



Major article

Influenza vaccination of health care personnel: Experiences with the first year of a national data collection effort

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Background: The purpose of this project was to evaluate a standardized measure of health care personnel (HCP) influenza vaccination during the first year of implementation. The measure requires acute care hospitals to gather vaccination status data from employees, licensed independent practitioners (LIPs), and adult students/trainees and volunteers. The evaluation included a hospital sampling frame stratified by 4 United States Census Bureau Regions and hospital bed count. The hospitals were selected within strata using simple random sampling and the probability proportional to size method, without replacement.

Methods: Semi-structured telephone interviews were conducted. Two qualitative data analysts independently coded each interview, and data were synthesized using a thematic analysis. This evaluation took place at hospitals reporting HCP influenza vaccination data as part of the Centers for Medicare & Medicaid Services Hospital Inpatient Quality Reporting (IQR) Program. Participants included the staff at 46 hospitals who were knowledgeable about data collection to fulfill IQR program requirements.

Results: Facilitators of data collection included having a small number of HCP, having a data collection system already in place, and providing HCP with advance notice of data collection. Major challenges included the absence of an established tracking process and monitoring HCP not regularly working in the facility, particularly LIPs. More than half of the facilities noted the time- and/or resource-intensive nature of data collection. Most facilities used data collected to meet other reporting requirements beyond the IQR Program.

Conclusions: Hospitals implemented a range of data collection methods to comply with reporting requirements. Lessons learned from the first year of measure implementation can be used to enhance data collection practices across HCP groups for future influenza seasons.

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Hospital-based influenza outbreaks are increasingly common and can be severe: one review noted attack rates of up to 53% and mortality rates of up to 13% in patients with laboratory-confirmed cases of nosocomial influenza.¹ Influenza vaccination of health care personnel (HCP) can reduce influenza cases and mortality among patients.^{2,3} For 3 decades, the Advisory Committee on

Immunization Practices has recommended annual influenza vaccination for all HCP and individuals preparing for occupations in health care fields.^{4,5} Despite this, the HCP influenza vaccination coverage level was approximately 70% during the 2012-2013 influenza season,⁶ which falls short of the 90% coverage goal established by Healthy People 2020.⁷

The Centers for Medicare & Medicaid Services defines quality measures as: "tools that help us measure or quantify healthcare processes, outcomes, patient perceptions, and organizational structure and/or systems that are associated with the ability to provide high-quality health care and/or that relate to one or more quality goals for health care."⁸ Historically, hospitals in the United States lacked uniformity in how HCP influenza vaccination rates were measured, particularly among HCP who worked in hospitals, but were not directly employed by them (eg, attending physicians, contract personnel).⁹ In 2007, the Joint

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| Employees* | All persons directly employed by the healthcare facility (i.e., receiving a direct paycheck from facility). |
| Licensed independent practitioners (LIP)* | Physicians (MD, DO), advanced practice nurses, and physician assistants who are affiliated with the healthcare facility, but are not directly employed by it. |
| Adult students/trainees and volunteers* | Medical, nursing, or other health professional students, interns, medical residents, or volunteers aged 18 or older that are affiliated with the healthcare facility, but are not directly employed by it. |
| Other contract personnel (OCP) | Persons providing care, treatment, or services at the facility through a contract who do not meet the definition of employees, licensed independent practitioners, or adult students/trainees and volunteers. |

Fig 1. Definitions of categories for the healthcare personnel measure. HCP were included if they met the definitions listed and physically worked in the acute care facility for ≥ 30 days from October 1, 2012–March 31, 2013, regardless of clinical responsibility or patient contact. *HCP*, healthcare personnel; *LIP*, licensed independent practitioner; *OCP*, other contract personnel. *Denotes a required denominator category for the HCP measure.

Commission, an independent accreditation and certification organization, began requiring hospitals and long-term care facilities to evaluate vaccination rates as a condition of accreditation.¹⁰

The Centers for Disease Control and Prevention (CDC) developed and pilot-tested a standardized measure of HCP influenza vaccination.^{11–13} The National Quality Forum fully endorsed this measure (no. 0431) in May 2012, hereafter referred to as the HCP measure. The measure specifications are available online (available from: <http://www.qualityforum.org/QPS/0431>). In the 2012–2013 influenza season, the HCP measure required facilities to report influenza vaccination data for 3 HCP categories: employees, licensed independent practitioners (LIPs), and adult students/trainees and volunteers who physically work in the facility for ≥ 30 days from January 1, 2013–March 31, 2013, regardless of clinical responsibility or patient contact. Reporting data on other contract personnel (OCP) to the Centers for Medicare & Medicaid Services is optional (see Fig 1 for definitions). Data on vaccinations received at the facility and outside the facility, medical contraindications, and declinations are collected for the 3 HCP categories.

Beginning January 1, 2013, the Centers for Medicare & Medicaid Services required $>4,000$ acute care hospitals in the United States to report HCP influenza vaccination using the HCP measure as part of the Hospital Inpatient Quality Reporting Program. Facilities report their data through the CDC's National Healthcare Safety Network (NHSN), a secure national Internet-based surveillance system for health care-associated infections and prevention practices.

The CDC evaluated the first year of HCP measure implementation by gathering qualitative and quantitative data from acute care hospital staff about the processes they used to collect the HCP influenza vaccination data and their experiences with this during the 2012–2013 influenza season. The qualitative evaluation results are presented in this article.

EVALUATION METHODS

Sampling

To collect the qualitative data, staff reporting HCP measure data participated in semistructured telephone interviews. The interview sampling frame was created from a list of nonfederal acute care hospitals reporting data for the HCP measure through NHSN. The sample was stratified based on the 4 United States Census Bureau Regions (Midwest, West, Northeast, and South) and facility bed count (<100 , 100–300, or >300 beds). Facilities were selected using simple random sampling within strata, and the number selected from each stratum was determined by using the probability proportional to size method, without replacement. However, hospitals with ≥ 100 beds were oversampled to collect more information from facilities with a larger number of HCP because surveys conducted prior to this evaluation suggested facilities with more HCP encountered greater barriers to data collection.¹²

Interview participation

Staff responsible for collecting and entering data into NHSN were targeted for interview participation. Interview recruitment was completed in 2 rounds; facilities initially received a CDC invitation letter via e-mail. Individuals who responded to telephone calls and e-mails participated in interviews. Nonresponding individuals received up to 2 follow-up telephone calls. Interviews lasted approximately 30 minutes and were recorded and transcribed.

Interview guide and participants

The interview guide covered a range of topics such as data collection methods and successes and challenges surrounding data collection. Interviewers used predefined probes to gather in-depth

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