
Percent of Residents Who Have Moderate to Severe Pain	6.16	**5.70**	0.46	6.30	**5.77**	0.54
Percent of Residents Who are More Depressed or Anxious	**13.49**	13.62	0.13	13.73	**12.91**	0.83
Percent of Residents With a Urinary Tract Infection	**7.59**	8.13	0.54	**7.58**	8.06	0.48
Percent of High-Risk Residents Who Have Pressure Sores	11.87	**11.66**	0.21	11.97	**11.64**	0.33
Percent of Short-Stay Residents Who Had Moderate to Severe Pain	24.81	**23.47**	1.35	25.73	**23.03**	2.7
Percent of Short-Stay Residents With Delirium	**4.11**	4.69	0.59	**4.20**	4.27	0.08
Percent of Short-Stay Residents With Pressure Sores	20.58	**19.95**	0.63	20.63	**20.26**	0.37

Home Health Care Providers – Home Care Compare

Background Information

The data and related data collection processes are part of a CMS initiative to monitor and improve the quality of in-home health care – the Home Health Outcome-Based Quality Improvement System. The data are the basis of the internet-based function entitled "Home Care Compare" on the CMS Medicare website. Data related to patients are required to be collected by Medicare/Medicaid-certified home health agencies using a standard core assessment data set, the Outcomes and Assessment Information Set (OASIS). Data are submitted to state survey agencies, which also collect institutional information about the home health agencies and send the data to CMS.[17]

CMS defines home health care as follows:[18]

> *Home health care includes skilled nursing care, as well as other skilled care services, like physical and occupational therapy, speech-language therapy, and medical social services. These services are provided by a variety of skilled health care professionals in your home. The home health staff provides and helps coordinate the care and/or therapy your doctor orders. Along with the doctor, home health staff create a care plan, which is a written plan for your care. It tells what services you will get to reach and keep your best physical, mental, and social well being. The home health staff keeps your doctor up-to-date on how you are doing and updates your care plan as needed.*

Data gathering is described as follows:

> *The home health quality measures come from information collected by Medicare and Medicaid-certified home health agencies. They collect information about Medicare and Medicaid patients who get skilled care. Information is collected about the patients' health; how they function; the skilled care, and social, personal, and support services they need; as well as their living conditions. This information is called the Home Health Outcome and Assessment Information Set (OASIS). Skilled home health staff gathered the information by observing the patient and the patient's home and situation, and by talking with the patient and caregivers.*

[17] A more complete explanation of the system is available from the Medicare Quality Improvement Community website at http://www.medqic.org/content/nationalpriorities/topics/projectdes.jsp?topicID=417.
[18] All information quoted from CMS is from the CMS website at http://www.medicare.gov.

CMS describes the quality measures as follows:

> *Quality measures [provide] information about how well home health agencies provide care for some of their patients. The measures provide information about patients' physical and mental health, and whether their ability to perform basic daily activities is maintained or improved.*

There are 41 OASIS quality measures. Of these, the 11 measures shown in Table 10 are currently available on the CMS website and in the data set.[19]

Table 10: Home Health Care Outcome Measures

	Measure Description
Outcome 1	Percentage of patients who get better at walking or moving around
Outcome 2	Percentage of patients who get better at getting in and out of bed
Outcome 3	Percentage of patients who get better at getting to and from the toilet
Outcome 4	Percentage of patients who have less pain when moving around
Outcome 5	Percentage of patients who get better at bathing
Outcome 6	Percentage of patients who get better at taking their medicines
Outcome 7	Percentage of patients who get better at getting dressed
Outcome 8	Percentage of patients who stay the same (don't get worse) at bathing
Outcome 9	Percentage of patients who had to be admitted to the hospital
Outcome 10	Percentage of patients who need urgent, unplanned medical care
Outcome 11	Percentage of patients who are confused less often

Table 11 lists the types of home health agency ownership in the CMS data set. Also shown are the numbers of and percentages of the different types of agency ownership in the data set.

