Palbociclib (Ibrance®) Utilization and Costs among 18 Million Insured Americans: Managed Care Pharmacy Opportunities

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Background

- On February 3, 2015 palbociclib (Ibrance®), a kinase inhibitor, was approved for the treatment of postmenopausal women with estrogen positive and human growth factor receptor 2 negative advanced breast cancer in combination with letrozole as initial endocrine based therapy for their metastatic disease.
- Palbociclib was granted breakthrough therapy designation based on the preliminary results of a Phase 2 trial, median follow-up 29.6 months, indicating that palbociclib with letrozole doubled progression free survival compared to letrozole alone.[1]
- Palbociclib has a wholesale acquisition price of $128,037 per year and is dispensed as 21 capsules for a 28 day supply. A cycle is 28 days, for which palbociclib is taken for the first 21 days.
- In a previous analysis, done by Prime Therapeutics, palbociclib was forecasted to have wide scale uptake and a significant impact at 5.2 commercial members utilizing per 100,000 and $0.51 per member per month (PMPM) cost at 12 months post launch, potentially ranking palbociclib in the top 10 cancer drugs by total cost.[2]
- A common side effect to palbociclib is neutropenia. Grade 3 to 4 neutropenia was reported in 45 (54%) of 83 patients in the palbociclib plus letrozole group, 30 (36%) underwent a dose reduction and five (6%) discontinued permanently due to neutropenia. Onset of neutropenia occured between 13 to 117 days with a median time of 15 days. The package insert advises complete blood count (CBC) monitoring prior to each cycle and on day 14 of the first two cycles.[3]
- Due to the limited safety and long term palbociclib data, it is important to understand palbociclib cost trends and utilization, as well as to develop management strategies.

Objective & Purpose

- To evaluate palbociclib utilization patterns and costs immediately following FDA approval in order to optimize utilization management (UM) programs.

Methods

Claims analysis – February 2015 through June 30, 2015

- Prescription claims data from 18.6 million average members per month, 17.5 million commercial and 1.1 million Medicare, were queried for palbociclib claims using the MediSpan Generic Product Identifier (GPI) from February 2015 through June 30, 2015.
- Monthly per member per month (PMPM) costs were calculated by using total paid per month for palbociclib claims for commercial and Medicare members separately.

Member analysis – February 2015 through June 19, 2015

- Prescription claims data from 18.6 million average members per month, 17.5 million commercial and 1.1 million Medicare, were queried for palbociclib and letrozole claims using the MediSpan Generic Product Identifier (GPI) from February 2015 through June 19, 2015.
- All members with a claim for palbociclib (earliest claim = index date) were included in the analysis.
- Continuous enrollment was defined as coverage from 180 days prior to their index date through June 19, 2015.
- Members were followed from their index palbociclib claim through June 19, 2015. The first palbociclib claim in our data was found on February 10, 2015 (approval date February 3, 2015).
- Non-persistence was evaluated only for members continuously enrolled and was defined as an inactive palbociclib cycle on June 19, 2015.
- Letrozole utilization is described as a claim at anytime between the palbociclib index date through June 19, 2015.
- Member age and gender was based on the index claim.
- All pharmacy claims were normalized to 30-day supplies. For example, a 90-day supply constituted three separate claims.
- Total paid was the amount paid by the plan plus the member's share.
- An average total paid PMPM from palbociclib launch to June 19, 2015 was calculated as follows:

Commercial — $7,126,503 total paid/136 days total = $52,400/day x 30 days = $1,572,022 per month/17.5 M members = $0.09 PMPM

Medicare — $2,098,357 total paid/136 days total = $15,429/day x 30 days = $462,870 per month/1.1 M members = $0.42 PMPM

- Claims for members with dose reductions (i.e., multiple palbociclib claims with more than one capsule strength) were analyzed to determine the patterns of dose reduction.
- Dose reduction associated waste was defined as members with overlapping capsule supply. For example, if a member filled a claim for 21 of the 125mg capsules on May 1, 2015 followed by a claim for 21 of the 100mg capsules on May 10, 2015 this would result in 12 unused capsules. However, had the member filled the 100mg capsules on May 22, 2015, they would be classified as having a dose reduction without wasted capsule supply.
- Split fill savings were calculated by multiplying the number of members with dose reduction capsule waste (n = 23) by the number of capsules potentially saved through program implementation. For example, if a 16 day split fill program was initiated, this would prevent five capsules of waste at $476 per capsule, if a member switched capsule strength at day 14. The four month projected savings was then multiplied by three to generate annual projected savings at 12 months.

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Results

Claims analysis – February 10, 2015 through June 30, 2015 (Figure 1)

- The total paid Medicare PMPM increased steadily from $0.07 in February to $0.91 in June at an incremental increase of $0.21 per month. If this trend continues, we can expect to see a PMPM of $2.52 in the 12th month post launch.
- The total commercial PMPM increased steadily from $0.02 in February to $0.17 in June at an incremental increase of $0.04 per month. If this trend continues, we can expect to see a PMPM of $0.46 in the 12th month post launch.

