

KEYTRUDA is indicated for the treatment of patients with unresectable or metastatic MSI-H or dMMR colorectal cancer (CRC) as determined by an FDA-approved test.

## Consider KEYTRUDA as your first-line, single-IO treatment for certain patients with advanced MSI-H/dMMR CRC

### BRYAN

→ **Age:** 65 | → **Gender:** Male

→ **Diagnosis:** Advanced MSI-H CRC with a single unresectable metastatic lesion in the liver

→ **Social history:** Bryan works a full-time job and, prior to diagnosis, enjoyed being social, including tennis classes and weekend visits with his grandchildren

MSI-H = microsatellite instability-high; dMMR = deficient DNA mismatch repair; IO = immunotherapy.

### EVELYN

→ **Age:** 73 | → **Gender:** Female

→ **Diagnosis:** Advanced MSI-H CRC with several unresectable metastatic lesions in the liver

→ **Social history:** Prior to diagnosis, Evelyn enjoyed weekly family gatherings and her daily hobbies

Hypothetical patients based on clinical trials.

### SELECTED SAFETY INFORMATION

#### Severe and Fatal Immune-Mediated Adverse Reactions

- KEYTRUDA is a monoclonal antibody that belongs to a class of drugs that bind to either the programmed death receptor-1 (PD-1) or the programmed death ligand 1 (PD-L1), blocking the PD-1/PD-L1 pathway, thereby removing inhibition of the immune response, potentially breaking peripheral tolerance and inducing immune-mediated adverse reactions. Immune-mediated adverse reactions, which may be severe or fatal, can occur in any organ system or tissue, can affect more than one body system simultaneously, and can occur at any time after starting treatment or after discontinuation of treatment. Important immune-mediated adverse reactions listed here may not include all possible severe and fatal immune-mediated adverse reactions.
- Monitor patients closely for symptoms and signs that may be clinical manifestations of underlying immune-mediated adverse reactions. Early identification and management are essential to ensure safe use of anti-PD-1/PD-L1 treatments. Evaluate liver enzymes, creatinine, and thyroid function at baseline and periodically during treatment. In cases of suspected immune-mediated adverse reactions, initiate appropriate workup to exclude alternative etiologies, including infection. Institute medical management promptly, including specialty consultation as appropriate.

Selected Safety Information continues on next page >

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## Get a closer look at **BRYAN**



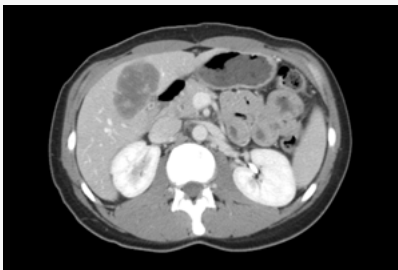
### MEDICAL HISTORY

- ➔ **Initial presentation:** Experienced fatigue over the past month, but still able to perform daily tasks. Abdominal cramping over the past month. Recent change of stool color (dark red) over the past 2 weeks. Unintentional 12-lb weight loss over the past 6 months.
- ➔ **ECOG PS:** 0 | ➔ **Family history:** Colorectal cancer on father's side
- ➔ **Smoking history:** Nonsmoker | ➔ **Drinking history:** Moderate drinker (1-2 drinks per day)
- ➔ **Additional notes:** Patient denies additional past medical history

### EXAMINATION

- ➔ Thin male in no acute distress. BMI of 24 kg/m<sup>2</sup>. Abdomen non-distended. Tender LLQ. Heme positive stool.

### DIAGNOSTIC TESTING



- ➔ **Colonoscopy:** Mass on the left side of the colon
- ➔ **Biopsy:** Moderately differentiated adenocarcinoma
- ➔ **NGS:** MSI-H
- ➔ **CT scan:** Mass on the left side of the colon, enlarged lymph nodes adjacent to left colon mass, and a single large metastasis in the liver

CC BY 3.0. Yorke, A. A., McDonald, G. C., Solis, D., & Guerrero, T. (2019). Pelvic Reference Data (Version 1) [CRLM-CT-1053]. The Cancer Imaging Archive. <https://doi.org/10.7937/TCIA.2019.WOSKQ500>

ECOG PS = Eastern Cooperative Oncology Group Performance Status; BMI = body mass index; LLQ = lower left quadrant; CT = computed tomography; NGS = next-generation sequencing.

