

# Electronic Medical Record Adoption and Use in Home Health and Hospice

Anita Bercovitz, Ph.D.; Manisha Sengupta, Ph.D.; and Patricia Jamison, M.P.H.

## Key findings

### Data from the National Home and Hospice Care Survey, 2007

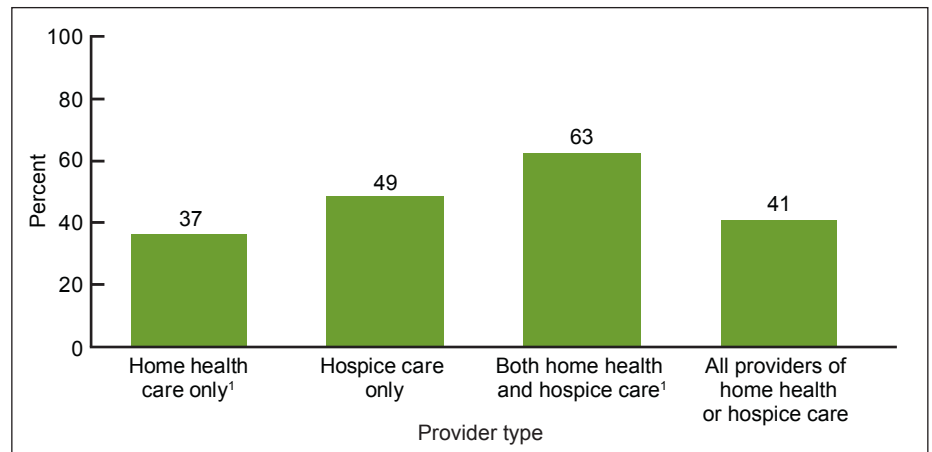
- In 2007, about 5,900 of the 14,500 providers of home health or hospice care (41%) had electronic medical records (EMRs), and an additional 2,200 (15%) planned to have EMRs within the next year. Providers who offered both hospice and home health care were more likely to have EMRs than providers offering only home health care, but did not differ from providers of hospice care only.
- Among providers with EMRs, 98% used components for recording patient demographics and 83% for clinical notes, and over one-half used clinical decision support systems or computerized physician order entry.
- Nonprofit and government providers, providers jointly owned or operated with other health care organizations, and providers with over 150 patients were more likely to have EMRs.

To promote the use of electronic health records (EHRs), the American Recovery and Reinvestment Act (ARRA) included financial incentives for meaningful users of EHRs (1). Although ARRA provisions and incentives apply primarily to physicians' offices and hospitals, persons receiving home health and hospice care also receive care from physicians and hospitals. Coordination of care across sites of care through exchange of clinical information is one priority of ARRA (2). The increase in use of home health care from 1999 through 2007 (3) suggests that care coordination among other health providers and home health care will become increasingly important. Nationally representative data on electronic medical record (EMR) use by providers of home health and hospice care are limited. This report provides baseline estimates for EMR use by providers of home health or hospice care in 2007, prior to implementation of ARRA incentives.

*Keywords: health information technology • long-term care • electronic health records*

## Forty-one percent of all home health or hospice care providers had EMRs in 2007.

Figure 1. Percentage of providers of home health or hospice care with EMRs: United States, 2007



<sup>1</sup>Significant difference at  $p < 0.05$  between percentage of providers of both home health and hospice care with EMRs and providers of home health care only with EMRs.

NOTES: EMR is electronic medical record. Denominator includes unknowns.

SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 2007.