Table 11: Home Health Agencies by Ownership Type

Ownership Type	Count	Percentage
Government - Combination Gov't & Voluntary	22	0.3%
Government – Local	296	4.1%
Government - State/County	641	8.9%
Proprietary	3,976	55.5%
Voluntary Non-Profit – Other	614	8.6%
Voluntary Non-Profit – Private	1,174	16.4%
Voluntary Non-Profit - Religious Affiliation	445	6.2%
Total	**7,168**	**100.0%**

[19] The CMS home health agency data set was accessed in May, 2004. The data used to calculate the Quality Measures are updated monthly and represent a rolling 12 months of data, with a 2 to 3 month delay between the time of data collection and availability in the data set. Thus the data analyzed for this paper represent patient outcomes for most of 2003 and a few months of 2004.

CMS data regarding the numbers and types of home health agencies reveal the following:

- The number of home health care agencies varied significantly from state to state, with the largest number of agencies, 1,078, in Texas, and 9 states with 31 or fewer agencies.
- Of the 7,168 home health care agencies in the data set, 445, or 6.2% were identified as having religious affiliations.
- The percentage of religiously-affiliated home health agencies exceeded 30 percent in only one state, North Dakota, while five states had no religiously-affiliated agencies, or at least none that were identified as such.

As with the nursing home data, CMS was contacted to determine how the various ownership types listed in Table 11 are defined. As far as could be determined through numerous contacts with its staff, CMS provides no definition of the term. All designations are made through self-identification by home health agency staff. Unlike the identification of church-related nursing homes described above, we did not test the accuracy of the identification of religiously-affiliated home health agencies. However, it would be reasonable to assume that this identification is subject to a degree of inaccuracy. Determining whether this is the case, as well as the effect of misidentification on the findings, could be a goal of further research.

Findings – Home Health Agencies

We first eliminated from the analysis of each of the patient outcomes those nursing homes for which there were no data. A pattern emerged that is of note. Religiously-affiliated home health agencies were the least likely to be eliminated from the analysis when there were no data. In fact, for 10 of the 11 outcome measures, religiously-affiliated agencies had the highest percentage of complete data, ranging from a low of 81 percent for outcome 3 to 96 percent for outcomes 9 and 10. Data for other types of providers were missing to a much greater extent. Data for proprietary home health agencies was least likely to be included for all 11 outcomes.

Data for 10 of 11 patient outcomes were available for a higher percentage of religiously-affiliated home health agencies than for all other agencies. Data were missing most frequently for proprietary agencies.

The CMS data set includes the following language when data are missing: "This agency currently does not have data for this measure or this agency has less than 6 months of data." As a consequence it was not possible to determine the specific reason that data were missing from the information included in the data set. More information on missing data is included in the Appendix.

Measures in each of the outcome categories for religiously-affiliated home health agencies were compared with those of all other types of agencies. Table 12 shows the results. The differences in means were statistically significant for 8 of 11 outcome measures. For seven of the eight measures, outcomes for patients of religiously-affiliated home health agencies were on average better than the average for all other home health agencies. However, the differences were small, never exceeding 3.65 percent (the percentage of patients that had to be admitted to the hospital).

For home health agencies, the performance of religiously-affiliated agencies was better than the average of all other agencies for seven of the eight patient outcome measures for which a statistically significant difference was found. However, the differences were small.

Of note are the seemingly contradictory means and test for statistical significance for outcomes 5 and 8. Both outcomes relate to bathing; outcome 5 measures the percent of patients who *got better* at bathing, while outcome 8 measures the percent of patients who *did not get worse* at bathing. A slightly higher percentage (0.45%) of patients of non-religious agencies did not get worse at bathing. But a slightly higher percentage (1.31%) of patients of religiously-affiliated agencies got better at bathing.