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### SELECTED SAFETY INFORMATION (*continued*)

#### Severe and Fatal Immune-Mediated Adverse Reactions (*continued*)

- Withhold or permanently discontinue KEYTRUDA depending on severity of the immune-mediated adverse reaction. In general, if KEYTRUDA requires interruption or discontinuation, administer systemic corticosteroid therapy (1 to 2 mg/kg/day prednisone or equivalent) until improvement to Grade 1 or less. Upon improvement to Grade 1 or less, initiate corticosteroid taper and continue to taper over at least 1 month. Consider administration of other systemic immunosuppressants in patients whose adverse reactions are not controlled with corticosteroid therapy.

#### Immune-Mediated Pneumonitis

- KEYTRUDA can cause immune-mediated pneumonitis. The incidence is higher in patients who have received prior thoracic radiation. Immune-mediated pneumonitis occurred in 3.4% (94/2799) of patients receiving KEYTRUDA, including fatal (0.1%), Grade 4 (0.3%), Grade 3 (0.9%), and Grade 2 (1.3%) reactions. Systemic corticosteroids were required in 67% (63/94) of patients. Pneumonitis led to permanent discontinuation of KEYTRUDA in 1.3% (36) and withholding in 0.9% (26) of patients. All patients who were withheld reinitiated KEYTRUDA after symptom improvement; of these, 23% had recurrence. Pneumonitis resolved in 59% of the 94 patients.

Selected Safety Information continues on next page >

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## SELECTED SAFETY INFORMATION (*continued*)

### Severe and Fatal Immune-Mediated Adverse Reactions (*continued*)

#### Immune-Mediated Colitis

- KEYTRUDA can cause immune-mediated colitis, which may present with diarrhea. Cytomegalovirus infection/reactivation has been reported in patients with corticosteroid-refractory immune-mediated colitis. In cases of corticosteroid-refractory colitis, consider repeating infectious workup to exclude alternative etiologies. Immune-mediated colitis occurred in 1.7% (48/2799) of patients receiving KEYTRUDA, including Grade 4 (<0.1%), Grade 3 (1.1%), and Grade 2 (0.4%) reactions. Systemic corticosteroids were required in 69% (33/48); additional immunosuppressant therapy was required in 4.2% of patients. Colitis led to permanent discontinuation of KEYTRUDA in 0.5% (15) and withholding in 0.5% (13) of patients. All patients who were withheld reinitiated KEYTRUDA after symptom improvement; of these, 23% had recurrence. Colitis resolved in 85% of the 48 patients.

#### Hepatotoxicity and Immune-Mediated Hepatitis

##### *KEYTRUDA as a Single Agent*

- KEYTRUDA can cause immune-mediated hepatitis. Immune-mediated hepatitis occurred in 0.7% (19/2799) of patients receiving KEYTRUDA, including Grade 4 (<0.1%), Grade 3 (0.4%), and Grade 2 (0.1%) reactions. Systemic corticosteroids were required in 68% (13/19) of patients; additional immunosuppressant therapy was required in 11% of patients. Hepatitis led to permanent discontinuation of KEYTRUDA in 0.2% (6) and withholding in 0.3% (9) of patients. All patients who were withheld reinitiated KEYTRUDA after symptom improvement; of these, none had recurrence. Hepatitis resolved in 79% of the 19 patients.

