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Indiana Health Information Exchange Health Care Quality 646 Demonstration Performance Year Two Financial Results

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EXECUTIVE SUMMARY

This report contains information regarding Indiana Health Information Exchange's (IHIE's) financial results for the second performance year (PY2) of the Health Care Quality 646 Demonstration (July 1, 2010–June 30, 2011). This report includes the following information regarding the financial reconciliation: (1) an overview of the intervention and comparison groups, (2) performance payment results for PY2, and (3) the savings calculation methodology. All calculations were performed according to the methods set forth in the IHIE Demonstration Protocols, Medicare Prescription Drug, Improvement, and Modernization Act (MMA) §646 Health Care Quality Demonstration (2009).

E.1 Performance Payment Results for the Second Performance Year

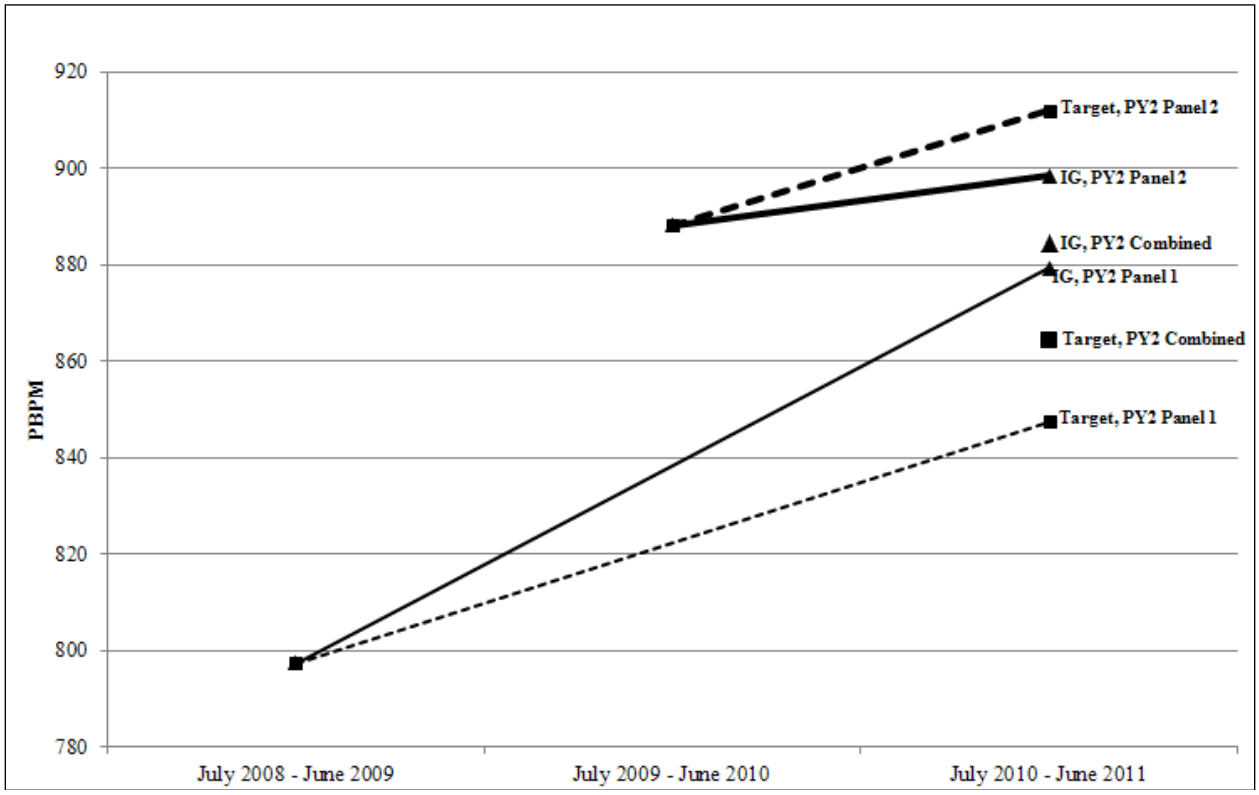
The PY2 financial reconciliation results are determined by blending the expenditure effects for the two separate physician panels. Overall trends in per beneficiary per month (PBPM) expenditures, standardized for baseline differences, are shown in **Figure E-1** for each panel's intervention group and target. Standardized expenditures for panel 1 were higher for the intervention group ($879.25 PBPM) than the comparison-adjusted target ($847.38 PBPM) by 3.8%. The standardized expenditures for panel 2 were lower than the comparison-adjusted target ($898.32 versus $912.02) by -1.5%.

The combined target and intervention group expenditures for PY2 are shown in **Figure E-1** as the free-standing square and triangle. After weighting by the number of months that beneficiaries contributed to each panel, the combined result for PY2 was 2.3% excess spending ($884.28 versus a target of $864.44). The weights applied to the panels were 0.74 for panel 1 and 0.26 for panel 2. Since there were no savings, IHIE did not receive any performance payments for PY2. IHIE would have needed to under-spend the standardized target PBPM amount by 1.62% (the minimum savings rate) to qualify for payments during this performance year.

E.2 Intervention Group Characteristics

Figure E-2 shows the distribution of providers assigned to the IHIE panels in PY2 and their specialties. Primary care physicians were defined as providers with specialties of family medicine, internal medicine, general practice, physician assistant, nurse practitioner, or clinical nurse specialist. Specialist providers were defined for these purposes as any participating provider with a non-primary care specialty. Nearly 75% of the providers in panel 1 had primary care specialties, while slightly more than 50% of the providers in panel 2 had primary care specialties.

Figure E-1
Trends in per beneficiary per month expenditures by panel and combined



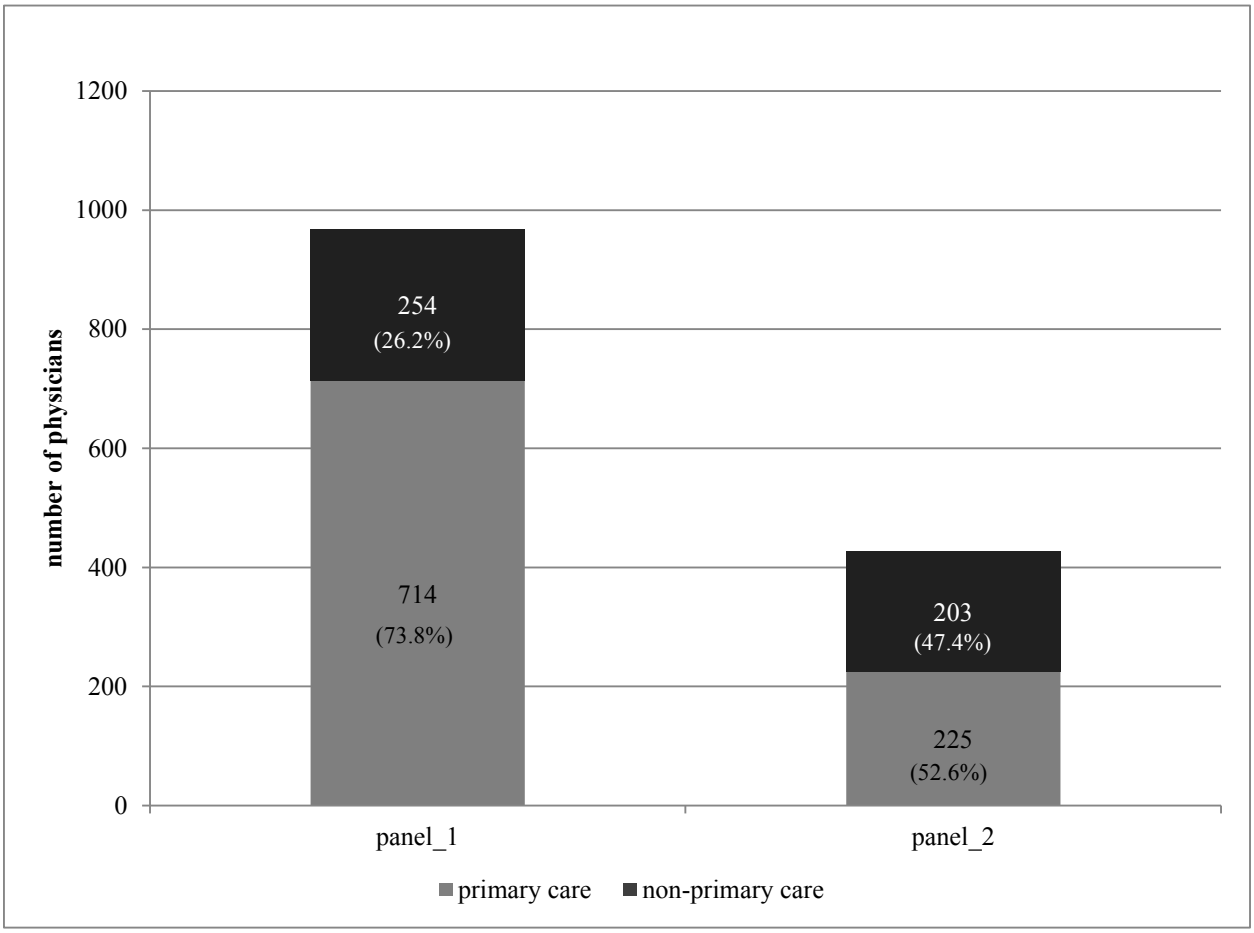
PY2 = performance year two; IG =intervention group; PBPM = per beneficiary per month.