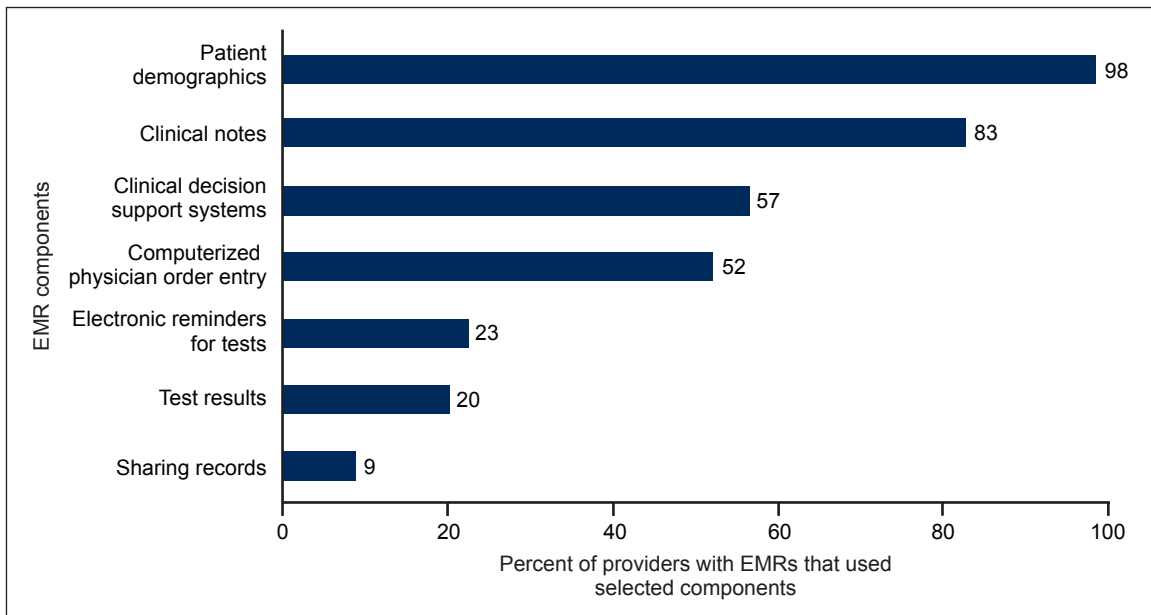


- Of the 14,500 providers of home health or hospice care in 2007, approximately 5,900 (41%) had EMRs (Figure 1) and an additional 2,200 (15%) had plans for acquiring EMRs within the next year.
- About 63% of providers offering both home health and hospice care had EMRs compared with 37% of providers offering home health care only. Forty-nine percent of providers of hospice care only had EMRs.

**Among providers with EMRs, almost all used components for patient demographics, and more than one-half used components for clinical notes, clinical decision support systems, or computerized physician order entry.**

- Of the 5,900 providers of home health or hospice care with EMRs, 98% used a component for patient demographics (Figure 2).
- Eighty-three percent of providers with EMRs used components for clinical notes, 57% for clinical decision support systems (CDSS), and 52% for computerized physician order entry (CPOE).

Figure 2. Percentage of providers of home health or hospice care with EMRs that used selected EMR components: United States, 2007



NOTE: EMR is electronic medical record.

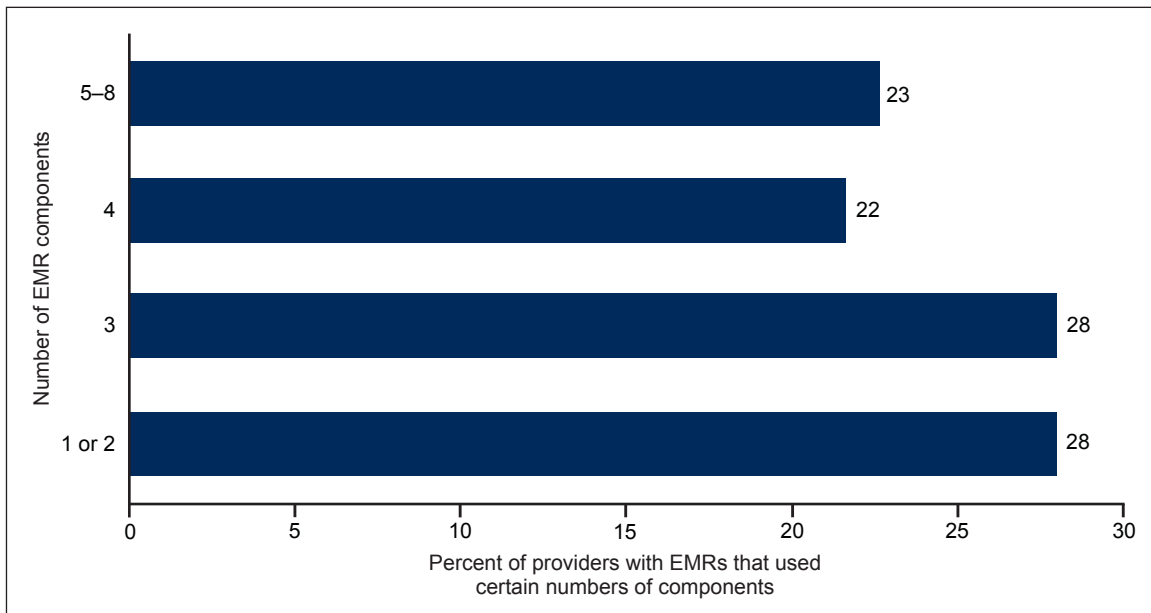
SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 2007.