#### Immune-Mediated Endocrinopathies

##### *Adrenal Insufficiency*

- KEYTRUDA can cause primary or secondary adrenal insufficiency. For Grade 2 or higher, initiate symptomatic treatment, including hormone replacement as clinically indicated. Withhold KEYTRUDA depending on severity. Adrenal insufficiency occurred in 0.8% (22/2799) of patients receiving KEYTRUDA, including Grade 4 (<0.1%), Grade 3 (0.3%), and Grade 2 (0.3%) reactions. Systemic corticosteroids were required in 77% (17/22) of patients; of these, the majority remained on systemic corticosteroids. Adrenal insufficiency led to permanent discontinuation of KEYTRUDA in <0.1% (1) and withholding in 0.3% (8) of patients. All patients who were withheld reinitiated KEYTRUDA after symptom improvement.

##### *Hypophysitis*

- KEYTRUDA can cause immune-mediated hypophysitis. Hypophysitis can present with acute symptoms associated with mass effect such as headache, photophobia, or visual field defects. Hypophysitis can cause hypopituitarism. Initiate hormone replacement as indicated. Withhold or permanently discontinue KEYTRUDA depending on severity. Hypophysitis occurred in 0.6% (17/2799) of patients receiving KEYTRUDA, including Grade 4 (<0.1%), Grade 3 (0.3%), and Grade 2 (0.2%) reactions. Systemic corticosteroids were required in 94% (16/17) of patients; of these, the majority remained on systemic corticosteroids. Hypophysitis led to permanent discontinuation of KEYTRUDA in 0.1% (4) and withholding in 0.3% (7) of patients. All patients who were withheld reinitiated KEYTRUDA after symptom improvement.

**Selected Safety Information continues on next page >**

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## Get a closer look at **EVELYN**



### MEDICAL HISTORY

- **Initial presentation:** Worsening weakness and fatigue over the past 2 months, but still able to complete light housework. Recent change in bowel habits with abdominal cramping over the past 2 months. Unintentional 10-lb weight loss over the past 6 months.
- **ECOG PS:** 1 | → **Family history:** None | → **Smoking history:** Former smoker
- **Drinking history:** Moderate drinker (1-2 drinks per day)
- **Additional notes:** Patient with history of well-controlled Type 2 diabetes, hypertension

### EXAMINATION

- Abdomen with mild distention, moderate right-sided abdominal tenderness, palpable liver edge 3 fingerbreaths beneath costal margin. BMI of 26.0 kg/m<sup>2</sup>.

### DIAGNOSTIC TESTING



- **Colonoscopy:** A 5 cm, non-obstructive mass in ascending colon
- **Biopsy:** Moderately differentiated adenocarcinoma
- **NGS:** MSI-H
- **CT scan:** Right colonic mass, and multiple liver lesions of various sizes consistent with metastases

CC BY 4.0. Liu, J., Cao, S., Imbach, K. J., et al. (2024). Multi-scale signaling and tumor evolution in high-grade gliomas (CPTAC-Glioblastoma-CODEX) (Version 1) [MSB-09019]. The Cancer Imaging Archive. <https://doi.org/10.7937/ce1t-ea12>

ECOG PS = Eastern Cooperative Oncology Group Performance Status; BMI = body mass index; CT = computed tomography; NGS = next-generation sequencing.

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### SELECTED SAFETY INFORMATION (*continued*)

#### Severe and Fatal Immune-Mediated Adverse Reactions (*continued*)

##### Immune-Mediated Endocrinopathies (*continued*)

##### *Thyroid Disorders*

- KEYTRUDA can cause immune-mediated thyroid disorders. Thyroiditis can present with or without endocrinopathy. Hypothyroidism can follow hyperthyroidism. Initiate hormone replacement for hypothyroidism or institute medical management of hyperthyroidism as clinically indicated. Withhold or permanently discontinue KEYTRUDA depending on severity. Thyroiditis occurred in 0.6% (16/2799) of patients receiving KEYTRUDA, including Grade 2 (0.3%). None discontinued, but KEYTRUDA was withheld in <0.1% (1) of patients.
- Hyperthyroidism occurred in 3.4% (96/2799) of patients receiving KEYTRUDA, including Grade 3 (0.1%) and Grade 2 (0.8%). It led to permanent discontinuation of KEYTRUDA in <0.1% (2) and withholding in 0.3% (7) of patients. All patients who were withheld reinitiated KEYTRUDA after symptom improvement. Hypothyroidism occurred in 8% (237/2799) of patients receiving KEYTRUDA, including Grade 3 (0.1%) and Grade 2 (6.2%). It led to permanent discontinuation of KEYTRUDA in <0.1% (1) and withholding in 0.5% (14) of patients. All patients who were withheld reinitiated KEYTRUDA after symptom improvement. The majority of patients with hypothyroidism required long-term thyroid hormone replacement.