NOTES:

1. Panel 1's comparison-adjusted target was $847.38 PBPM. Panel 1's standardized actual expenditures were $879.25 PBPM—higher than the target by 3.8%. Panel 2's comparison-adjusted target was $912.02 PBPM. Panel 2's standardized actual expenditures were $898.32 PBPM—lower than the target by 1.5%.
2. The combined standardized target ($864.44) is the weighted sum of the panel 1 and panel 2 target. The combined PBPM standardized actual expenditures ($884.28) are the weighted sum of the panel 1 and panel 2 standardized expenditures. The beneficiary month weight for panel 1 in performance year 2 = 0.74; the beneficiary month weight for panel 2 in performance year 2 = 0.26.

SOURCE: RTI analysis of July 2008 through June 2011 100% Medicare Claims Files and Enrollment Datasets.

Figure E-2
Physician specialties compared across panels



NOTES:

1. Primary care specialties were defined as family medicine (207Q00000X, 207QA0505X, 207QG0300X), internal medicine (207R00000X, 207RG0300X), general practice (208D00000X), physician assistant (363A00000X, 363AM0700X), nurse practitioner (363L00000X, 363LA2100X, 363LA2200X, 363LF0000X, 363LG0600X, 363LP2300X), or clinical nurse specialist (364S00000X, 364SA2100X, 364SA2200X, 364SC2300X, 364SF0001X, 364SG0600X)
2. Non-primary care specialties are specialties other than the specified primary care specialties. Non-primary care includes specialist physicians.
3. The counts of providers listed may not match the counts of providers in the profile tables. Some providers did not list primary specialty information in the National Plan & Provider Enumeration System (NPPES).

SOURCE: RTI analysis of July 2010 through June 2011 100% Medicare Claims Files and Enrollment Datasets; National Plan & Provider Enumeration System (NPPES), May 2012.

There were several notable differences in the characteristics of the intervention group (IG) beneficiaries in the two panels in PY2.

1. Beneficiaries may be included in the IG even if they live outside the 9-county target area as long as they receive services from a participating physician. In PY2, the majority of beneficiaries assigned to panel 2 were from counties outside the demo area (56%) compared to only 26% in panel 1 (Table 4). This may be associated with the addition of more specialists in panel 2. However, the total PY2 IG is a blend of the two panels so that most beneficiaries are from within the target area and being treated by primary care providers. The CG is not based on a panel structure, but likely has a similar mix of primary and specialty providers.

2. The proportion of allowed charges represented by evaluation and management (E&M) visits is a proxy for the amount of care provided by IHIE. The mean percentage was 52% for panel 1 and 35% for panel 2.

3. IHIE's quality performance is based on improvement in 14 diabetes, heart health, and cancer screening process measures. The overall percentage of quality targets achieved declined from PY1 to 40% in PY2. In accordance with the protocol, IHIE reports one quality score for beneficiaries regardless of the panel they are assigned to in the financial reconciliation.[1]

E.3 Intervention and Comparison Characteristics

The comparison group (CG) for IHIE consists of beneficiaries from three other metropolitan areas in the Midwest identified using the IHIE beneficiary assignment algorithm. In general, the PY2 comparison group was similar to the IHIE intervention group in nearly all important respects.

- Because the comparison target area encompasses three regions rather than one, the total number of PY2 CG beneficiaries was more than twice as large as the IG (345,502 vs. 165,528; Table 2). The comparison group is selected from three regions to increase the precision of the target by minimizing the effect of both random and systematic fluctuations any one area could have. The larger comparison group also lowers the minimum savings requirement since increasing population size decreases the minimum savings rate.

- The two groups had similar numbers of office/outpatient visits (mean = 8.91 in the IG and 8.51 in the CG), as well as similar hospital discharge rates (Table 3).

- The composition of the two groups was nearly identical with respect to gender, age group, and reason for Medicare eligibility (Table 3).

[1] See IHIE Demonstration Protocols, Medicare Prescription Drug, Improvement, and Modernization Act (MMA) §646 Health Care Quality Demonstration (2009).

SECTION 1
OVERVIEW OF IHIE HEALTH CARE QUALITY 646 DEMONSTRATION PERFORMANCE YEAR TWO RESULTS

This report contains information regarding Indiana Health Information Exchange's (IHIE's) financial results for the second performance year (PY2) of the Health Care Quality 646 Demonstration (July 1, 2010–June 30, 2011). The package includes the following information regarding the financial reconciliation: (1) an overview of the intervention and comparison groups, (2) performance payment results for PY2, and (3) savings calculation methodology.

All calculations were performed according to the methods set forth in the IHIE Demonstration Protocols, Medicare Prescription Drug, Improvement, and Modernization Act (MMA) §646 Health Care Quality Demonstration (2009).

1.1 Overview of the Groups and Panels

The initial design of the IHIE demonstration was to phase in the intervention starting with primary care, and then incrementally include high-volume specialty care, hospital care, and other specialty care. The panel design would then allow comparison of providers to similar providers (primary care providers (PCPs) to PCPs and specialists to specialists) over time. However, CMS decided that all providers who are members of a participating practice were to be considered participating providers, regardless of their specialty. Thus the panel design incorporates all new providers to IHIE in a separate panel each year. There were no changes to the panel design in PY2.

In PY2, the financial reconciliation uses two groups of beneficiaries, the intervention group (IG) and the comparison group (CG). Each group has a performance year and a base year. The groups are not followed across time but reassigned in each period. In PY2, the protocol calls for a panel design for the financial reconciliation. Thus, in PY2, there are seven sets of beneficiaries used in calculations. There are four sets of IG beneficiaries and three sets of CG beneficiaries. The sets are:

- IG PY2 physician panel 1 beneficiaries
- IG PY2 physician panel 2 beneficiaries
- IG PY2 baseline physician panel 1 beneficiaries
- IG PY2 baseline physician panel 2 beneficiaries
- CG PY2 beneficiaries (same for both panels)
- CG PY2 baseline physician panel 1 beneficiaries
- CG PY2 baseline physician panel 2 beneficiaries

In this section, we will describe the methodology behind selecting beneficiaries and some attributes of the IG and CG for PY2. Tables 1 through 4 contain information describing the

attributes of the IG and CG for PY2 as well as for the IG in the first performance year (PY1). The information in these tables is sourced from the profile tables which are included as an appendix to this report. The interested reader is referred to the profile tables in the appendix for a more in-depth look at the IG and CG.

1.2 Beneficiary Assignment Methodology

PY2 has two physician panels, panel 1 and panel 2. Physician panel 1 consists of physicians who entered into a participating provider agreement prior to the start of PY1. Physician panel 2 consists of physicians who are not members of panel 1 and who entered into a participating provider agreement prior to the start of PY2. The panel 1 baseline consists of beneficiaries assigned during the year prior to PY1 and is the same as the baseline in PY1 (July 1, 2008–June 30, 2009). The panel 2 baseline consists of beneficiaries assigned during the time period that is PY1 (July 1, 2009–June 30, 2010) but were not assigned to the intervention group in PY1. The intervention group for both panels is assigned during PY2 (July 1, 2011–June 30, 2012). **Figure 1** shows the timing of the base years and performance years**.**

Figure 1
Overview of intervention groups and baselines for panels by performance year

<table>
<tr><th>Base Year</th><th>Year 1</th><th>Year 2</th><th>Year 3</th></tr>
<tr><td>Panel 1 baseline:
Patients treated during base year by a member of physician panel 1</td><td>Intervention group:
Patients treated during performance year 1 by a member of physician panel 1</td><td rowspan="2">Intervention group:
Patients treated during performance year 2 by any participating physician in panels 1 or 2</td><td rowspan="3">Intervention group:
Patients treated during performance year 3 by any participating physician in panels 1, 2, or 3</td></tr>
<tr><td></td><td>Panel 2 baseline:
Patients treated during performance year 1 by a member of physician panel 2 and not included in performance year 1 intervention group</td></tr>
<tr><td></td><td></td><td>Panel 3 baseline:
Patients treated during performance year 2 by a member of physician panel 3 and not included in performance year 2 intervention group</td></tr>
</table>

SOURCE: IHIE Demonstration Protocols Figure 2.2.3.1

1.2.1 Intervention Group

The IG population consists of Indiana residents who meet general eligibility criteria (defined in Section 2 of the Protocol) with at least one qualifying evaluation and management (E&M) visit with a participating physician, regardless of the tax ID number (TIN) or place of service ZIP code on that claim line item. The IG beneficiaries are identified using final action claims with dates of service falling within the start and end dates of the demonstration year and a paid-date within 6 months of the end of the demonstration year. There were 165,528 beneficiaries assigned to the IG in PY2 (see Table 2).

