

# Evidence-Based Guidelines to Determine Follow-up Intervals: A Call for Action

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**P**ublic concern regarding access to care combined with increasing pressure to curtail healthcare costs has prompted physicians to think critically about how best to manage chronic disease. Perhaps surprisingly, Americans face long wait times compared with other industrialized nations. A 2010 Commonwealth Fund study of 11 industrialized countries found waiting times were longer in the United States than in all the other countries except Canada, Norway, and Sweden.<sup>1</sup> Moreover, the study showed that only 57% of patients were able to access a same-day or next-day appointment when they were sick or needed care, compared with top-ranking Switzerland, where 93% of patients described being able to secure an appointment under these conditions. Similarly, 19% of patients in the United States waited 6 or more days for an appointment compared with only 2% of patients in Switzerland.<sup>1</sup> Several specialties face a shortage of providers, and geographic inequities also exist in almost all areas.<sup>2</sup> This problem is confounded by increasing patient demand in an aging population and slow growth in physician supply, which lags behind other countries on a per capita basis, and is further exacerbated by economic disparities.<sup>3</sup>

Where might there be more room for patients in this system? Notably, a substantial portion of outpatient office visits are follow-up visits. According to the National Health Statistics Report for 2009, there were nearly 1 billion office visits in 2009, 30% of which were for routine follow-up of a chronic problem and an additional 26% of which were for preventive care or follow-up of an acute condition. The remaining 42% were for the evaluation of a new problem or an exacerbation of a chronic condition.<sup>4</sup>

There are 3 obvious questions. (1) Are these follow-up visits and their timing determined scientifically or by convenience and habit? (2) Is there an evidence base to support physicians' practice patterns? (3) If there is

may be unnecessarily contributing to the problems of limited access, excessive utilization, and excessive costs, without improvement in healthcare outcomes.

Following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines for performing a systematic review, we used the PubMed database to search for studies discussing evidence-based guidelines for follow-up intervals for the top 5 chronic conditions accounting for the greatest number of outpatient visits in 2010 (mental disorders, back problems, arthritis, chronic obstructive pulmonary disease/asthma, hypertension).<sup>5</sup> These 5 conditions accounted for approximately \$281 billion in healthcare expenditures in 2010.<sup>6</sup>

This search yielded 330 studies. Abstracts of these studies were reviewed, and guidelines with recommendations for follow-up interval timing were included. Eight studies recommended specific follow-up times (Table 1<sup>7-15</sup>).

Some guidelines attempted to recommend specific follow-up intervals, but the vast majority were not evidence based. Determining the appropriate intervals and modeling their impact are important. For example, patients being medically managed for hypertension are typically seen every 6 months. However, a recent randomized controlled trial determined 6 months to be too short an interval to reflect accurate therapy-induced changes in blood pressure.<sup>8</sup> Extending the follow-up interval in this case may not only result in cost savings but also improve patient care, as patients appear to be better managed with more accurate assessment of blood pressure and more appropriate adjustments to therapy. Similarly, recent research into optimizing follow-up intervals for melanoma patients demonstrated that frequency of follow-up intervals did not impact outcomes.<sup>16</sup>

The next task was to determine the impact on healthcare utilization and expenditures of curtailing inappropriate follow-up visits. With a model that examines the diagnosis of hypertension, the profound effect of small reforms in follow-up practice becomes substantially clear. Essential hypertension accounted for \$47.4 billion in healthcare expenditures in 2008, with outpatient visits accounting for \$13.03 billion.<sup>17</sup> There were 79.1 million outpatient visits for hypertension in

evidence to support physicians' practice patterns, are physicians adhering to those guidelines? If not, scheduling habits

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Although there are nearly 1 billion outpatient follow-up visits annually in the United States, few data exist documenting evidence-based follow-up intervals for the most common and costly chronic conditions.

- Evidence-based follow-up intervals must be established based on healthcare outcomes.
- Evidence-based follow-up intervals have the potential to reduce healthcare costs per person and improve access without compromising or restricting care.