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## SELECTED SAFETY INFORMATION (*continued*)

### Severe and Fatal Immune-Mediated Adverse Reactions (*continued*)

#### Immune-Mediated Endocrinopathies (*continued*)

*Type 1 Diabetes Mellitus (DM), Which Can Present With Diabetic Ketoacidosis*

- Monitor patients for hyperglycemia or other signs and symptoms of diabetes. Initiate treatment with insulin as clinically indicated. Withhold KEYTRUDA depending on severity. Type 1 DM occurred in 0.2% (6/2799) of patients receiving KEYTRUDA. It led to permanent discontinuation in <0.1% (1) and withholding of KEYTRUDA in <0.1% (1) of patients. All patients who were withheld reinitiated KEYTRUDA after symptom improvement.

#### Immune-Mediated Nephritis With Renal Dysfunction

- KEYTRUDA can cause immune-mediated nephritis. Immune-mediated nephritis occurred in 0.3% (9/2799) of patients receiving KEYTRUDA, including Grade 4 (<0.1%), Grade 3 (0.1%), and Grade 2 (0.1%) reactions. Systemic corticosteroids were required in 89% (8/9) of patients. Nephritis led to permanent discontinuation of KEYTRUDA in 0.1% (3) and withholding in 0.1% (3) of patients. All patients who were withheld reinitiated KEYTRUDA after symptom improvement; of these, none had recurrence. Nephritis resolved in 56% of the 9 patients.

#### Immune-Mediated Dermatologic Adverse Reactions

- KEYTRUDA can cause immune-mediated rash or dermatitis. Exfoliative dermatitis, including Stevens-Johnson syndrome, drug rash with eosinophilia and systemic symptoms, and toxic epidermal necrolysis, has occurred with anti-PD-1/PD-L1 treatments. Topical emollients and/or topical corticosteroids may be

adequate to treat mild to moderate nonexfoliative rashes. Withhold or permanently discontinue KEYTRUDA depending on severity. Immune-mediated dermatologic adverse reactions occurred in 1.4% (38/2799) of patients receiving KEYTRUDA, including Grade 3 (1%) and Grade 2 (0.1%) reactions. Systemic corticosteroids were required in 40% (15/38) of patients. These reactions led to permanent discontinuation in 0.1% (2) and withholding of KEYTRUDA in 0.6% (16) of patients. All patients who were withheld reinitiated KEYTRUDA after symptom improvement; of these, 6% had recurrence. The reactions resolved in 79% of the 38 patients.

#### Other Immune-Mediated Adverse Reactions

- The following clinically significant immune-mediated adverse reactions occurred at an incidence of <1% (unless otherwise noted) in patients who received KEYTRUDA or were reported with the use of other anti-PD-1/PD-L1 treatments. Severe or fatal cases have been reported for some of these adverse reactions. *Cardiac/Vascular*: Myocarditis, pericarditis, vasculitis; *Nervous System*: Meningitis, encephalitis, myelitis and demyelination, myasthenic syndrome/ myasthenia gravis (including exacerbation), Guillain-Barré syndrome, nerve paresis, autoimmune neuropathy; *Ocular*: Uveitis, iritis and other ocular inflammatory toxicities can occur. Some cases can be associated with retinal detachment. Various grades of visual impairment, including blindness, can occur. If uveitis occurs in combination with other immune-mediated adverse reactions, consider a Vogt-Koyanagi-Harada-like syndrome, as this may require treatment with systemic steroids to reduce the risk of permanent vision loss;