There are four steps involved in assigning beneficiaries to the PY2 IG. They involve, in turn, identifying participating practices, identifying participating physicians, assigning physicians to a physician panel, and identifying IG beneficiaries. The four steps are:

1. Use the list of TINs, sent by IHIE to CMS, to identify participating practices.

2. Identify participating physicians defined as any provider who, during PY2, provided a qualifying E&M visit to an eligible Medicare beneficiary that was billed through a participating practice within the 9-county Indianapolis area (as specified in the Protocol).

3. Assign physicians to panel 1 or panel 2 by comparing the list of participating physicians from step 2 to the list of participating physicians from PY1. All physicians included in both PY1 and PY2 are assigned to panel 1 and physicians included in PY2 only are assigned to panel 2.

4. Identify PY2 IG beneficiaries as beneficiaries who have at least one qualifying E&M visit with a participating physician and who meet the general eligibility criteria for the demonstration IG. Beneficiaries who had a qualifying visit with a panel 1 physician only are assigned as panel 1 beneficiaries. Beneficiaries who had a qualifying visit with a physician from each panel are assigned as panel 1 beneficiaries. Beneficiaries who had a qualifying visit with a panel 2 physician only are assigned as panel 2 beneficiaries.

The base year (BY) IG consists of beneficiaries who receive a qualifying E&M visit during the BY from a physician who is a participating PY2 physician, and who meet general BY eligibility criteria for the demonstration. The beneficiaries in the BY for panel 1 (July 1, 2008–June 30, 2009) were not changed from PY1 to PY2. For panel 2, the same list of participating providers was used to assign beneficiaries to IHIE in PY2 and the panel's corresponding BY (July 1, 2009 to June 30, 2010). Beneficiaries were excluded from the panel 2 BY if they were included in the IG in PY1. In PY2 there were 118,071 beneficiaries assigned to the BY for the IG panel 1 and 43,207 beneficiaries assigned to the BY for the IG panel 2 (see Table 2).

1.2.2 Comparison Group

The CG population consists of residents residing in a comparison county in the metropolitan areas (depicted in Figure 1) of Milwaukee, WI, Columbus, OH, and Louisville, KY, who meet the general eligibility criteria (defined in Section 2 of the Protocol) with at least one

qualifying E&M visit. The metropolitan areas were selected because of their similarity to the Indianapolis area with regard to the sociodemographic characteristics of their Medicare populations. The CG beneficiaries are identified using final action claims with dates of service falling within the start and end dates of the demonstration year and a paid-date within 6 months of the end of the demonstration year.

There are two steps involved in assigning beneficiaries to the CG:

1. Identify beneficiaries residing in the comparison counties who received at least one qualifying E&M visit during the demonstration year.

2. Among beneficiaries identified in step 1, retain those who meet all other eligibility criteria for the demonstration CG during the demonstration year. Note that if a beneficiary resides in a comparison group county, but meets eligibility requirements for the intervention group, assignment is made to the intervention group.

RTI defined three CG sets of beneficiaries. One set of beneficiaries was assigned during PY2 that is common to both panels and includes 345,502 beneficiaries (see Table 2). The second set of beneficiaries was for the BY for panel 1 which did not change from PY1 to PY2 and consisted of 355,352 beneficiaries. The last set of beneficiaries was for the BY for panel 2, which is the same as the CG for PY1 and consisted of 341,637 beneficiaries.

1.3 Characteristics of the Intervention and Comparison Groups

The IG is a nine-county area surrounding Indianapolis, IN, and the CG includes the three metropolitan areas of Columbus, OH, Milwaukee, WI, and Louisville, KY. The IG and CG counties are depicted in **Figure 2**.

Table 1 shows the distribution of providers assigned to IHIE in PY2. There was a 28.5% increase in the number of providers used for RTI assignment from PY1 to PY2 (1,100 to 1,413). It is possible that the 12 TINs added in PY2 employed more providers than the 12 TINs lost after PY1 or that existing practices hired more physicians. Table 1 also compares the specialties of the panel 1 and panel 2 physicians in PY2. Primary care physicians were defined as providers with specialties of family medicine, internal medicine, general practice, physician assistant, nurse practitioner, or clinical nurse specialist. Specialist providers were defined for these purposes as any participating provider with a non-primary care specialty. In panel 1, 714 providers, nearly 75%, had primary care specialties, while in panel 2, 225 providers, slightly more than 50%, had primary care specialties.

Figure 2
Map of the intervention group and comparison group counties

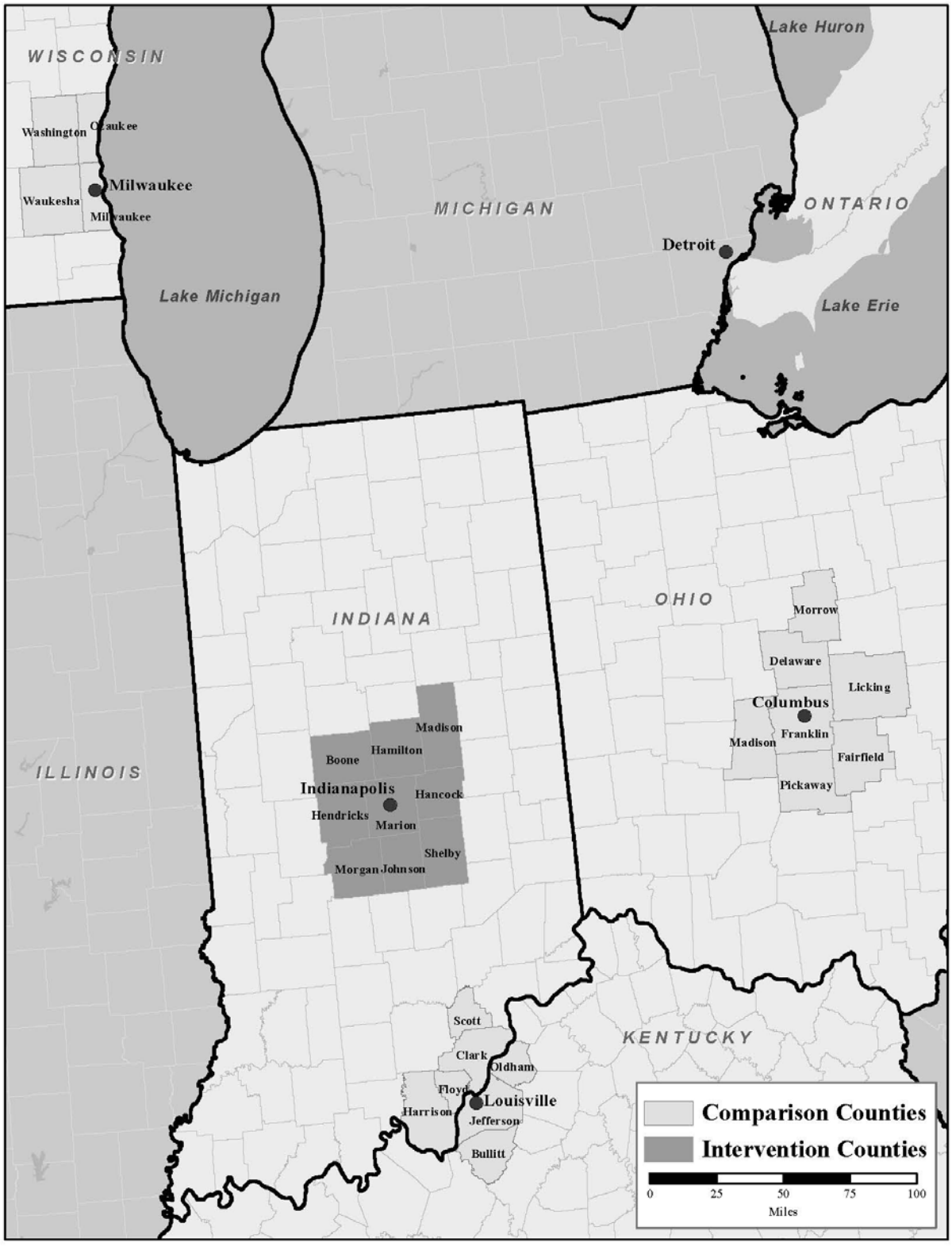


Table 1
Physician specialties in performance year two compared across panels

Panel	Practices	Participating physicians[1]	Number primary care[2]	Number non-primary care[3]	Percent primary care[4]	Percent non-primary care[4]
Panel 1	113	979	714	254	73.8%	26.2%
Panel 2	113	434	225	203	52.6%	47.4%

NOTES:

[1] The total number of participating physicians in each panel will not equal the sum of the physicians with primary care specialties and the physicians with non-primary care specialties. Primary specialty information was not available for some providers in the National Plan & Provider Enumeration System (NPPES).