- Approximately one-fifth of providers with EMRs used components for test reminders (23%) and displaying test results (20%).
- Nine percent of providers with EMRs used the component for sharing records electronically with other agencies.

**Over one-half of providers with electronic medical records used three or fewer components.**

- Twenty-eight percent of providers with EMRs used one or two components, 28% used three components, 22% used four components, and 23% used five to eight components. No significant differences were found among the percentages of providers using differing numbers of components (Figure 3).

Figure 3. Percentage of providers of home health or hospice care with EMRs that used certain numbers of components: United States, 2007



NOTE: EMR is electronic medical record. Total does not sum to 100% due to rounding.  
 SOURCE: CDC/NCHS, National Home and Hospice Care Survey, 2007.

**Providers with EMRs varied by profit status, ownership, and size.**

- Nonprofit and government providers (68%) and providers that were jointly owned or operated by other health care organizations (62%) were more likely to have EMRs (see table).
- No significant differences existed in the proportion of providers with and without EMRs by whether: the providers were part of a chain; had contracts with managed care providers, assisted living facilities, skilled nursing facilities, or hospitals; or were located in a metropolitan statistical area (see table).
- A greater proportion of providers with more than 150 patients had EMRs (60%) than providers with all other patient sizes (see table).

**Table. Percentage of providers of home health or hospice care with selected provider characteristics, by whether had electronic medical records: United States, 2007**

Characteristic	Had EMR <sup>1</sup>	No EMR <sup>1</sup>
Total <sup>2</sup>	41	55
<b>Is provider part of a chain?</b>		
Yes	33	65
No	45	50
<b>Is provider independent or owned by other organization?<sup>3</sup></b>		
Independent	34	61
Owned or operated by other organization <sup>4</sup>	62	38
<b>Is provider nonprofit or for profit?<sup>3</sup></b>		
Nonprofit or government owned	68	29
For profit	26	68
<b>Does provider have a contract to provide services to:</b>		
Managed care providers	49	47
Assisted living facilities	49	47
Skilled nursing facility	52	45
Hospital	45	51
<b>Is provider located in a metropolitan statistical area?</b>		
Yes	40	54
No <sup>5</sup>	44	55
<b>Total number of current patients<sup>6</sup></b>		
0–50	34	62
51–100	39	57
101–150	33	66
151 or more	60	34

<sup>1</sup>At time of 2007 National Home and Hospice Care Survey.

<sup>2</sup>Providers missing information on EMR are included in the denominator for calculating percentages. Percentages may not sum to 100 across rows due to missing data and rounding.

<sup>3</sup>Significant difference among providers with EMRs by characteristic at  $p < 0.05$ .

<sup>4</sup>Includes joint ownership or operation with outpatient medical or surgical center, managed care organization, hospital, skilled nursing facility, or other health care system.

<sup>5</sup>Includes micropolitan statistical area and other.

<sup>6</sup>Significant difference among providers with EMRs at  $p < 0.05$  between providers with 151 or more current patients and all other patient categories.

NOTE: EMR is electronic medical record.

