

Insulin to Carbohydrate Ratios (ICRs) (for Adult Inpatients)

Count Carbohydrates

Administer Insulin

Reduce Hypoglycemia

Be Patient-Centered

Stay Safe

Custom Ratios

If provider orders a ratio that is not 1:4, 1:5, 1:6, 1:8, 1:10, 1:12, 1:15, or 1:20, you will need to calculate the appropriate insulin dose as follows:

$$\frac{\text{Total Grams of Carbohydrates Eaten}}{\# \text{ grams per unit insulin (1:x)}} = \# \text{ units insulin}$$

Example:

▪ If ICR is 1:3 and patient ate 30 grams of carbohydrate, you would administer 10 units of insulin ($30 \div 3 = 10$)

If dose needs to be rounded, do so as follows:

- $< .5$, round down

Example: If ICR is 1:25 and patient ate 30 grams of carbohydrate, you would administer 1 unit of insulin ($30 \div 25 = 1.2$ or 1 unit)

- $\geq .5$, round up

Example: If ICR is 1:7 and patient ate 40 grams of carbohydrate, you would administer 6 units of insulin ($40 \div 7 = 5.7$ or 6 units)

1:4 Insulin to Carb Ratio (ICR) (1 unit of insulin covers 4 grams of carbohydrate)	
Nutritional Dose	
Grams of Carbs Eaten	Units of Insulin
0-1	0
2-5	1
6-9	2
10-13	3
14-17	4
18-21	5
22-25	6
26-29	7
30-33	8
34-37	9
38-41	10
42-45	11
46-49	12
50-53	13
54-57	14
58-61	15
62-65	16
66-69	17
70-73	18
74-77	19
78-81	20
82-85	21
86-89	22
90-93	23
94-97	24
98-101	25
>101, use custom ratio calculation	

1:5 Insulin to Carb Ratio (ICR) (1 unit of insulin covers 5 grams of carbohydrate)	
Nutritional Dose	
Grams of Carbs Eaten	Units of Insulin
0-2	0
3-7	1
8-12	2
13-17	3
18-22	4
23-27	5
28-32	6
33-37	7
38-42	8
43-47	9
48-52	10
53-57	11
58-62	12
63-67	13
68-72	14
73-77	15
78-82	16
83-87	17
88-92	18
93-97	19
98-102	20
>102, use custom ratio calculation	
Patient who eats 35 grams of carbs would receive 7 units of insulin to cover nutritional needs (plus more if correction insulin ordered for pre-meal hyperglycemia)	

1:6 Insulin to Carb Ratio (ICR) (1 unit of insulin covers 6 grams of carbohydrate)	
Nutritional Dose	
Grams of Carbs Eaten	Units of Insulin
0-2	0
3-8	1
9-14	2
15-20	3
21-26	4
27-32	5
33-38	6
39-44	7
45-50	8
51-56	9
57-62	10
63-68	11
69-74	12
75-80	13
81-86	14
87-92	15
93-98	16
99-105	17
>105, use custom ratio calculation	
Patient who eats 35 grams of carbs would receive 6 units of insulin to cover nutritional needs (plus more if correction insulin ordered for pre-meal hyperglycemia)	

See reverse side
for other ICRs



American Diabetes Association. Standards of Medical Care in Diabetes-2023. Diabetes Care. 2023;46(Suppl 1): S1-292.

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Questions? Contact Inpatient Diabetes Quality Committee

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- Step 1:** Select ICR that corresponds with provider orders.
- Step 2:** Determine nutritional dose of insulin based on number of carbohydrates eaten.
- Step 3:** Determine if correction insulin is ordered/needed for pre-meal hyperglycemia.
- Step 4:** Document carb grams eaten and insulin given.

1:8 Insulin to Carb Ratio (ICR) (1 unit of insulin covers 8 grams of carbohydrate)	
Nutritional Dose	
Grams of Carbs Eaten	Units of Insulin
0-3	0
4-11	1
12-19	2
20-27	3
28-35	4
36-43	5
44-51	6
52-59	7
60-67	8
68-75	9
76-83	10
84-91	11
92-99	12
>99, use custom ratio calculation	
Patient who eats 35 grams of carbs would receive 4 units of insulin to cover nutritional needs (plus more if correction insulin ordered for pre-meal hyperglycemia)	

1:10 Insulin to Carb Ratio (ICR) (1 unit of insulin covers 10 grams of carbohydrate)	
Nutritional Dose	
Grams of Carbs Eaten	Units of Insulin
0-4	0
5-14	1
15-24	2
25-34	3
35-44	4
45-54	5
55-64	6
65-74	7
75-84	8
85-94	9
95-104	10
>104, use custom ratio calculation	
Patient who eats 35 grams of carbs would receive 4 units of insulin to cover nutritional needs (plus more if correction insulin ordered for pre-meal hyperglycemia)	

1:12 Insulin to Carb Ratio (ICR) (1 unit of insulin covers 12 grams of carbohydrate)	
Nutritional Dose	
Grams of Carbs Eaten	Units of Insulin
0-5	0
6-17	1
18-29	2
30-41	3
42-53	4
54-65	5
66-77	6
78-89	7
90-101	8
102-113	9
>113, use custom ratio calculation	
Patient who eats 35 grams of carbs would receive 3 units of insulin to cover nutritional needs (plus more if correction insulin ordered for pre-meal hyperglycemia)	

See reverse side for other ICRs



1:15 Insulin to Carb Ratio (ICR) (1 unit of insulin covers 15 grams of carbohydrate)	
Nutritional Dose	
Grams of Carbs Eaten	Units of Insulin
0-7	0
8-22	1
23-37	2
38-52	3
53-67	4
68-82	5
83-97	6
98-111	7
112-126	8
>126, use custom ratio calculation	
Patient who eats 35 grams of carbs would receive 2 units of insulin to cover nutritional needs (plus more if correction insulin ordered for pre-meal hyperglycemia)	

1:20 Insulin to Carb Ratio (ICR) (1 unit of insulin covers 20 grams of carbohydrate)	
Nutritional Dose	
Grams of Carbs Eaten	Units of Insulin
0-9	0
10-29	1
30-49	2
50-69	3
70-89	4
90-109	5
110-128	6
>128, use custom ratio calculation	
Patient who eats 35 grams of carbs would receive 2 units of insulin to cover nutritional needs (plus more if correction insulin ordered for pre-meal hyperglycemia)	