[2] Primary care specialties were defined as family medicine (207Q00000X, 207QA0505X, 207QG0300X), internal medicine (207R00000X, 207RG0300X), general practice (208D00000X), physician assistant (363A00000X, 363AM0700X), nurse practitioner (363L00000X, 363LA2100X, 363LA2200X, 363LF0000X, 363LG0600X, 363LP2300X), or clinical nurse specialist (364S00000X, 364SA2100X, 364SA2200X, 364SC2300X, 364SF0001X, 364SG0600X)

[3] Non-primary care specialties are specialties other than the specified primary care specialties. Non-primary care includes specialist physicians.

[4] Percent of physicians where specialty was identified. For panel 1, this was 968 providers; for panel 2, this was 428 providers.

SOURCE: RTI analysis of July 2010 through June 2011 100% Medicare Claims Files and Enrollment Datasets; National Plan & Provider Enumeration System (NPPES), May 2012.

Table 2 provides information regarding the number of beneficiaries assigned to the PY2 IG and CG and the PY1 IG. The number of beneficiaries in the PY1 IG is similar to the number of beneficiaries in the PY2 IG panel 1 and the BY IG panel 1. Of the 113 practices participating in PY2, 101 were participating in PY1, which may account for some of the similarity in size of these groups. The PY2 IG panel 2 is slightly more than one-third the size of the PY2 IG panel 1 (the same is true for the base year as well).

There were 12 new practices that joined IHIE in PY2. Any beneficiaries of physicians in these new practices that were not participating physicians in PY1 or any beneficiaries of new physicians in participating PY1 practices are included in physician panel 2.[2] The PY2 IG combined panels is the sum of the beneficiaries in panels 1 and 2. From PY1 to PY2 the increase in the number of assigned beneficiaries was 40.2%. The CG is roughly 3 times the size of the intervention group in the BY and PY2 as the CG is comprised of three metropolitan areas.

[2] Unless the beneficiary had a qualifying E&M visit with a panel 1 physician which would assign that beneficiary to panel 1.

Table 2
Beneficiary assignments and exclusions compared across performance years and panels

Assignments and exclusions	PY1 Intervention Group	PY2 Intervention Group Panel 1	PY2 Intervention Group Panel 2	PY2 Intervention Group (Combined Panels)[1]	BY Intervention Group Panel 1	BY Intervention Group Panel 2	PY2 Comparison Group	BY Comparison Group Panel 1	BY Comparison Group Panel 2
Assigned beneficiaries before exclusions	135,925	132,074	46,642	178,716	131,090	66,325	382,256	394,603	395,331
Total beneficiaries excluded from assignment[2]	13,424	10,160	3,028	13,188	13,019	23,118	36,754	39,251	53,694
At least one month of Part A-only or Part B-only coverage	1,638	1,406	401	1,807	1,623	562	7,733	7,702	8,225
At least one month of Medicare Advantage enrollment	7,045	4,344	1,177	5,521	6,594	2,095	16,372	19,304	34,432
Did not reside in state of Indiana at end of calendar year in which performance year ends	882	967	318	1,285	1,074	527	—	—	—
Had coverage under employer-sponsored group health plan	4,931	4,334	1,440	5,774	4,663	2,060	14,407	14,978	14,984
No enrollment file record	86	74	18	92	92	28	—	—	—
Assigned to intervention group[3]	—	—	—	—	—	18,267	1,983	215	200
Total assigned beneficiaries	122,501	121,914	43,614	165,528	118,071	43,207	345,502	355,352	341,637

PY1 = performance year 1; PY2 = performance year 2; BY = base year; IG =intervention group; CG = comparison group.

NOTES:

Performance Year 1: July 1, 2009–June 30, 2010

Performance Year 2: July 1, 2010–June 30, 2011

Base Year Panel 1: July 1, 2008–June 30, 2009

Base Year Panel 2: July 1, 2009–June 30, 2010

[1] The combined panel measures are estimated as the sum of the panel 1 and panel 2 assignments and exclusions.

[2] Exclusions are not mutually exclusive. A beneficiary may be excluded for more than one reason.

[3] This exclusion for the base year intervention group for panel 2 is applied because the time period for selection of that group overlaps with the time period for the performance year one intervention group. A similar exclusion is always applied to the comparison group so that no member of the comparison group is part of the intervention group.

SOURCE: RTI analysis of July 2008 through June 2011 100% Medicare Claims Files and Enrollment Datasets.

Table 2 also shows the number of beneficiaries that were excluded based on the criteria in the protocol. The proportion of beneficiaries excluded in each group/year is quite similar across each group/year. There were slightly more than 18,000 beneficiaries excluded from the BY intervention group for panel 2 due to being assigned to the IG in PY1.

Table 3 presents a summary of several utilization, expenditure, and demographic measures for the IG and CG groups in PY2 as well as the PY1 IG. The mean proportion of allowed charges for qualified office or other outpatient E&M visits provided by IHIE participating practices is presented only for the IG and is a proxy for how much of the assigned beneficiaries care is provided by IHIE. The proportion is similar for the PY1 IG, the BY IG panel 1, the PY2 IG panel 1, and the PY2 IG combined panels. The proportion is lower for panel 2 but similar in PY2 and the BY. The lower proportion for panel 2 could be driven in part by the high percentage of beneficiaries in panel 2 that live outside of the nine-county area (see Table 4) as these beneficiaries may receive the majority of their care from providers closer to their residence.

The mean count of qualified office or other outpatient E&M visits is shown for both the IG and CG for each panel. The mean visit count is similar across the groups ranging from just under 8 visits to slightly more than 9 visits per beneficiary per year. Likewise the mean count of hospital discharges is similar across all of the groups and ranges from 0.41 to 0.48.

Table 3 also shows two mean annualized Medicare expenditures measures. One is shown per beneficiary per year and the other per beneficiary per month (PBPM). The expenditure measures are capped at $100,000 annually for beneficiaries without ESRD and at $200,000 annually for beneficiaries with ESRD. The expenditures are not adjusted for demographic differences. The expenditures for the PY2 IG panel 1 were slightly lower than the expenditures for panel 2. The IG expenditures were higher than the CG expenditures for both panels.

Lastly, Table 3 provides information regarding the demographic characteristics of the beneficiaries in the IG and CG. Medicare eligibility was similar across all of the groups; the majority of beneficiaries were aged. The IG PY2 panel 2 and BY IG panel 2 included a larger proportion of male beneficiaries than the other groups. The IG PY2 panel 2 and BY IG panel 2 also included a higher proportion of older beneficiaries (aged 75 or older) than the other groups.

Table 4 shows the distribution of assigned beneficiary residence for the IG. Among the demonstration counties, the largest proportion of beneficiaries came from Marion County for all panels and performance years. The largest difference among the groups is for panel 2; in both the BY and PY2 the proportion of beneficiaries residing in counties outside of the demonstration area was more than double that for panel 1 and the PY1 IG. This difference may be driven in part by the location of the practices in which panel 2 providers work. If panel 2 providers are located on the outskirts of the intervention area, we would expect that a greater proportion of beneficiaries would reside in counties outside the demonstration area. The difference may also be driven by the smaller proportion of primary care physicians seen in panel 2 relative to panel 1, as seen in Table 1.

