KDIGO includes three diagnostic criteria for Acute Kidney Injury:

- **Criterion 1:** Increase in creatinine to ≥ 1.5 times baseline known or presumed to have occurred within the prior 7 days, or
- **Criterion 2:** Increase in creatinine, measured prospectively, of ≥ 0.3 mg/dL comparing two separate levels done within 48 hours or less, or
- **Criterion 3:** Urine output < 0.5 ml/kg/hr for at least 6 hours

Note: For criterion #1 only, when the baseline is unknown, it is assumed to be the lowest creatinine level attained during the admission.

Case Example 1: AKI Criterion #1

75-year-old female admitted on 11/25 with severe nausea, vomiting and diarrhea and treated with IV fluids. Unknown baseline.

Date	Creatinine
11/25	2.2
11/26	1.6
11/27	1.4
11/28	1.3

This is the most common scenario: a patient is admitted to the hospital with an elevated creatinine, no known baseline, and the creatinine decreases after IV fluids.

Creatinine of 2.2 is 1.7 times higher than the lowest creatinine level of 1.3, and AKI is confirmed based on increase in creatinine to ≥ 1.5 times baseline.

Calculation: 2.2 ÷ 1.3 = 1.7 (Highest ÷ Lowest)

According to KDIGO, for this criterion, when the baseline creatinine is unknown, use the lowest creatinine level measured during admission, which is 1.3 in this case.

Case Example 2: AKI Criterion #1

75-year-old female admitted on 11/25 with severe nausea, vomiting and diarrhea and treated with IV fluids. Previous creatinine level of 1.1 on 8/25.

Date	Creatinine
11/25	2.2
11/26	1.6
11/27	1.4
11/28	1.3

This patient's previous creatinine level on 8/25 would be considered her baseline.

Creatinine of 2.2 is 2 times the baseline of 1.1 and AKI is confirmed.

Calculation: 2.2 ÷ 1.1 = 2 (Highest ÷ Baseline)

In this case, the patient's creatinine level returned close to her baseline level of 1.1 at discharge which further confirms AKI and does not strongly support ATN

Case Example 3: AKI Criterion #2

86-year-old male admitted on 11/14 with heart failure and treated with IV Lasix 80 mg

Date	Creatinine
11/14	0.9
11/15	1.4
11/16	1.1
11/17	0.8

Creatinine increased by 0.5 in 24 hrs (0.9 to 1.4) which is > 0.3 within 48 hours.

Also meets criterion #1

Calculation: 1.4 ÷ 0.9 = 1.55

Case Example 4: Criterion #3

66 year old female weighing 150 pounds admitted with sepsis due to pyelonephritis. Admission creatinine = 1.1. Urine output x 6 hours was 180 ccs.	Although this patient's creatinine level was normal or only slightly elevated during the stay, the patient meets AKI criteria based on decreased urinary output of < 0.5 ml/kg/hr for 6 hours. To calculate, the patient's weight must be converted to kilograms: 150 lb = 68 kg To calculate urinary output: 180cc ÷ 68kg ÷ 6 hrs = 0.44.

Case Example 5: AKI documented

60-year-old female admitted on 10/4 with fracture of humerus, ABLA, and hyponatremia. AKI documented.

Date	Creatinine
10/4	1.12
10/5	1.16
10/6	1.33
10/7	1.38
10/8	1.25
10/9	1.15

This patient's creatinine levels never increased to 1.5 times baseline or by 0.3 within 48 hrs at any point during the stay. Creatinine levels represent normal variation. There was also no documentation or evidence of decreased urinary output.

AKI is not clinically valid.

Case Example 6: ATN Criteria: 1) AKI criteria and (2) > 72 hours for creatinine to return near baseline

58 year old male admitted 12/1 with pulmonary embolism diagnosed by CT angiography.

IV NS bolus of 1,000 cc is given on 12/3 followed by infusion at 125 cc/hr.

Date	Creatinine
12/1	0.5
12/2	1.0
12/3	1.6
12/4	1.4
12/5	1.2
12/6	0.8

The patient's baseline creatinine of 0.5 increased to 1.0 in one day, which meets the AKI criteria of $\geq$ 0.3 in 48 hours. Criterion #1 is also met since 1.6 ÷ 0.5 = 3.2 (> 1.5 times).

The creatinine level remained above baseline for 4 days and at discharge (>72 hours), which meets the criteria for ATN.

Acute kidney injury, if truly due to IV contrast is always ATN.

Case Example 7: AKI on CKD: AKI Criterion #1

60-year-old with CKD-4 admitted on 11/14 for COVID-19 and pneumonia.

Date	Creatinine	GFR
11/14	4.4	14
11/15	3.0	18
11/16	2.6	28
11/17	2.5	27

Admission creatinine = 4.4 (1.8 times higher than baseline), which meets the AKI criteria > 1.5 times baseline.

Calculation: 4.4 ÷ 2.5 = 1.76

Baseline GFR assumed to be 27 = CKD-4

The five stages of CKD are identified based on the stable baseline GFR.

Case Example 8: AKI on CKD: AKI criterion #2

70-year-old with CKD-3 admitted on 11/18 for cellulitis treated with IV Vancomycin. Developed C. diff on 11/21 with profound diarrhea.

Date	Creatinine	GFR
11/18	2.0	34
11/19	2.3	31
11/20	2.7	28
11/21	2.6	29
11/22	2.1	33

Admission creatinine increased by 0.3 in 24 hours and 0.7 within 48 hours which meets the AKI criteria of $\geq$ 0.3 *prospective* increase within 48 hours.

Baseline GFR 33 = CKD-3

The five stages of CKD are identified based on the stable baseline GFR.