- No differences were found in whether providers had EMRs by their source of revenue, whether Medicare, Medicaid, private insurance, or patient out-of-pocket payments (results not shown).

## Summary

Overall, 41% of providers of home health or hospice care had EMRs in 2007 and an additional 15% planned to obtain EMRs within the next year. This proportion was greater than the 35% of office-based physicians with EMRs in 2007 (4,5). Nonprofit and government providers, providers owned or operated with other health care organizations, and providers with over 150 patients were more likely to have EMRs. The association between size and having EMRs is similar to other studies among office-based physicians, hospitals, and nursing homes and a previous study of providers of home health or hospice care (5–8). Similarly, the association between joint ownership or operation and having an EMR is similar to other studies among physician groups jointly owned by other providers (9).

Of providers with EMRs, virtually all used a component for patient demographics (98%), 83% used components for clinical notes, 57% used CDSS, and 52% used CPOE. Over one-half (56%) of providers with EMRs used three or fewer components.

All EMR components included in this study are considered essential in achieving the improvements in quality and efficiency posited by use of EMRs, as highlighted in the proposed definition of meaningful use (2). However, less than one-half of providers of home health or hospice care had EMRs, and less than 10% of providers with EMRs used the component of sharing records with other agencies. To meet the ARRA priority to improve care coordination by electronic exchange of clinical information among providers across the spectrum of health care, EMR use among providers of home health or hospice care would need to increase significantly.

## Definitions

EMRs and EHRs: Often used interchangeably to refer to electronic records of health-related information. However, one formal definition of an EMR is an electronic record based within one health care organization, while an EHR is interoperable and thus can be used by more than one health care organization (10).

Having an EMR: Based on agency self-report at time of the National Home and Hospice Care Survey (NHHCS) and is defined by a “yes” response to: “Does this agency currently have an Electronic Medical Records system? This is a computerized version of the patient’s medical information used in the management of the patient’s health care. Exclude electronic records used only for billing purposes and required documentation such as OASIS files.” If respondents answered “no” they were then asked, “Does this agency have plans to obtain an Electronic Medical Records System within the next year?”

Components of electronic medical records: Based on agency self-report of use of specific components at time of NHHCS. Specific component use is defined by a “used” response to: “With this agency’s current Electronic Medical Records system, please indicate for each component listed below, whether it is used, available but not used, or not available.” Components included CPOE for prescriptions, labs, and tests; test results (chest x-rays, labs, etc.); patient demographics; electronic reminders for tests (labs, imaging, etc.); CDSS for contraindications,

allergies, guidelines, etc.; clinical notes; public health reporting (notifiable diseases); and sharing medical records electronically with other agencies. One agency (of the 1,036 that participated in the survey) reported having an EMR, but that all the components were not used although they were available.

### **Data source and methods**

Data from the 2007 NHHCS were used for these analyses. The 2007 NHHCS used a stratified two-stage probability sample design. The first stage was the selection of home health and hospice care agencies from the sampling frame representing the universe of agencies providing home health and hospice care services in the United States. Agencies affiliated with hospitals, government entities, retirement centers, or similar institutions where the agencies maintained financial and patient records independent of the larger institution were included in the frame. The primary sampling strata of agencies were defined by agency type and metropolitan statistical area status. Within these sampling strata, agencies were sorted by census region, ownership, certification status, state, county, ZIP Code, and size (number of employees). For the 2007 NHHCS, 1,545 agencies were sampled with probability proportional to size. The unweighted response rate was 71%. The response rate weighted by the inverse of the probability of selection was 59% (11).

Differences among subgroups were evaluated using chi-square and *t* tests. All significance tests were two-sided using  $p < 0.05$  as the level of significance. All comparisons reported in the text are statistically significant unless otherwise indicated. Data analyses were performed using the statistical packages SAS version 9.1 (SAS Institute, Cary, N.C.) and SUDAAN version 9.0 (Research Triangle Institute, Research Triangle Park, N.C.). Because estimates were rounded to the nearest hundred, individual estimates may not sum to totals.

### **About the authors**

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