Table 3

Utilization, expenditures, and demographics of intervention and comparison group beneficiaries across performance years and panels

Measure	PY1 Intervention Group	PY2 Intervention Group Panel 1	PY2 Intervention Group Panel 2	PY2 Intervention Group (Combined Panels)[1]	BY Intervention Group Panel 1	BY Intervention Group Panel 2	PY2 Comparison Group	BY Comparison Group Panel 1	BY Comparison Group Panel 2
Mean proportion of allowed charges for qualified office or other outpatient E&M visits provided by IHIE participating practices[2]	0.49	0.52	0.35	0.48	0.50	0.31	—	—	—
Mean count of qualified office or other outpatient E&M visits[3]	8.45	8.81	9.21	8.91	8.15	9.25	8.51	7.52	7.74
Mean count of hospital discharges[4]	0.41	0.42	0.46	0.43	0.41	0.48	0.41	0.41	0.41
Mean annualized Medicare expenditures PBPY[5,6]	$10,011	$10,587	$10,975	$10,688	$9,527	$10,994	$10,138	$9,473	$9,862
Mean annualized Medicare expenditures PBPM[5,6]	$834	$882	$915	$891	$794	$916	$845	$789	$822
Medicare eligibility (%)									
Aged[7]	82.0	81.5	85.9	82.6	83.0	87.0	79.1	81.4	79.9
ESRD[8]	1.1	1.2	1.0	1.1	1.0	1.1	1.4	1.3	1.3
Disabled	17.0	17.4	13.1	16.3	16.0	11.9	19.6	17.3	18.8
Gender (%)									
Male	39.5	39.7	46.7	41.5	39.3	44.2	41.1	40.7	40.9
Female	60.5	60.3	53.3	58.5	60.7	55.8	58.9	59.3	59.1
Age (%)									
Age < 65	17.4	17.9	13.5	16.8	16.4	12.3	20.3	17.9	19.5
Age 65–74	42.3	42.3	41.5	42.1	42.6	40.0	38.2	39.3	38.2
Age 75–84	29.4	28.9	32.4	29.8	30.6	34.7	28.9	30.7	29.8
Age 85+	10.8	10.9	12.6	11.3	10.5	13.0	12.6	12.0	12.5

PY1 = performance year 1; PY2 = performance year 2; BY = base year; IG =intervention group; CG = comparison group.; E&M =evaluation and management; IHIE = Indiana Health Information Exchange; PBPY = per beneficiary per year; PBPM = per beneficiary per month; ESRD = end-stage renal disease.

NOTES:

Performance Year 1: July 1, 2009–June 30, 2010

Performance Year 2: July 1, 2010–June 30, 2011

Base Year Panel 1: July 1, 2008–June 30, 2009

Base Year Panel 2: July 1, 2009–June 30, 2010

[1] The combined panel measures are estimated by calculating the weighted sum of the panel 1 and panel 2 measures. The beneficiary month weight for panel 1 in performance year 2 = 0.74; the beneficiary month weight for panel 2 in performance year 2 = 0.26. The same beneficiary month weights are used to calculate the combined standardized target and the combined actual expenditures in the savings calculation as shown in Table 5 of the report.

[2] Proportion of qualified office and other outpatient E&M allowed charges provided to the beneficiary that were provided by any IHIE participating practice. Qualified E&M visits are listed in §9.1 of the Protocol. This measure applies only to IHIE beneficiaries and not comparison group beneficiaries.

[3] Qualified E&M visits are listed in §9.1 of the Protocol and are counted regardless of performing physician.

[4] Refers to hospital discharges at any provider.

[5] Annualized Medicare expenditures per beneficiary are calculated by dividing actual expenditures by the fraction of the year the beneficiary is alive and are capped at $100,000 for non-ESRD beneficiaries and $200,000 for ESRD beneficiaries. Expenditures have been rounded to the nearest dollar for presentation purposes. Performance payment calculations will use additional precision, i.e., expenditures will not be rounded to the nearest dollar.

[6] Weighted by the eligibility fraction.

[7] Includes beneficiaries age 65 and older without ESRD.

[8] Includes beneficiaries with ESRD regardless of age.

SOURCE: RTI analysis of July 2008 through June 2011 100% Medicare Claims Files and Enrollment Datasets.

Table 4
Distribution of Indiana Health Information Exchange assigned beneficiary residence by demonstration area counties, across performance years and panels

County name	County number[1]	PY1 Intervention Group	PY2 Intervention Group Panel 1	PY2 Intervention Group Panel 2	PY2 Intervention Group (Combined Panels)[2]	BY Intervention Group Panel 1	BY Intervention Group Panel 2
Boone	15050	1.5	1.5	2.5	1.8	1.5	2.7
Hamilton	15280	7.1	7.1	8.2	7.4	7.0	8.3
Hancock	15290	2.9	2.8	2.1	2.6	3.0	2.0
Hendricks	15310	4.3	4.4	3.8	4.2	4.2	3.9
Johnson	15400	5.6	5.8	1.6	4.7	5.6	1.6
Madison	15470	11.3	11.3	2.7	9.1	11.4	2.9
Marion	15480	37.3	36.7	21.4	32.8	38.1	21.6
Morgan	15540	2.8	3.1	1.2	2.6	2.8	1.3
Shelby	15720	1.4	1.5	0.5	1.3	1.4	0.5
Other Indiana counties	—	25.8	25.6	56.0	33.5	25.1	55.2

PY1 = performance year 1; PY2 = performance year 2; BY = base year; IG =intervention group.
NOTES:
Performance Year 1: July 1, 2009–June 30, 2010
Performance Year 2: July 1, 2010–June 30, 2011
Base Year Panel 1: July 1, 2008–June 30, 2009
Base Year Panel 2: July 1, 2009–June 30, 2010

[1] State and county codes used by the Social Security Administration (SSA).

[2] The combined panel measures are estimated by calculating the weighted sum of the panel 1 and panel 2 measures. The beneficiary month weight for panel 1 in performance year 2 = 0.74; the beneficiary month weight for panel 2 in performance year 2 = 0.26. The same beneficiary month weights are used to calculate the combined standardized target and the combined actual expenditures in the savings calculation as shown in Table 5 of the report.

SOURCE: RTI analysis of July 2008 through June 2011 100% Medicare Claims Files and Enrollment Datasets.

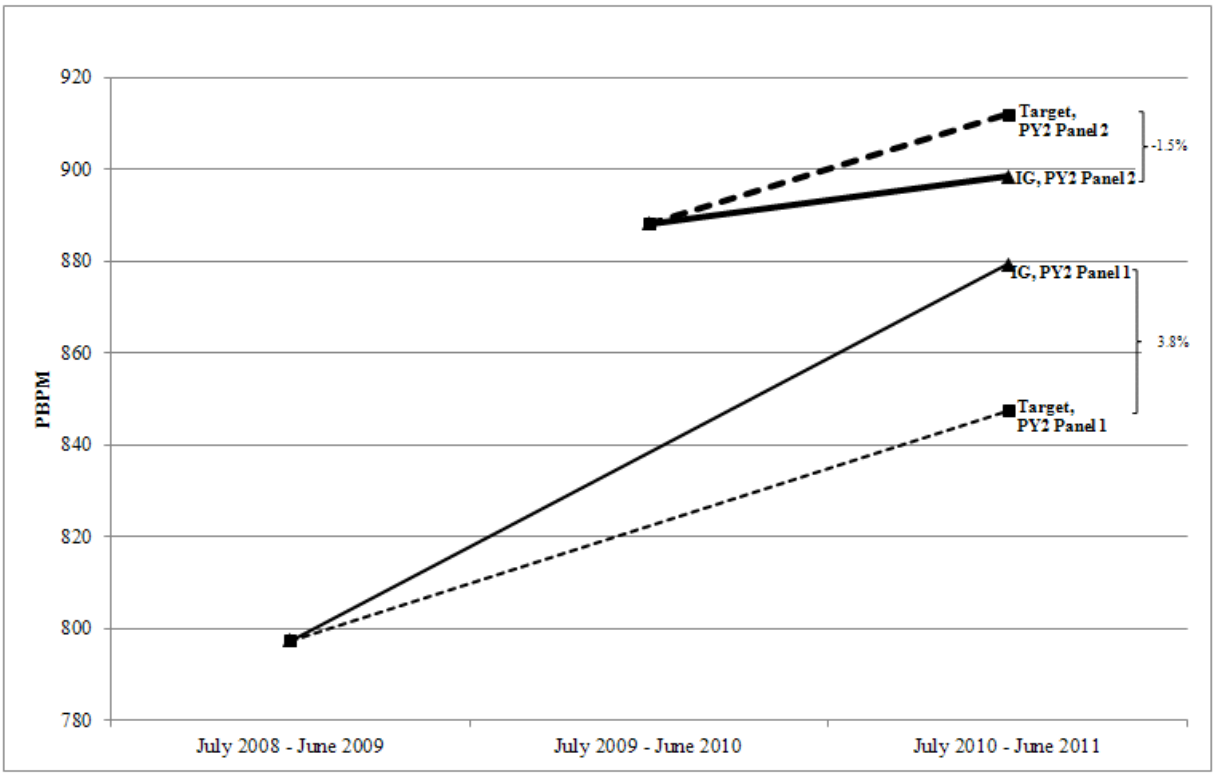
SECTION 2
PERFORMANCE YEAR TWO RESULTS

This section presents the PY2 financial reconciliation results. The final section of the report discusses the methodology for the performance payment calculation.

