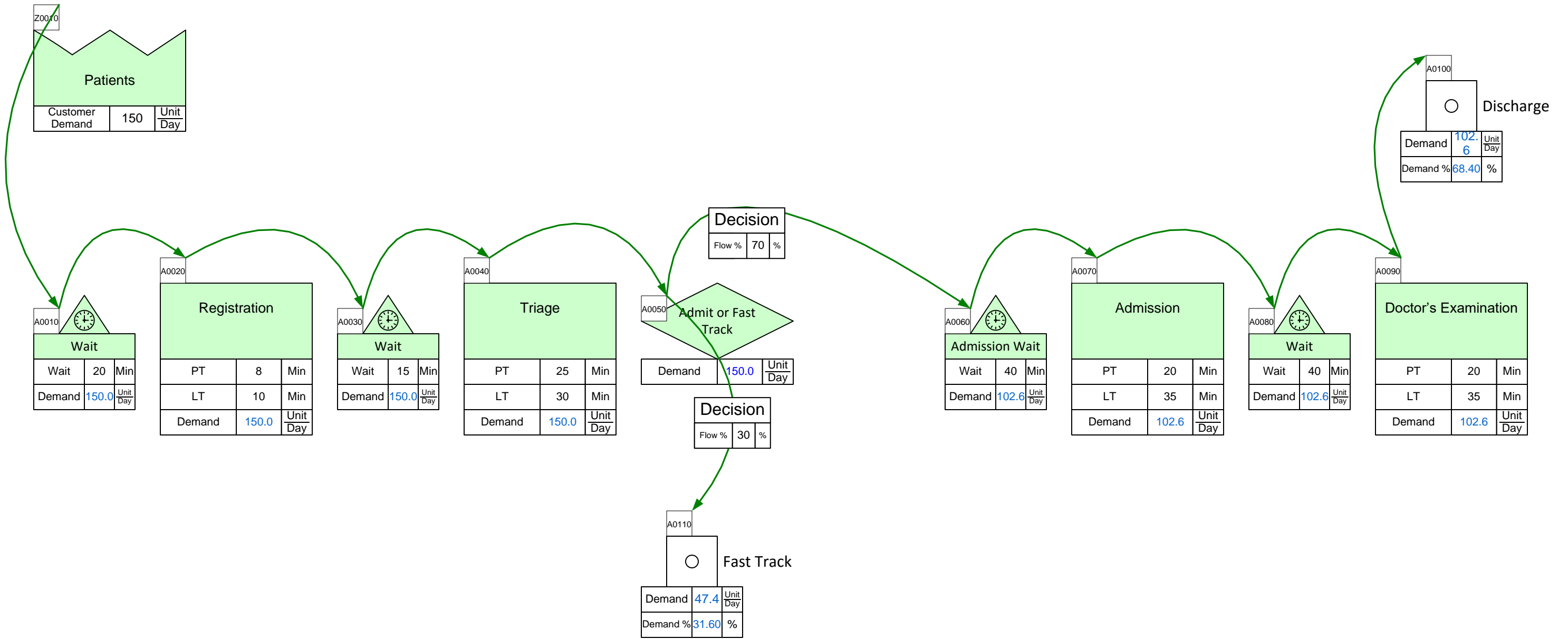


Healthcare Problem: Total Time

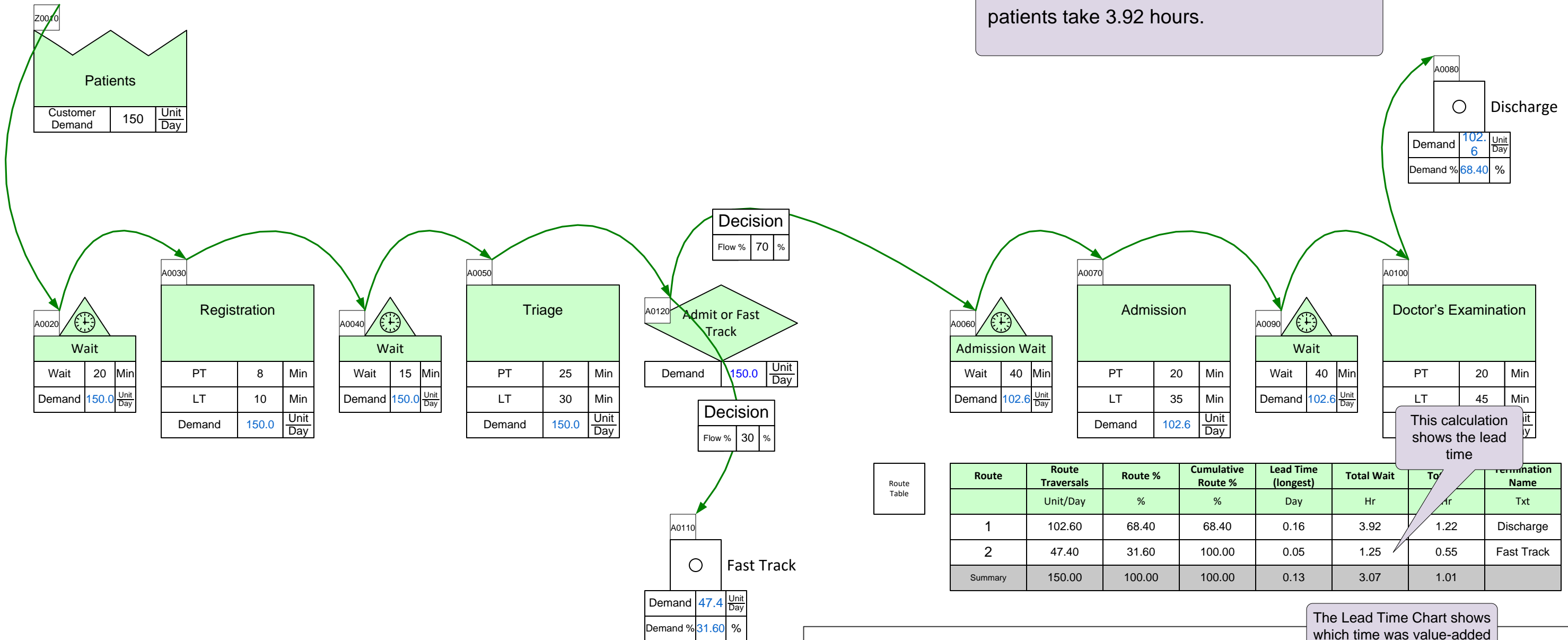
Calculate how long it takes from when a patient arrives to discharge.



