Clinical Policy: Ivacaftor (Kalydeco)
Reference Number: CP.PHAR.210
Effective Date: 05.01.16
Last Review Date: 02.20
Line of Business: Commercial, HIM, Medicaid

See Important Reminder at the end of this policy for important regulatory and legal information.

Description
Ivacaftor (Kalydeco®) is a cystic fibrosis transmembrane conductance regulator (CFTR) potentiator.

FDA Approved Indication(s)
Kalydeco is indicated for the treatment of cystic fibrosis (CF) in patients age 6 months and older who have one mutation in the CFTR gene that is responsive to ivacaftor based on clinical and/or in vitro assay data.

If the patient’s genotype is unknown, an FDA-cleared CF mutation test should be used to detect the presence of a CFTR mutation followed by verification with bi-directional sequencing when recommended by the mutation test instructions for use.

Policy/Criteria
Provider must submit documentation (such as office chart notes, lab results or other clinical information) supporting that member has met all approval criteria.

It is the policy of health plans affiliated with Centene Corporation® that Kalydeco is medically necessary when the following criteria are met:

I. Initial Approval Criteria
   A. Cystic Fibrosis (must meet all):
      1. Diagnosis of CF confirmed by all of the following (a, b, c, and d):
         a. Clinical symptoms consistent with CF in at least one organ system, or positive newborn screen or genetic testing for siblings of patients with CF;
         b. Evidence of CFTR dysfunction confirmed by one of the following (i or ii) (see Appendix D):
            i. Elevated sweat chloride ≥ 60 mmol/L;
            ii. Genetic testing confirming the presence of two disease-causing mutations in CFTR gene, one from each parental allele;
         c. Presence of one mutation in the CFTR gene responsive to ivacaftor based on clinical and/or in vitro assay data (see Appendix E);
         d. Confirmation that a homozygous F508del mutation in the CFTR gene is not present;
      2. Age ≥ 6 months;
      3. Prescribed by or in consultation with a pulmonologist;
4. Chart notes indicate that pulmonary function tests, performed within the last 90 days, show a percent predicted forced expiratory volume in 1 second (ppFEV1) that is between 40-90%.

5. Kalydeco is not prescribed concurrently with other CFTR modulators (e.g., Orkambi, Symdeko, Trikafta).

6. Dose does not exceed one of the following (a, b, c, or d):
   a. Age ≥ 6 years: 300 mg (2 tablets) per day;
   b. Age 6 months to < 6 years and weight 5 kg to < 7 kg: 50 mg (2 packets) per day;
   c. Age 6 months to < 6 years and weight 7 kg to < 14 kg: 100 mg (2 packets) per day;
   d. Age 6 months to < 6 years and weight ≥ 14 kg: 150 mg (2 packets) per day.

Approval duration: 6 months

B. Other diagnoses/indications
   1. Refer to the off-label use policy for the relevant line of business if diagnosis is NOT specifically listed under section III (Diagnoses/Indications for which coverage is NOT authorized): CP.CPA.09 for commercial, HIM.PHAR.21 for health insurance marketplace, and CP.PMN.53 for Medicaid.

II. Continued Therapy
   A. Cystic Fibrosis (must meet all):
      1. Currently receiving medication via Centene benefit or member has previously met initial approval criteria;
      2. Member is responding positively to therapy as evidenced by a stabilization in ppFEV1 if baseline was ≥ 70% or increase in ppFEV1 if baseline was < 70%;
      3. Kalydeco is not prescribed concurrently with other CFTR modulators (e.g., Orkambi®, Symdeko®, Trikafta™);
      4. If request is for a dose increase, new dose does not exceed one of the following (a, b, c, or d):
         a. Age ≥ 6 years: 300 mg (2 tablets) per day;
         b. Age 6 months to < 6 years and weight 5 kg to < 7 kg: 50 mg (2 packets) per day;
         c. Age 6 months to < 6 years and weight 7 kg to < 14 kg: 100 mg (2 packets) per day;
         d. Age 6 months to < 6 years and weight ≥ 14 kg: 150 mg (2 packets) per day.