The PY2 financial reconciliation results are determined by blending the expenditures effects for the two separate physician panels. Overall trends in PBPM expenditures, standardized for baseline differences, are shown in **Figure 3** for each panel's IG and target.

Figure 3 shows that standardized expenditures for panel 1 were higher for the IG ($879.25 PBPM) than the comparison-adjusted target ($847.38 PBPM) by 3.8%. The standardized expenditures for panel 2 were lower than the comparison-adjusted target ($898.32 versus $912.02) by -1.5%.[3]

Figure 3
Trends in per beneficiary per month expenditures by panel



PY2 = performance year 2; IG =intervention group; PBPM = per beneficiary per month.

NOTES:

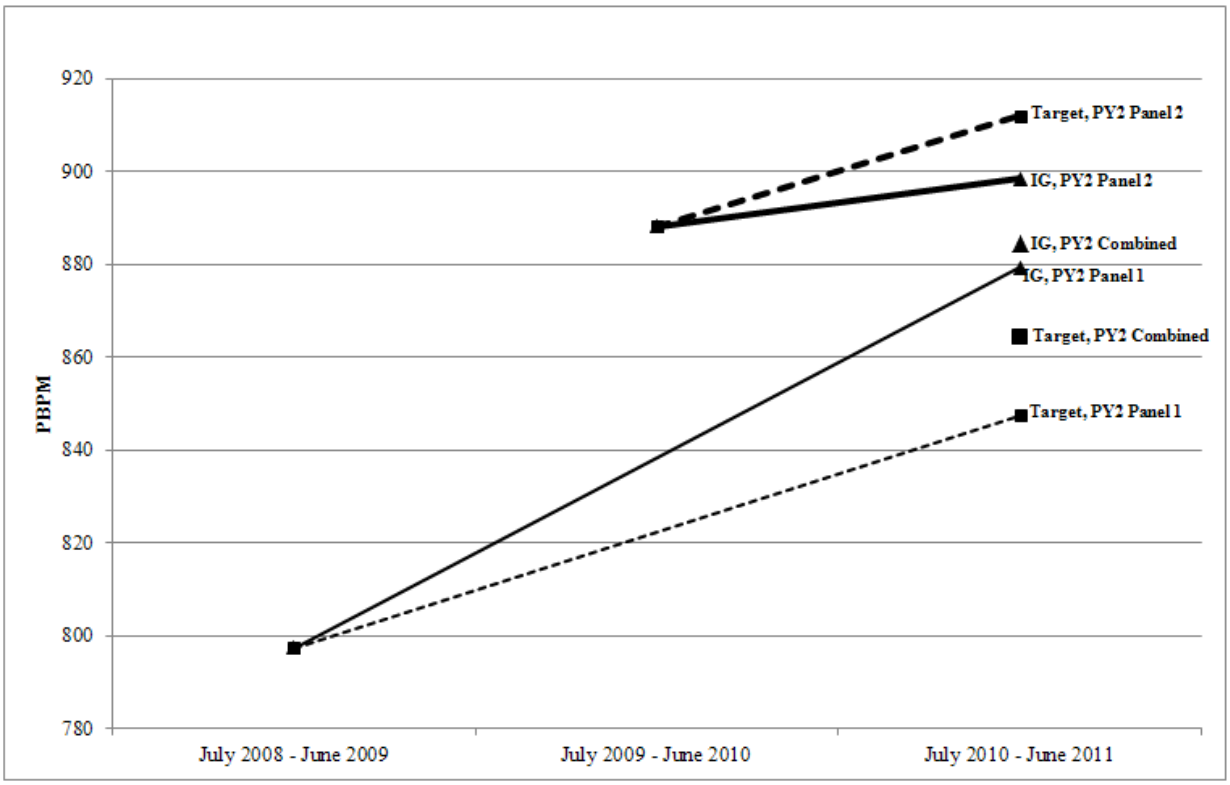
1 Panel 1's comparison-adjusted target was $847.38 PBPM. Panel 1's standardized actual expenditures were $879.25 PBPM—higher than the target by 3.8%. Panel 2's comparison-adjusted target was $912.02 PBPM. Panel 2's standardized actual expenditures were $898.32 PBPM—lower than the target by 1.5%.

SOURCE: RTI analysis of July 2008 through June 2011 100% Medicare Claims Files and Enrollment Datasets.

[3] Detailed calculations are shown in Table 5.

The combined target and IG expenditures for PY2 are shown in **Figure 4** in addition to the panel specific trends shown in Figure 3. After weighting by the number of months that beneficiaries contributed to each panel, the combined result for PY2 was 2.3% excess spending ($884.28 versus a target of $864.44). The weights applied to the panels were 0.74 for panel 1 and 0.26 for panel 2. Because there were no savings, IHIE did not receive any performance payments for PY2. IHIE would have needed to under spend the standardized target PBPM amount by 1.62% (the MSR in Table 5) to qualify for payments during this performance year.

Figure 4
Trends in per beneficiary per month expenditures by panel and combined



PY2 = performance year 2; IG =intervention group; PBPM = per beneficiary per month.
NOTES:

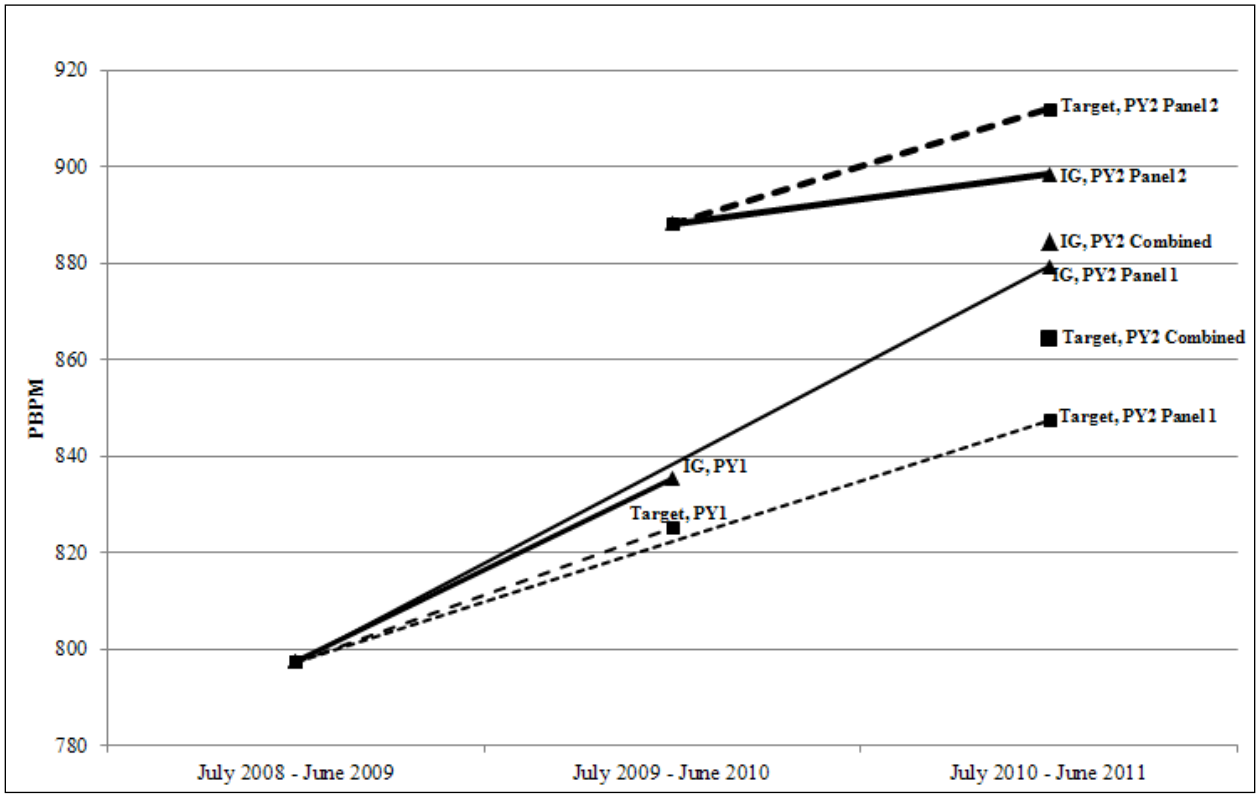
[1] Panel 1's comparison-adjusted target was $847.38 PBPM. Panel 1's standardized actual expenditures were $879.25 PBPM—higher than the target by 3.8%. Panel 2's comparison-adjusted target was $912.02 PBPM. Panel 2's standardized actual expenditures were $898.32 PBPM—lower than the target by 1.5%.