Member analysis – February 10, 2015 through June 19, 2015 (Figure 2)

- In the first 136 days of palbociclib availability, 382 members had a palbociclib claim (21 per million) at a cost of $9,224,861 or $0.11 average PMPM
  - Medicare had 89 members (82 per million) at a cost of $2,098,357 or $0.42 average PMPM.
  - Commercial had 293 members (17 per million) at a cost of $7,126,503 or $0.09 average PMPM.

Commercial and Medicare Palbociclib Utilizers' Characteristics among 18.6 Million Insured Lives (Table 1)

- Overall average age was 59 years.
- 379 members were females and three were males.
- Per member average days follow-up from their index palbociclib claim was 59 days, minimum one day and maximum 130 days.
- The average palbociclib days supply was 67 days, minimum 28 days and maximum of 168 days; median 56 days.
- Letrozole utilization was found in 342 (89.5%) of 382 palbociclib utilizers.
- There were 316 (82.7%) of 382 palbociclib utilizers who were continuously enrolled from 180 days prior to their index date through June 19, 2015.
  - Palbociclib non-persistency was found in 57 (18.0%) of the 316 members continuously enrolled.

Palbociclib Dose Reduction Prevalence and Palbociclib Proposed Split Fill Management Strategy (Figures 3 and 4)

- There were 68 (17.8%) of 382 members with dose reductions and one member had two dose reductions.
- In 23 (33.8%) of 68 members undergoing dose reduction, capsule overlap existed between fills resulting in 213 wasted tablets with a total paid of $101,325.
- Dose reduction took place during cycles one or two 90% of the time. Overall average cost of waste per member was $265 ($101,325/382 members).
- A split fill program limiting the first two palbociclib cycles to a 16 day supply of capsules potentially avoids waste of five capsules. This applies to the 23 members with overlapping claims with different capsule strengths.
- Projected savings using actual data through four months post launch = $54,740 (23 members x 5 capsules x $476 per capsule); projected savings 12 months post launch = $164,220.

Limitations

- Because labeling indicates that palbociclib is to be administered with letrozole, members were not evaluated for other aromatase inhibitor co-administration. We may have underestimated concomitant aromatase inhibitor utilization.
- We did not evaluate diagnosis; therefore, members could potentially be receiving palbociclib for earlier stages of breast cancer. We assumed utilization was appropriate and based on indication.
- We were unable to determine the exact cause of dose reduction or associated costs of treating a potential adverse drug event.
- Non-persistence does not account for members who may be on a drug hold due to toxicities, e.g. neutropenia, or those who have discontinued therapy due to disease progression.
- Pharmacy claims include assumptions of members' drug utilization and medication taking behaviors.
- The data used in this study is limited to commercial and Medicare populations, primarily in the central and southern regions of the United States, and therefore may not be generalizable to Medicaid or to commercially insured individuals residing in other regions of the U.S.

Figure 1. Medicare and Commercial Palbociclib (Ibrance) Total Paid per Member per Month – February 10, 2015 through June 30, 2015

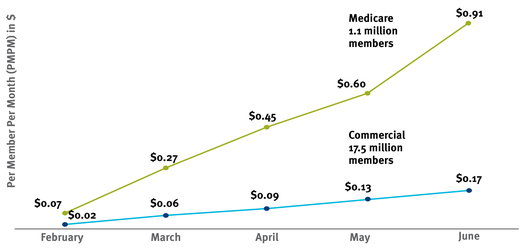


Figure 2. Palbociclib Utilization Flow Chart from First Palbociclib Claim on February 10, 2015 through June 19, 2015

- 18.6 million average members per month
- 382 members utilized palbociclib
- 21 per million palbociclib utilizers
- $9,224,861 total palbociclib cost
- $0.11 average PMPM

Commercial
- 17.5 million average members per month
- 293 members utilized palbociclib
- 17 per million palbociclib utilizers
- $7,126,503 total palbociclib cost
- $0.09 average PMPM

Medicare
- 1.1 million average members per month
- 89 members utilized palbociclib
- 82 per million palbociclib utilizers
- $2,098,357 total palbociclib cost
- $0.42 average PMPM

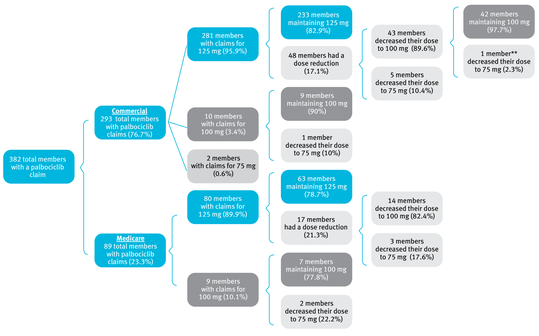
PMPM = per member per month

Table 1. Commercial and Medicare Palbociclib Utilizers' Characteristics among 18.6 Million Insured Lives