Table 12: Comparison of Patient Outcomes of All Other With Religiously-Affiliated Home Health Agencies

(Better percentages in bold; * denotes statistical significance at 0.05 level)

Patient Outcomes	All Other Agencies	Religiously-Affiliated Agencies	Difference
Get better at walking or moving around	33.84	**34.32**	0.48
Get better at getting in and out of bed	47.96	**50.07**	2.12*
Get better at getting to and from the toilet	59.35	**61.92**	2.57*
Have less pain when moving around	56.68	**57.34**	0.67
Get better at bathing	56.75	**58.06**	1.31*
Get better at taking their medicines correctly	**34.48**	34.05	0.43
Get better at getting dressed	61.29	**63.73**	2.44*
Stay the same (don't get worse) at bathing	**92.07**	91.62	0.45*
Had to be admitted to the hospital	30.53	**26.88**	3.65*
Need urgent, unplanned medical care	23.15	**21.53**	1.62*
Are confused less often	37.65	**40.23**	2.58*

Outcomes for religiously-affiliated home health agencies were then compared with those of all other non-profit homes health agencies. The results are shown in Table 13. Although differences in only five of the eleven measures were

statistically significant, for all five, the performance of religiously-affiliated home health agencies was better, but only slightly better, than that of other non-profit agencies.

Table 13: Comparison of Patient Outcomes of Other Types of Non-Profit With Religiously-Affiliated Home Health Agencies

(Better percentages in bold; * denotes statistical significance at 0.05 level)

Patient Outcomes	All Other Non-Profit Agencies	Religiously-Affiliated Agencies	Difference
Get better at walking or moving around	34.05	**34.32**	0.27
Get better at getting in and out of bed	49.40	**50.07**	0.67
Get better at getting to and from the toilet	61.20	**61.92**	0.72
Have less pain when moving around	57.25	**57.34**	0.09
Get better at bathing	56.82	**58.06**	1.24*
Get better at taking their medicines correctly	33.80	**34.05**	0.25
Get better at getting dressed	62.61	**63.73**	1.12*
Stay the same (don't get worse) at bathing	91.49	**91.62**	0.14
Had to be admitted to the hospital	28.74	**26.88**	1.86*
Need urgent, unplanned medical care	22.99	**21.53**	1.46*
Are confused less often	39.45	**40.23**	0.78

To test whether performance might have been influenced when an agency did not provide a service that could have affected one or more outcomes, performance of only those agencies that provide all of the services tracked by CMS was analyzed. The services in the CMS data set, as well as the numbers and percentages of home health agencies that provide those services, are listed in Table 14.

Table 14: Home Health Agency Services

Service Description	Home Health Agency Count	Percent of Home Health Agencies
Nursing Care Services	7,168	100.0%
Physical Therapy Services	6,934	96.7%
Occupational Therapy Services	6,407	89.4%
Speech Pathology Services	6,157	85.9%
Medical Social Services	5,810	81.1%
Home Health Aide Services	6,972	97.3%
Total	7,168	100.0%

The results of the analysis, shown in Table 15, were much the same as the results described above. For five of the six measures for which there were statistically significant differences, the performance of religiously-affiliated home health agencies was better than the average for all other types of agencies. However, the differences were small. Eliminating agencies that did not provide all services did not alter the finding that for the majority of outcomes, performance of religiously-affiliated home health agencies was better than that of other types of agencies.

Table 15: Comparison of the Patient Outcomes of Home Health Agencies That Provide All Services

(Better percentages in bold; * denotes statistical significance at 0.05 level)

Patient Outcomes	All Other Agencies	Religiously-Affiliated Agencies	Difference
Get better at walking or moving around	34.02	**34.29**	0.27
Get better at getting in and out of bed	48.16	**50.30**	2.13*
Get better at getting to and from the toilet	59.41	**62.11**	2.70*
Have less pain when moving around	**57.25**	57.22	0.03
Get better at bathing	57.13	**57.71**	0.58
Get better at taking their medicines correctly	**34.80**	34.22	0.58
Get better at getting dressed	61.54	**63.73**	2.18*
Stay the same (don't get worse) at bathing	**91.94**	91.33	0.62*
Had to be admitted to the hospital	29.90	**26.66**	3.24*
Need urgent, unplanned medical care	22.66	**21.44**	1.22*
Are confused less often	38.69	**41.01**	2.32

CONCLUSIONS

This study had two purposes: (1) to determine whether available administrative data would permit comparing the performance of faith-affiliated social service providers with services provided by other types of organizations; and (2) if data could be found that would permit comparison, to perform an analysis of the data to determine whether there are meaningful differences in performance and what those differences are. To a limited extent, the search for data was successful; however, there are few federal programs that collect all of the data of interest for this study.