If the follow-up interval were extended to 9 months, there would be a 34% reduction in follow-up visits for 1 year and a potential cost savings of \$1.5 billion. Decreasing follow-up visits to a yearly interval would result in a 50% reduction in follow-up visit volume and a possible cost savings of about \$2.3 billion (Table 2). Additionally, patients may be better

managed with more accurate assessment of blood pressure and more appropriate adjustments to therapy.

In this era of healthcare reform, managing follow-up visits and intervals is an evidence-based approach that has the potential to reduce costs per person and improve access without compromising or restricting care. In order to implement this plan, appropriate follow-up intervals must first be established based on healthcare outcomes. Physicians should tackle this first step

2008.<sup>18</sup> About 88%, or 69.6 million, of those visits were established patients.<sup>16</sup> Using the Medicare national allowable billing amount of \$65.30 for a Current Procedural Terminology code 99213 visit, we can estimate the cost savings as a function of the number of visits omitted. If follow-up visits were extended by just 1 month, from 6 to 7 months, there would be a 15% decrease in the number of visits in 1 year. This reduction could correspond to a cost savings of nearly \$682 million.

■ **Table 1.** Existing Evidence-Based Guidelines

PubMed Search	Search Yield	Number of Studies Meeting Inclusion Criteria	Studies Meeting Inclusion Criteria	Evidence Based	Recommended Follow-up Interval
HTN evidence-based guidelines and follow-up	76	2	Quinn, 2010 <sup>7</sup>	No	1-2 months initially until well controlled; 3-6 months when stable
			Keenan, 2009 <sup>8</sup>	Yes	>6-month monitoring intervals
COPD/asthma evidence-based guidelines and follow-up	55	2	British Thoracic Society Standards of Care Committee, 2008 <sup>9</sup>	No	2-3 months or 4-6 months based on patient stability
			Van den Bemt, 2008 <sup>10</sup>	No	Reviewed guidelines recommend follow-up intervals of 1 month to 1 year based on either disease severity or the local healthcare system
Mental disorders evidence-based guidelines and follow-up (depression)	93	1	Schulberg, 1998 <sup>11</sup>	No	Weekly or biweekly visits during the initial 6-8 weeks of therapy
Back pain evidence-based guidelines and follow-up	21	0	None		
Skin disorders evidence-based guidelines and follow-up (melanoma)	85	2	Francken, 2009 <sup>12</sup>	Yes	2 weeks
			Francken, 2008 <sup>13</sup>	No	Yearly for 10 years
NMSC evidence-based guidelines and follow-up	1	0	None		
Melanoma evidence-based guidelines and follow-up	19	2	Francken, 2007 <sup>14</sup>	Yes	No specific time period recommended; a reduction in the frequency of follow-up visits may be safe and effective
			Einwachter-Thompson, 2008 <sup>15</sup>	Yes	No follow-up for thin melanomas (<0.5 mm)

COPD indicates chronic obstructive pulmonary disease; HTN, hypertension; NMSC, nonmelanoma skin cancer.

■ **Table 2. Cost Reduction Model**

Model	Follow-up Interval			
	6 Months	7 Months	9 Months	12 Months
Follow-up visits per year, n	2	1.7	1.33	1
Reduction in follow-up visit volume [(2 - n)/2] × 100%	0	15%	34%	50%
Number of follow-up visits omitted (percent reduction multiplied by 69.6 million established outpatient visits for hypertension in 2008)	0	10,446,084 (10.4 million)	23,677,790 (23.7 million)	34,820,280 (34.8 million)
Average cost savings <sup>a</sup>	0	\$682,129,285 (\$682 million)	\$1,546,159,687 (\$1.5 billion)	\$2,273,764,284 (\$2.3 billion)

<sup>a</sup>Based on Medicare national allowable billing amount of \$65.30 for a Current Procedural Terminology code 99213 visit.

by focusing research efforts and funding on the development of evidence-based follow-up guidelines for common chronic diagnoses. The same scientific rigor that guides therapeutic decision making should be used to optimize chronic disease management. Rational choice of follow-up intervals is a crucial step in adjusting current utilization patterns to maximize the quality of patient care while minimizing unnecessary costs. It's a win for everyone.

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