**Selected Safety Information continues on next page >**

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**Consider KEYTRUDA as your first-line, single-IO treatment for certain patients, like Bryan and Evelyn, with advanced MSI-H/dMMR CRC**



### Treatment Plan

Both patients are eligible to start first-line treatment with KEYTRUDA



### Monitor

Observe patients for any signs and symptoms of adverse reactions



### Follow-up

Evaluate patients for signs and symptoms of disease progression

**Review the clinical data on [KEYTRUDAhcp.com](https://www.keytrudahcp.com) >**

## SELECTED SAFETY INFORMATION (*continued*)

### Severe and Fatal Immune-Mediated Adverse Reactions (*continued*)

#### Other Immune-Mediated Adverse Reactions (*continued*)

*Gastrointestinal:* Pancreatitis, to include increases in serum amylase and lipase levels, gastritis, duodenitis; *Musculoskeletal and Connective Tissue:* Myositis/polymyositis, rhabdomyolysis (and associated sequelae, including renal failure), arthritis (1.5%), polymyalgia rheumatica; *Endocrine:* Hypoparathyroidism; *Hematologic/Immune:* Hemolytic anemia, aplastic anemia, hemophagocytic lymphohistiocytosis, systemic inflammatory response syndrome, histiocytic necrotizing lymphadenitis (Kikuchi lymphadenitis), sarcoidosis, immune thrombocytopenic purpura, solid organ transplant rejection, other transplant (including corneal graft) rejection.

### Infusion-Related Reactions

- KEYTRUDA can cause severe or life-threatening infusion-related reactions, including hypersensitivity and anaphylaxis, which have been reported in 0.2% of 2799 patients receiving KEYTRUDA. Monitor for signs and symptoms of infusion-related reactions. Interrupt or slow the rate of infusion for Grade 1 or Grade 2 reactions. For Grade 3 or Grade 4 reactions, stop infusion and permanently discontinue KEYTRUDA.

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**Selected Safety Information continues on next page >**

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## SELECTED SAFETY INFORMATION (*continued*)

### Complications of Allogeneic Hematopoietic Stem Cell Transplantation (HSCT)

- Fatal and other serious complications can occur in patients who receive allogeneic HSCT before or after anti-PD-1/PD-L1 treatments. Transplant-related complications include hyperacute graft-versus-host disease (GVHD), acute and chronic GVHD, hepatic veno-occlusive disease after reduced intensity conditioning, and steroid-requiring febrile syndrome (without an identified infectious cause). These complications may occur despite intervening therapy between anti-PD-1/PD-L1 treatments and allogeneic HSCT. Follow patients closely for evidence of these complications and intervene promptly. Consider the benefit vs risks of using anti-PD-1/PD-L1 treatments prior to or after an allogeneic HSCT.

### Increased Mortality in Patients With Multiple Myeloma

- In trials in patients with multiple myeloma, the addition of KEYTRUDA to a thalidomide analogue plus dexamethasone resulted in increased mortality. Treatment of these patients with an anti-PD-1/PD-L1 treatment in this combination is not recommended outside of controlled trials.

### Embryofetal Toxicity

- Based on its mechanism of action, KEYTRUDA can cause fetal harm when administered to a pregnant woman. Advise women of this potential risk. In females of reproductive potential, verify pregnancy status prior to initiating KEYTRUDA and advise them to use effective contraception during treatment and for 4 months after the last dose.

### Adverse Reactions

- The most common adverse reactions for KEYTRUDA (reported in  $\geq 20\%$  of patients) were fatigue, musculoskeletal pain, rash, diarrhea, pyrexia, cough, decreased appetite, pruritus, dyspnea, constipation, pain, abdominal pain, nausea, and hypothyroidism.

### Lactation

- Because of the potential for serious adverse reactions in breastfed children, advise women not to breastfeed during treatment and for 4 months after the last dose.

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