Member Characteristics	Commercial 17.5 Million Palbociclib Utilizers = 293	Medicare 1.1 Million Palbociclib Utilizers = 89	Total 18.6 Million Palbociclib Utilizers = 382
Female	292 (99.7%)	87 (97.8%)	379 (99.2%)
Age Distribution, years			
0 – 34	10.2%	0.0%	2.1%
35 – 49	20.5%	0.0%	15.7%
50 – 64	67.9%	9.0%	54.2%
65 and older	8.9%	91.0%	28.0%
Age, average in years	55.4	71.6	59.1
Days Supply, average	49.1	67.6	65.7
Days Follow-Up, average	58.1	59.4	59.0
No letrozole claim‡	29 (9.9%)	11 (12.4%)	40 (10.5%)
Continuously Enrolled*	240 (81.9%)	76 (85.4%)	316 (82.7%)
Non-Persistence†	42 of 240 (17.5%)	15 of 76 (19.7%)	57 of 316 (18.0%)

‡ No letrozole use was defined as no letrozole claims from palbociclib index date through June 19, 2015
*Continuously enrolled 180 days prior to index claim through June 19, 2015
† Non-persistence was defined as an inactive palbociclib cycle on June 19, 2015

Figure 3. Palbociclib Dose Reduction Prevalence*



* average follow-up was 59 days, range 1 to 130 days
68 (17.8%) of 382 members with a palbociclib claim had a dose reduction (1 member** had 2 dose reductions)
palbociclib utilizers from drug launch February 10, 2015 through June 19, 2015

Figure 4. Palbociclib Proposed Split Fill Management Strategy*

Dose Reduction Waste and Associated Cost	Proposed Solution: Split Fill Program	16 Day Supply for First Two Palbociclib Cycles	Implications
• 68 (17.8%) of 382 members underwent a dose reduction • 23 (34%) of 68 members had overlap in capsule supply • 213 wasted capsules; per capsule cost $476 regardless of capsule strength (75 mg, 100 mg or 125 mg) • $101,325 sum cost of wasted capsules	• Dispense 16 capsules, check CBC on day 14, then dispense remaining 5 capsules if tolerated or adjust dose • Repeat the process for the second cycle • Every 28 day cycle, check CBC on day 25. Do not dispense next 21 capsules until CBC results reviewed.	• Saves 5 capsules per member with dose reduction waste n = 23* • Projected savings using actual data through 4 months post launch = $54,740 • Projected savings 12 months post launch = $164,220	• Significant opportunity for cost savings from waste reduction† • Potentially improve adherence and decrease adverse drug events due to increased pharmacist interaction

CBC = complete blood count to assess for neutropenia
*Based on actual data from 382 members initiating palbociclib from February 10, 2015 through June 19, 2015 out of 18.6 million insured of which 23 members had dose reduction and palbociclib capsule waste.
For first two palbociclib cycles dispensing a 16 day supply of capsules potentially avoids waste of five capsules. This applies to the 23 members known to have had overlapping claims with different capsule strengths.
†This conservative approach does not account for increased utilization or dose reductions resulting in drug holds due to neutropenia

Conclusions

- In less than six months after launch, palbociclib has quickly resulted in substantial cost to both commercial and Medicare pharmacy benefits with a disproportionately five-fold higher utilization and cost occurring within Medicare. While Medicare members account for ~5% of the analyzed population, they are accounting for 23% of palbociclib costs.
- One in six members initiating palbociclib, with an average of two months follow up, did not appear to be persistent on palbociclib potentially due to adverse events or treatment failure.
- One in 10 members had no evidence of letrozole use despite the labeling requiring concomitant use. Clinical efficacy of palbociclib relies on the synergistic inhibition of growth when it is combined with this anti-estrogen. Requiring concurrent administration should be incorporated into prior authorization criteria.
- Of concern was the finding that one in six members underwent a dose reduction. In one-third of instances, drug waste occurred. For the first two palbociclib cycles, a split fill program dispensing 16 capsules (16 days supply) and requiring a CBC on day 14, then dispensing the remaining five capsules or dose adjusting would have projected savings of $54,740 in the 23 members undergoing a dose reduction with known capsule waste during the four month analysis period. Pre-cycle CBC results should be reviewed before dispensing palbociclib to avoid dose reduction waste.
- Palbociclib utilization was predicted to be 5.2 commercial members per 100,000 at $0.51 PMPM one year post launch.[2] Current utilization, in the fifth month post launch, is at 2.1 per 100,000 and $0.17 PMPM. Cost and utilization are expected to continue their upward trend, making it vital for plans to implement clinical programs ensuring appropriate use and avoiding drug waste.

References

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