Two data sets were located that provide a basis for addressing the second set of questions. Both include multiple performance measures, a large number of service providers, a range of types of providers, including faith-affiliated providers, and identification of the latter in the data set. However, the data sets, which document performance of nursing homes and home health agencies (both better described as health service providers than social service providers), have limitations. Both involve self-reporting, raising questions about data accuracy. The identification of church-related nursing homes appears to have been inaccurate. Performance data were missing for numerous providers in both data sets. But given that the data were not collected specifically for the purposes of this study, issues such as these were more or less inevitable.

Despite these limitations, the CMS data provide a basis for analyzing and comparing performance of groups of service providers that differ on the basis of their connection with religious organizations. We found that:

Nursing Homes

- Statistically significant differences in resident characteristics were found, but there was no pattern indicating that church-related nursing home performance was substantially different than other types of nursing homes.
- There were substantial differences related to inspection and complaint deficiencies. Church-related nursing homes had on average fewer deficiencies of every type and fewer overall deficiencies than other types of nursing homes.

Home Health Agencies

- Patient outcomes were on average better for religiously-affiliated home health agencies than the average for all other types of agencies and for other non-profit agencies.
- Data were less likely to be missing for religiously-affiliated home health agencies than for secular agencies.

Although the differences in performance for many of the measures were statistically significant, they were for the most part not substantial. Differences in performance were smaller when comparing performance of faith-affiliated providers with other non-profit providers, with whom they are most likely to share institutional characteristics, than with other types of providers (for-profit and government). Nevertheless, the data do permit us to address the second purpose of this study. There *were* differences in performance of faith-affiliated and secular nursing homes and home health agencies.

But the data do not provide a basis for answering the logical follow-on question – *why* were there differences in performance? There are a number of possible explanations. Certain characteristics of for-profit and governmental organizations, such as size, the influence of the profit motive, and bureaucratic management structures, may have affected performance. Differences in institutional characteristics apparent from the nursing home data are another possible explanation. Non-profit nursing homes were smaller (had fewer beds) than other types of nursing homes, and more nursing and staff time were available per resident. The question that is most relevant to this study – can religious factors account for the differences – remains unanswered.

Past research has shown that it is very important – and quite difficult – to define the faith character of organizations. Much more needs to be known about this variable than is available from the CMS data. In particular, much more needs to be understood about *why* and *how* it is that faith character matters to differences in effectiveness between service organizations. Those are questions the Roundtable continues to address through other research.

APPENDIX – Data Reliability

A number of factors should be taken into account in considering the findings of this study. First, much of the data are collected by the service providers. The outcome measures available from CMS, shown in Tables 3 and 10 above, relate to resident and patient characteristics. For the most part, these measures require subjective determinations of resident and patient attributes by nursing home and home health care staff, determinations such as whether residents' "need for help with daily activities has increased," or whether a patient has "gotten better at getting in and out of bed." These determinations are subject to variation in observational skills, biases, and understanding of terminology used in the reporting process.

The CMS data set only includes data on nursing homes and home health agencies that are Medicare/Medicaid certified. Other providers are not included in the data or data analysis. Differences that might have become apparent if all service providers were compared, regardless of Medicare/Medicaid certification, could not be determined.

Information about the accuracy of the data in the nursing home data set is included in a report by the Department of Health and Human Services Office of the Inspector General.

> We found that Nursing Home Compare contains nearly all Medicare- and Medicaid-certified nursing homes. However, one or more surveys were missing from 19 percent of nursing homes, leaving consumers with incomplete information about those homes' survey and complaint histories. Inspection results on Nursing Home Compare are largely accurate, but one or more deficiencies were missing from 11 percent of nursing homes' inspection results, and Nursing Home Compare presents deficiencies not found in State survey documentation for 15 percent of nursing homes. Inaccuracies may be due to late data entry by State survey agencies, no tracking of inaccuracy by CMS, and failure of State survey agencies to transmit data on amended deficiencies.[20]

The nursing home and home health agency data sets did not include complete data for a significant number of service providers. The information below details the percentages of missing data for resident and patient characteristics.