[2] The combined standardized target ($864.44) is the weighted sum of the panel 1 and panel 2 target. The combined PBPM standardized actual expenditures ($884.28) are the weighted sum of the panel 1 and panel 2 standardized expenditures. The beneficiary month weight for panel 1 in performance year 2 = 0.74; the beneficiary month weight for panel 2 in performance year 2 = 0.26.

SOURCE: RTI analysis of July 2008 through June 2011 100% Medicare Claims Files and Enrollment Datasets.

Figure 5 adds the overall trends in PBPM expenditures, standardized for baseline differences for PY1 to Figure 4. Standardized expenditures for the PY1 IG (IG, $835.46 PBPM) were higher than the comparison-adjusted target ($825.23 PBPM) by 1.2%. IHIE did not qualify for payments during the first performance year. **Table 5** presents the savings calculation.

Figure 5
Trends in per beneficiary per month expenditures by panel, and performance year



PY1 = performance year 1; PY2 = performance year 2; IG =intervention group; PBPM = per beneficiary per month.

NOTES:

[1] Panel 1's comparison-adjusted target was $847.38 PBPM. Panel 1's standardized actual expenditures were $879.25 PBPM—higher than the target by 3.8%. Panel 2's comparison-adjusted target was $912.02 PBPM. Panel 2's standardized actual expenditures were $898.32 PBPM—lower than the target by 1.5%.

[2] The combined standardized target ($864.44) is the weighted sum of the panel 1 and panel 2 target. The combined PBPM standardized actual expenditures ($884.28) are the weighted sum of the panel 1 and panel 2 standardized expenditures. The beneficiary month weight for panel 1 in performance year 2 = 0.74; the beneficiary month weight for panel 2 in performance year 2 = 0.26.

[3] PY1's comparison-adjusted target was $825.23 PBPM. PY1's standardized actual expenditures were $835.46 PBPM.

SOURCE: RTI analysis of July 2008 through June 2011 100% Medicare Claims Files and Enrollment Datasets.

Table 5
Health Care Quality demonstration performance payment results: Indiana Health Information Exchange, performance year two

Component	Baseline, Panel 1	PY2, Panel 1	Baseline, Panel 2	PY2, Panel 2	Combined Panels[1]
Intervention Group (IG) Beneficiaries					
A - PBPM Expenditures	$793.89	$882.29	$916.16	$914.58	—
B - Demographic Factor	0.99561	1.00345	1.03150	1.01810	—
C - Standardized PBPM Expenditures	$797.39	$879.25	$888.18	$898.32	—
D - Number of Beneficiary Months	1,383,022	1,427,123	507,844	511,526	1,938,649
Comparison Group (CG) Beneficiaries					
E - PBPM Expenditures	$789.40	$844.84	$821.82	$844.84	—
F - Demographic Factor	1.02103	1.02827	1.02710	1.02827	—
G - Standardized PBPM Expenditures	$773.15	$821.62	$800.14	$821.62	—
H - Number of Beneficiary Months	4,138,824	4,015,189	3,973,556	4,015,189	4,015,189
Performance Payment Results					
I - Standardized Expenditure Ratio	1.031	—	1.110	—	—
J - Standardized Target	—	$847.38	—	$912.02	—
K - PBPM Standardized Actual Expenditures	—	$879.25	—	$898.32	—
L - Beneficiary Month Weight	—	0.74	—	0.26	—
M - Combined Standardized Target	—	—	—	—	$864.44
N - Combined Actual Expenditures	—	—	—	—	$884.28
O - Target Minus Actual (Gross Savings)	—	—	—	—	−$19.84
P - Minimum Savings Requirement Percentage	—	—	—	—	1.62%
Q - Minimum Savings Requirement	—	—	—	—	$13.99
R - Net Savings	—	—	—	—	−$33.83
S - Net Savings Cap	—	—	—	—	—
T - Gross Savings Cap	—	—	—	—	—
U - Target Cap	—	—	—	—	$43.22
V - Shared Savings	—	—	—	—	$0.00
W - Performance Payment Not Contingent on Quality Performance	—	—	—	—	$0.00
X - Maximum Performance Payment for Quality	—	—	—	—	$0.00
Y - Percentage of Quality Targets Met	—	—	—	—	40%
Z - Performance Payment for Quality	—	—	—	—	$0.00
AA - Earned Performance Payment (PBPM)	—	—	—	—	$0.00
AB - Total Earned Performance Payment	—	—	—	—	$0.00
AC - Medicare Savings Before Award	—	—	—	—	—
AD - Medicare Savings After Award	—	—	—	—	—

PY2 = performance year 2; IG =intervention group; CG = comparison group; PBPM = per beneficiary per month.

* Statistics presented in this table are rounded for presentation purposes. Performance payment calculations use additional precision.
* All dollar values with the exception of the Total Earned Performance Payment [AB] and Medicare Savings [AC] and [AD] are per beneficiary per month (PBPM) values.

Computer Output: r41savn

NOTES:

[1] Baseline for panel 1 is the period July 1, 2008 through June 30, 2009.
[2] PY2 for panel 1 and panel 2 is the period July 1, 2010 through June 30, 2011.
[3] Baseline for panel 2 is the period July 1, 2009 through June 30, 2010.
[4] Combined panel values for the number of beneficiary months are for PY2.

Intervention Group (IG) Beneficiaries

A - RTI calculations with BY, PY2 Medicare claims and enrollment data for beneficiaries assigned to the intervention group in panel 1 and panel 2 and their baseline.
B - Demographic factor calculated by factors provided by Office of the Chief Actuary (OACT).
C - Expenditures divided by Demographic Factor. [A] / [B].
D - Number of Beneficiaries Assigned to the Intervention Group in panel 1 and panel 2 in Baseline period and Performance period.

Comparison Group (CG) Beneficiaries

E - RTI calculations with BY, PY2 Medicare claims and enrollment data for beneficiaries assigned to the comparison group in panel 1 and panel 2 and their baseline.
F - Demographic factor calculated by factors provided by OACT.
G - Expenditures divided by Demographic Factor. [E] / [F].
H - Number of Beneficiaries Assigned to the Comparison Group in panel 1 and panel 2 in Baseline period and Performance period.

Performance Payment Results

I - The ratio of Standardized Intervention Group Expenditures in Baseline Period over Standardized Comparison Group Expenditures in Baseline Period [C for Baseline] / [G for Baseline].
J - The product of the Standardized Expenditure Ratio and Standardized Expenditures of the Comparison Group in the performance period [I] × [G in Performance Period]
K - Expenditures divided by Demographic Factor. [A] / [B].
L - For panel 1: the number of beneficiary months in panel 1 for PY2 divided by the sum of the number of beneficiary months in panel 1 and panel 2 for PY2. For panel 2: the number of beneficiary months in panel 2 for PY2 divided by the sum of the number of beneficiary months in panel 1 and panel 2 for PY2: [D PY2 panel 1]/{[D PY2 panel 1] + [D PY2 panel 2]}; [D PY2 panel 2] / {[D PY2 panel 1] + [D PY2 panel 2]}.
M - The sum of [J for panel 1] ×[L for panel 1] and [J for panel 2] ×y [L for panel 2].
N - The sum of [K for panel 1] × [L for panel 1] and [K for panel 2] × [L for panel 2].
O - Target - Actual Expenditures, = Gross Savings [M] - [N].
P - Minimum savings requirement percentage is based on the 95% confidence interval for the difference between actual expenditures for the intervention group and the expenditure target.
Q - The product of the Minimum Savings Requirement Percentage and Target Expenditures [M] × [P].
R - The difference between gross savings and the minimum savings requirement [O] - [Q].
S - Equal to 80% of net savings. 0.80 × [R].
T - Equal to 50% of gross savings. 0.50 × [O].
U - Equal to 5% of Target expenditures 0.05× [M].
V - If Net Savings [R] are positive the lesser of the gross savings cap, net savings cap, and target cap (Lesser of [S], [T], and [U]). If Net Savings [R] are negative, 0.
W - Equal to 40% of shared savings in PY2 [V] × 0.40.
X - Equal to 60% of shared savings in PY2 [V] × 0.60.
Y - Calculated by IHIE based on quality performance.
Z - Product of the percentage of quality targets met and the maximum performance payment for quality [Y] × [X].
AA - Sum of performance payment for efficiency and performance payment for quality [W] + [Z].
AB - Equal to total earned performance payment (PBPM) multiplied by the number of beneficiary-months incurred by beneficiaries assigned to IG during the performance period. [AA]x[D for Combined panels].
AC - Equal to PBPM gross savings multiplied by the number of beneficiary-months incurred by beneficiaries assigned to IG during the performance period. [O] × D for Combined panels].
AD - Equal to Medicare savings before award minus the award amount [AC] - AB].