Approval duration: 12 months

B. Other diagnoses/indications (must meet 1 or 2):
   1. Currently receiving medication via Centene benefit and documentation supports positive response to therapy.
      Approval duration: Duration of request or 6 months (whichever is less); or
   2. Refer to the off-label use policy for the relevant line of business if diagnosis is NOT specifically listed under section III (Diagnoses/Indications for which coverage is NOT authorized): CP.CPA.09 for commercial, HIM.PHAR.21 for health insurance marketplace, and CP.PMN.53 for Medicaid.
III. Diagnoses/Indications for which coverage is NOT authorized:
   A. Non-FDA approved indications, which are not addressed in this policy, unless there is sufficient documentation of efficacy and safety according to the off label use policies – CP.CPA.09 for commercial, HIM.PHAR.21 for health insurance marketplace, and CP.PMN.53 for Medicaid or evidence of coverage documents.

IV. Appendices/General Information

Appendix A: Abbreviation/Acronym Key
- CF: cystic fibrosis
- CFTR: cystic fibrosis transmembrane conductance regulator
- FDA: Food and Drug Administration
- ppFEV1: percent predicted forced expiratory volume in 1 second

Appendix B: Therapeutic Alternatives
Not applicable

Appendix C: Contraindications/Boxed Warnings
None reported

Appendix D: General Information
- The Cystic Fibrosis Foundation’s Mutation Analysis Program (MAP; available here: http://www.cfpaf.org/ResourceCenter/MutationAnalysisProgram) offers free and confidential genetic testing to patients with a confirmed diagnosis of CF. It can take up to 60 days to receive genotyping results and additional time if further testing is needed.
- Kalydeco is not effective in patients with CF who are homozygous for the F508del mutation in the CFTR gene.
- It is recommended that transaminases (ALT and AST) be assessed prior to initiating Kalydeco, every 3 months during the first year of treatment, and annually thereafter. Dosing should be interrupted in patients with ALT or AST of greater than 5 times the upper limit of normal.
- Data from the study of CF patients with nine CFTR mutations did not support approval of the drug in patients with the G970R mutation. As of 2014, it is estimated that there are about 10 people worldwide who have this mutation, including two in the United States.
- Regarding the diagnostic criteria for CF of “genetic testing confirming the presence of two disease-causing mutations in CFTR gene,” this is to ensure that whether heterozygous or homozygous, there are two disease-causing mutations in the CFTR gene, one from each parental allele.
- Most children can do spirometry by age 6, though some preschoolers are able to perform the test at a younger age. Some young children aren’t able to take a deep enough breath and blow out hard and long enough for spirometry. Forced oscillometry is another way to test lung function in young children. This test measures how easily air flows in the lungs (resistance and compliance) with the use of a machine.

Appendix E: CFTR Gene Mutations that are Responsive to Kalydeco

<table>
<thead>
<tr>
<th>CFTR Gene Mutations that are Responsive to Kalydeco</th>
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<tbody>
<tr>
<td>A1067T</td>
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<tr>
<td>A455E</td>
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</table>
### CFTR Gene Mutations that are Responsive to Kalydeco

<table>
<thead>
<tr>
<th>Mutation</th>
<th>Mutation</th>
<th>Mutation</th>
<th>Mutation</th>
<th>Mutation</th>
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</thead>
<tbody>
<tr>
<td>D110E</td>
<td>F1074L</td>
<td>L206W</td>
<td>R74W</td>
<td>3272-26A→G (23)</td>
</tr>
<tr>
<td>D110H</td>
<td>G1069R</td>
<td>P67L</td>
<td>S1251N</td>
<td>3849+10kBc→T (40)</td>
</tr>
<tr>
<td>D115H</td>
<td>G1244E</td>
<td>R1070Q</td>
<td>S1255P</td>
<td>711+3A→G (2)</td>
</tr>
<tr>
<td>D1270N</td>
<td>G1349D</td>
<td>R1070W</td>
<td>S459R</td>
<td>E831X (1)</td>
</tr>
<tr>
<td>D579G</td>
<td>G178R</td>
<td>R117C</td>
<td>S549N</td>
<td></td>
</tr>
<tr>
<td>E193K</td>
<td>G551D</td>
<td>R117H</td>
<td>S945L</td>
<td></td>
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</table>