[20] *Inspection Results on Nursing Home Compare: Completeness and Accuracy*, Department of Health and Human Services Office of the Inspector General, June, 2004, at http://www.healthlawyers.org/docs/ask2004/OEI_01_03_00130.pdf.

Nursing Home Data

The percentages of nursing homes for which data were included in the CMS data set for the fourteen resident characteristics are listed below. Percentages were calculated based on data for each of the characteristics. The CMS data set includes two reasons that data were missing: "The number is too small to report" and "The data for this outcome is missing."

Nursing Home Type	Percentage of All Data Elements with Valid Data
All Nursing Homes	72.89%
Church-Related Nursing Homes	68.89%
All Non-Religious Nursing Homes	73.12%
Other Non-Profit Nursing Homes	64.78%

Home Health Agency Data

The percentages of home health agencies for which data were included in the CMS data set for the eleven patient characteristics are listed below. Percentages were calculated based on data for each of the characteristics. When data on patient characteristics were missing, the data set indicates that "This agency currently does not have data for this measure or this agency has less than 6 months of data."

Home Health Agency Type	Percentage of All Data Elements with Valid Data
All Home Health Agencies	76.69%
Religiously-Affiliated Agencies	91.41%
All Non-Religious Agencies	75.71%
Other Non-Profit Agencies	87.27%

Another issue was reliability of the identification of faith-affiliated service providers. We found that there was significant variation between the identification of type of ownership in the CMS nursing home data and identification by field researchers, though this did not greatly affect the findings.

A related issue involved terminology. A number of undefined terms are used to identify service providers with a connection to a religious organization. For example, CMS uses at least two different terms – church-related and ownership with a religious affiliation – though it does not appear that the different terms are intended to have different meanings. No definition of these terms could be found

after numerous contacts with CMS staff and an examination of the forms from which data regarding the type of provider are drawn.

Only portions of the performance data collected for nursing homes and home health agencies are available on the CMS website and in the data sets that CMS makes available for research purposes. For example, CMS includes only 11 of the 41 data elements related to home health agency performance in the Home Health Compare utility. It is possible that other data might have affected the findings.

Another concern related to the influence that the conditions of the residents and patients could have on outcome measures. For example, a home health care agency that accepts unusually difficult patients might have poorer outcomes than other agencies. However, this should not be a significant factor influencing the findings because CMS adjusts for patient risk for home health care patients through a statistical technique that "accounts for differences in the agency's patients versus the reference sample, and minimizes the possibility that the differences are due to factors other than the care provided by the agency."[21] A number of the nursing home resident characteristics are also risk-adjusted: "To reduce the chance that a nursing home that serves more frail residents appears worse due to its resident population, certain residents are not included in the calculation of a quality measure. This makes the resident population used to calculate the quality measures more similar, therefore allowing comparison between nursing homes on these measures."[22]

Two additional cautions are also appropriate. Because the data do not include any information about the religious character of services or service providers, any conclusions regarding comparative performance cannot be directly attributed to such factors. In the findings above, we only report what the data indicated regarding the various performance measures included in the data sets. We do not attribute the differences to particular characteristics of types of service providers. The second caution is that the findings relate specifically to the types of service providers included in the data sets – nursing homes and home health agencies – and should not be construed as being applicable to all service providers.

Notwithstanding these limitations, the data sets proved useful for the purposes of this study – to determine whether available administrative data could shed light on the question of the relative effectiveness of services provided by faith-affiliated and secular service providers, and if so, what those data might show about comparative performance.

[21] From the Medicare Quality Improvement Community website at http://www.medqic.org/content/nationalpriorities/topics/projectdes.jsp?topicID=417&pageID=3#measures.
[22] Ibid.

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