SECTION 3
THE SAVINGS CALCULATION METHODOLOGY

In this section we describe the methods used to select beneficiaries and to perform the savings calculation. We used a list of practices provided by IHIE and Medicare claims data obtained through the DESY system to perform the savings calculation and did not encounter any challenges. In each performance period the potential award payment is based on the savings to Medicare resulting from the intervention. To determine the savings to Medicare an expenditure target is calculated for the IG using the expenditures of the IG and CG as well as adjustments for differences in demographics. To generate savings IHIE must under-spend the target by a minimum amount (the minimum savings rate [MSR]) to ensure that the savings are not a result of noise in the data. This section describes how expenditures are calculated and adjusted for demographic differences and the calculation of the MSR, the expenditure target and savings.

3.1 Calculating Medicare Expenditures

To calculate total Medicare Part A/B expenditures for each beneficiary, the expenditures (Medicare payments) are summed from all of the beneficiary's claims at any Part A/B provider (hospital outlier payments and Part D expenditures are excluded). The expenditures are then annualized by dividing them by the fraction of the year (fraction of 12 months) each beneficiary was enrolled in Medicare Parts A and B. All further analyses weight the annualized expenditures by this same eligibility fraction. Annualization and weighting ensures that payments are correctly adjusted for months of beneficiary eligibility, including new Medicare enrollees and decedents. Weighted mean annualized expenditures divided by 12 yield the PBPM amount.

To prevent extremely costly beneficiaries from significantly affecting average expenditures, the annualized expenditures are capped. Annualized expenditures for covered services incurred by beneficiaries without end-stage renal disease (ESRD) are capped at $100,000 and expenditures for covered services that are incurred by beneficiaries with ESRD are capped at an annualized value of $200,000.

IG and CG expenditures for both the BY and the PY are calculated separately for each physician panel by summing the expenditures for each beneficiary in the panel. The PY expenditures are the weighted average of the physician panel expenditures. The weighted average is calculated by multiplying each physician panel's average expenditures by the number of beneficiary months in that physician panel, summing these multiples across physician panels and dividing by the total number of beneficiary months. In PY2 the panel weights were .74 for panel 1 and .26 for panel 2.

3.2 Adjusting Medicare Expenditures for Differences in Demographics

A demographic factor is used to adjust expenditures for the demographic composition of the IG and the CG in both the BY and PY:

Demographic Adjusted PBPM Expenditures = (PBPM Expenditures) / (Demographic Factor).

The demographic factors are established each year based on age, sex, and ESRD Medicare entitlement status. To calculate the demographic factors, RTI used 2007 Medicare claims for a 5% national sample of beneficiaries to estimate an ordinary least squares regression with expenditures as the dependent variable and independent variables representing age/gender categories. Separate regressions were run for ESRD and non-ESRD beneficiaries and the regression coefficients were restricted to be non-decreasing with increasing age within two subgroups: aged younger than age 65 and aged 65 or older. The coefficients from these regressions were then divided by the pooled (ESRD and non-ESRD) total sample mean expenditures to generate age/gender demographic factors.

The demographic factors are shown in Table A-1 in the appendix. They are estimates of the ratio of a beneficiary's expected expenditures with the indicated enrollment characteristics relative to the mean expenditures for the entire Medicare fee-for-service (FFS) population. For example, a demographic factor of 1.0 indicates a beneficiary with expected costliness equal to the national FFS average. A factor of 1.10 indicates a beneficiary with expected costliness 10 percent above the FFS average, and a factor of 0.90 indicates a beneficiary with expected costliness 10 percent below the FFS average. The demographic factors measure changes in expected costliness due to changes in the demographic composition of a group.

To calculate the weighted demographic factor for a group, RTI multiplied each age/gender demographic factor by the proportion of group beneficiary months that fell into the age/gender category and summed across categories. This was done separately for the BY and PY2 for the CG and IG and for each panel. The result was a demographic factor for each group (7 in total) that reflects the relative expected cost associated with the demographic composition of the group in that year.

3.3 Minimum Savings Requirement Calculation

The MSR is used in determining shared savings in each PY. The minimum savings rate is based on the 95 percent confidence interval for the difference between actual expenditures for the IG and the expenditure target.

$$\text{Minimum Required Savings Rate} = 1.96 \times \text{CV} \sqrt{2 \times \left(\frac{1}{n_i} + \frac{1}{n_c} \right)}$$

where CV, the coefficient of variation, is the standard deviation of BY expenditures for the pooled IG and CG sample divided by the BY mean expenditures for the pooled sample, n_i is the number of beneficiary-years assigned to the IG in the performance period, and n_c is the number of beneficiary-years assigned to the CG in the performance period. The calculation of the MSR for the second PY is shown below. The minimum required savings rate for PY2 is 1.62% and calculated in **Table 6**.

Table 6
Calculation of performance year two minimum required savings rate

Index	Component	Group	Year	Value
[A]	Person Years IGPY2	IG panels 1 and 2 combined	PY2	161,554
[B]	Person Years CGPY2	CG panels 1 and 2 combined	PY2	334,599
[C]	Standard Deviation of Demographic Adjusted Expenditures	IG and CG panels 1 and 2 combined	BY	$19,609
[D]	Mean of Demographic Adjusted Expenditures	IG and CG panels 1 and 2 combined	BY	$10,176
[E]	Coefficient of Variation (CV)	= [C]/[D]	—	1.93
[F]	Minimum Required Savings Rate	$1.96 \times [E] \sqrt{2 \times \left(\frac{1}{[A]} + \frac{1}{[B]} \right)}$	—	1.62%

NOTES:

[1] Numbers may not add exactly in any given column due to rounding error.

[2] The letters within the square brackets are references to rows within this table.

Computer Output: r41savn

SOURCE: RTI Analysis of July 2008 through June 2011 100% Medicare Claims Files and Enrollment Dataset sets

3.4 Calculating Expenditure Targets

The expenditure target is the amount of standardized expenditures that would occur in the IG if the growth rate was that of the CG. For example, assume that:

- the BY standardized expenditures for the IG were $1,000,
- the BY standardized expenditures for the CG were $1,200, and
- the PY standardized expenditures for the CG were $1,260.

In this scenario, the growth rate of CG expenditures would be 0.05 or 5% ([$1,260/$1,200]-1) and the expenditure target would be $1,050 ($1,000*1.05 or $1,000*[$1,260/$1,200]). This is equivalent to $1,260*($1,000/$1,200). In the savings calculation the ratio of the BY standardized expenditures for the IG divided by the BY standardized expenditures for the CG is referred to as the standardized expenditure ratio.

Each panel has its own expenditure target and the PY2 expenditure target used to determine savings is the weighted average of the physician panel expenditure targets. The weighted average is calculated by multiplying each physician panel's target by the number of

beneficiary months in that physician panel, summing these multiples across physician panels and dividing by the total number of beneficiary months in the PY (the same method used for calculating combined expenditures).

3.5 Calculating Savings and the Award Amount

There are two types of savings measures that are used in the demonstration: gross savings and net savings. Both types of savings are expressed on a PBPM basis. Gross savings are calculated as the difference between the expenditure target and the actual expenditures for covered services incurred by beneficiaries assigned to the IG during the performance period. Any performance award payments would be made from gross savings. Net savings are the difference between gross savings and the minimum savings requirement (the product of the expenditure target and the MSR).

In each performance period where savings exceeding the minimum savings requirement are generated, a percentage of the amount of the available savings calculated will be paid to IHIE not contingent on any other factors and a percentage will be paid contingent on performance for that period. In PY2 the percentage of the award to be paid contingent on performance was 60%.

If gross savings are less than the minimum savings requirement no award will be paid for that performance period. In PY2, IHIE did not generate savings and no award was paid. The PY2 gross savings were -$19.84 PBPM (Table 5, Row O) and the minimum savings requirement was $13.99 PBPM (Table 5, Row Q). The net savings ($0) is shown in Row R of Table 5.