### V. Dosage and Administration

<table>
<thead>
<tr>
<th>Indication</th>
<th>Dosing Regimen</th>
<th>Maximum Dose</th>
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<tbody>
<tr>
<td>CF</td>
<td><strong>Adults and pediatric patients age 6 years and older:</strong> one 150 mg tablet PO every 12 hours with fat-containing food.</td>
<td>Age ≥ 6 years: 300 mg/day</td>
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<td></td>
<td><strong>Pediatric patients 6 months to less than 6 years of age weighing 5 kg to less than 7 kg:</strong> one 25 mg packet mixed with 1 teaspoon (5 mL) of soft food or liquid and PO every 12 hours with fat containing food.</td>
<td>Age 6 months to &lt; 6 years and weight 5 kg to &lt; 7 kg: 50 mg/day</td>
</tr>
<tr>
<td></td>
<td><strong>Pediatric patients 6 months to less than 6 years of age weighing 7 kg to less than 14 kg:</strong> one 50 mg packet mixed with 1 teaspoon (5 mL) of soft food or liquid and PO every 12 hours with fat containing food.</td>
<td>Age 6 months to &lt; 6 years and weight 7 kg to &lt; 14 kg: 100 mg/day</td>
</tr>
<tr>
<td></td>
<td><strong>Pediatric patients 6 months to less than 6 years of age weighing 14 kg or greater:</strong> one 75 mg packet mixed with 1 teaspoon (5 mL) of soft food or liquid and PO every 12 hours with fat-containing food.</td>
<td>Age 6 months to &lt; 6 years and weight ≥ 14 kg: 150 mg/day</td>
</tr>
</tbody>
</table>

### VI. Product Availability

- Tablets: 150 mg
- Unit-dose packets containing oral granules: 25 mg, 50 mg, 75 mg

