Run Chart Rules Reference Sheet
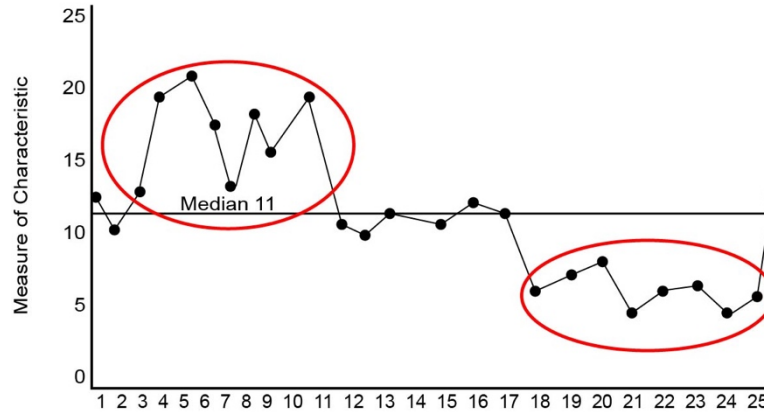
Apply these four simple rules to your run chart to uncover signals of real change. See IHI's Run Chart Tool for help drawing a run chart.

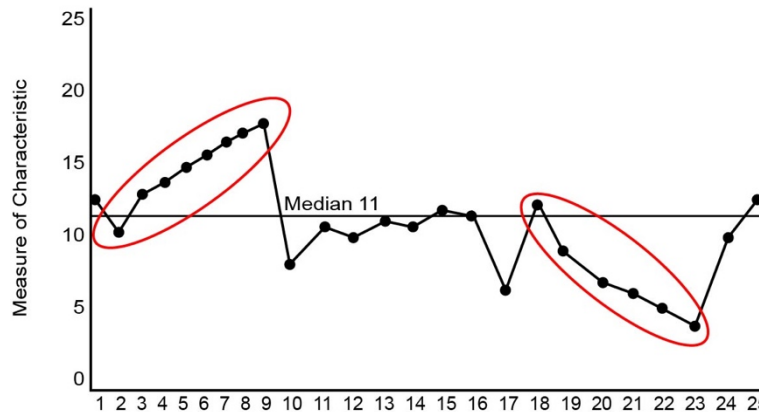1. **Shift**: Are there 6 or more consecutive data points above or below the median? (Use 8 points if you have 20 or more total data points.) Don't count points on the median.
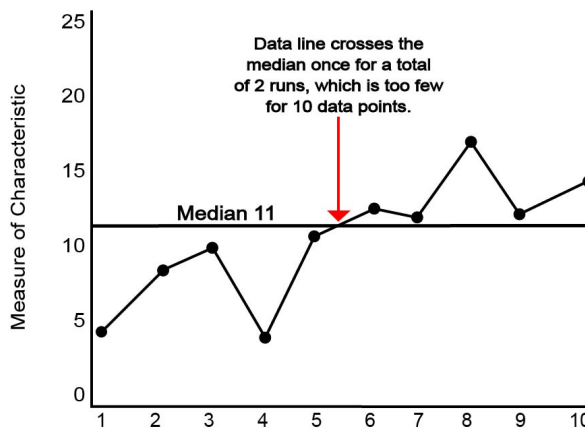

2. **Trend**: Are there 5 or more sequential data points all going up or all going down? (Use 6 points if you have 20 or more total data points.) If two consecutive points are the same value, only count once.

3. **Number of runs:** Are there too few or too many runs? A run consists of one or more consecutive data points on the same side of the median. It doesn't include data points that fall on the median.

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There are two ways to count the number of runs:

- Draw a circle around each run — that is, circle each set of points clumped together on either side of the median — and count the number of circles you end up with.

- Count the number of times the sequence of data points crosses the median and add "1."

After counting the runs, use the table below to see if you have too few or too many based on the number of useful observations in your data set — that is, the total number of points in your data set that do not fall on the median.

Expected Runs Table: Count useful observations only – Ignore points on median!											
Useful Obser.	Lower # Runs	Upper # Runs	Useful Obser.	Lower # Runs	Upper # Runs	Useful Obser.	Lower # Runs	Upper # Runs	Useful Obser.	Lower # Runs	Upper # Runs
10	3	9	23	7	17	36	13	25	49	19	32
11	3	10	24	8	18	37	13	25	50	19	33
12	3	11	25	8	18	38	14	26	51	20	33
13	4	11	26	9	19	39	14	26	52	20	34
14	4	12	27	10	19	40	15	27	53	21	34
15	5	12	28	10	20	41	15	27	54	21	35
16	5	13	29	10	20	42	16	28	55	22	35
17	5	13	30	11	21	43	16	28	56	22	36
18	6	14	31	11	22	44	17	29	57	23	36
19	6	15	32	11	23	45	17	30	58	23	37
20	6	16	33	12	23	46	17	31	59	24	38
21	7	16	34	12	24	47	18	31	60	24	38
22	7	17	35	12	24	48	18	32			

Source: Provost LP, Murray S. *The Health Care Data Guide: Learning from Data for Improvement.* San Francisco, California: Jossey-Bass; 2011.

4. **Astronomical data point:** Are there any data points that stand out as being very far away from the others, which people close to the work would agree appear highly unusual?

Rule 4

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