### VII. References

### Reviews, Revisions, and Approvals

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>P&amp;T Approval Date</th>
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<tbody>
<tr>
<td>Policy split from CP.PHAR.54 CF Treatments. Evidence of a “significant improvement in FEV1” under continued approval is replaced with “Member continues to respond positively to Kalydeco therapy in one or more of the following areas: pulmonary function, quality of life, pulmonary exacerbations”. Not having increased LFTs is removed as a discontinuation reason. Continuation approval period is extended from 6 to 12 months.</td>
<td>05.16</td>
<td>05.16</td>
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<tr>
<td>Dosing criteria expanded by age. Efficacy statement edited to indicate general positive response to therapy.</td>
<td>05.17</td>
<td>05.17</td>
</tr>
<tr>
<td>Removed the requirement of specific gene mutations, G551D, G1244E, G1349D, G178R, G551S, R117H, S1251N, S1255P, S549N, or S549R, there are now over 20 gene mutation susceptible to Kalydeco. Appendix B added. Added maximum dose for pediatric patients.</td>
<td>06.17</td>
<td>11.17</td>
</tr>
<tr>
<td>1Q18 annual review: - Policies combined for Centene Medicaid, Marketplace, and Commercial lines of business. - No significant changes. - References reviewed and updated.</td>
<td>10.26.17</td>
<td>02.18</td>
</tr>
<tr>
<td>RT4: revised minimum age requirement from 2 years to 1 year and older; references reviewed and updated.</td>
<td>09.13.18</td>
<td></td>
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<tr>
<td>1Q 2019 annual review: no significant changes; references reviewed and updated.</td>
<td>10.16.18</td>
<td>02.19</td>
</tr>
<tr>
<td>RT4: updated age limit to reflect newly FDA-approved indication for use in patients 6 months of age and older; added new dosage form of 25 mg oral granule packets; references reviewed and updated.</td>
<td>05.29.19</td>
<td></td>
</tr>
<tr>
<td>1Q 2020 annual review: added the following criteria to initial approval: comprehensive diagnostic criteria (e.g., clinical symptoms in at least one organ, positive newborn screen, siblings genetic testing, and evidence of CFTR dysfunction) to confirm diagnosis of CF, prescriber requirement of pulmonologist, chart notes indicate that pulmonary function tests (ppFEV1 between 40-90%), not prescribed concurrently with other CFTR modulators; added the following to continued therapy criteria: positive response as evidenced by stabilization in ppFEV1 in lieu of an increase is acceptable if baseline was ≥ 70%, not prescribed concurrently with other CFTR modulators; added diagnosis clarification in Appendix D; changed approval durations of commercial from length of benefit to 6 months initial and 12 months continued; references reviewed and updated.</td>
<td>12.17.19</td>
<td>02.20</td>
</tr>
</tbody>
</table>
Important Reminder
This clinical policy has been developed by appropriately experienced and licensed health care
professionals based on a review and consideration of currently available generally accepted
standards of medical practice; peer-reviewed medical literature; government agency/program
approval status; evidence-based guidelines and positions of leading national health professional
organizations; views of physicians practicing in relevant clinical areas affected by this clinical
policy; and other available clinical information. The Health Plan makes no representations and
accepts no liability with respect to the content of any external information used or relied upon in
developing this clinical policy. This clinical policy is consistent with standards of medical
practice current at the time that this clinical policy was approved. “Health Plan” means a health
plan that has adopted this clinical policy and that is operated or administered, in whole or in part,
by Centene Management Company, LLC, or any of such health plan’s affiliates, as applicable.

The purpose of this clinical policy is to provide a guide to medical necessity, which is a
component of the guidelines used to assist in making coverage decisions and administering
benefits. It does not constitute a contract or guarantee regarding payment or results. Coverage
decisions and the administration of benefits are subject to all terms, conditions, exclusions and
limitations of the coverage documents (e.g., evidence of coverage, certificate of coverage, policy,
contract of insurance, etc.), as well as to state and federal requirements and applicable Health
Plan-level administrative policies and procedures.

This clinical policy is effective as of the date determined by the Health Plan. The date of posting
may not be the effective date of this clinical policy. This clinical policy may be subject to
applicable legal and regulatory requirements relating to provider notification. If there is a
discrepancy between the effective date of this clinical policy and any applicable legal or
regulatory requirement, the requirements of law and regulation shall govern. The Health Plan
retains the right to change, amend or withdraw this clinical policy, and additional clinical
policies may be developed and adopted as needed, at any time.

This clinical policy does not constitute medical advice, medical treatment or medical care. It is
not intended to dictate to providers how to practice medicine. Providers are expected to exercise
professional medical judgment in providing the most appropriate care, and are solely responsible
for the medical advice and treatment of members. This clinical policy is not intended to
recommend treatment for members. Members should consult with their treating physician in
connection with diagnosis and treatment decisions.

Providers referred to in this clinical policy are independent contractors who exercise independent
judgment and over whom the Health Plan has no control or right of control. Providers are not
agents or employees of the Health Plan.

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Providers, members and their representatives are bound to the terms and conditions expressed
herein through the terms of their contracts. Where no such contract exists, providers, members
and their representatives agree to be bound by such terms and conditions by providing services to
members and/or submitting claims for payment for such services.
Note:
For Medicaid members, when state Medicaid coverage provisions conflict with the coverage provisions in this clinical policy, state Medicaid coverage provisions take precedence. Please refer to the state Medicaid manual for any coverage provisions pertaining to this clinical policy.

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