Units	Day	Wk	Year
	24	5	52
	Hr	Day	Wk

Healthcare Solution: Total Time

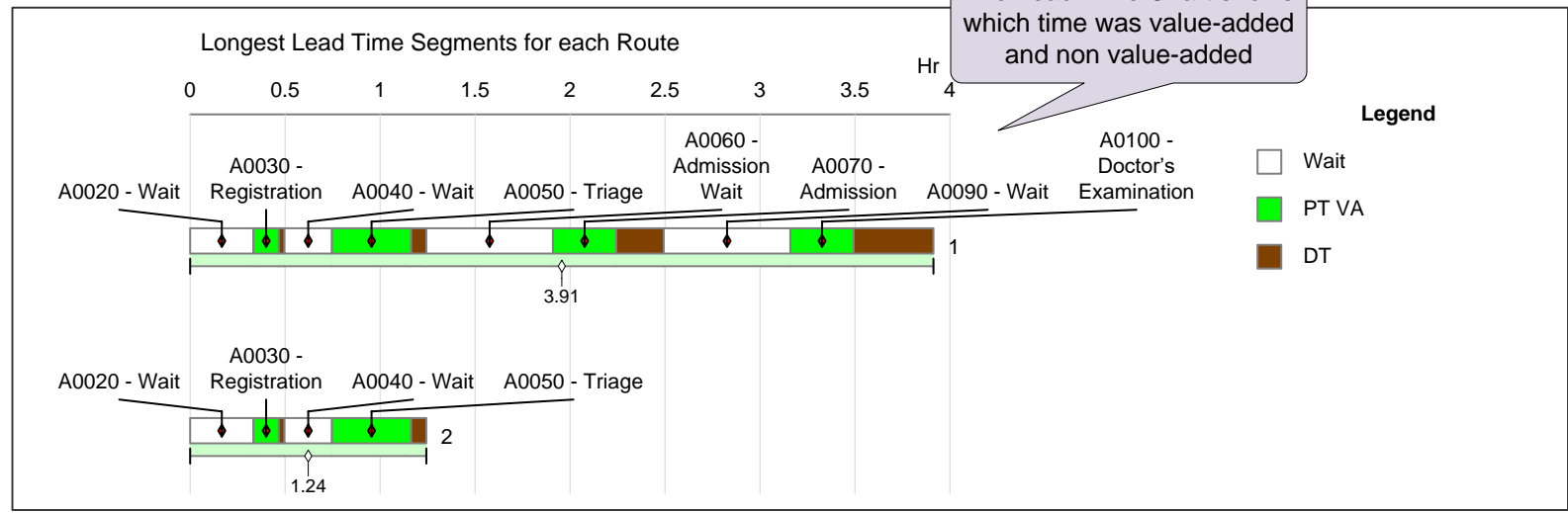
Calculate how long it takes from when a patient arrives to discharge.



Fast Track takes 1.25 hours while admitted patients take 3.92 hours.

Route	Route Traversals Unit/Day	Route %	Cumulative Route %	Lead Time (longest) Day	Total Wait Hr	Total PT VA Hr	Termination Name
1	102.60	68.40	68.40	0.16	3.92	1.22	Discharge
2	47.40	31.60	100.00	0.05	1.25	0.55	Fast Track
Summary	150.00	100.00	100.00	0.13	3.07	1.01	

This calculation shows the lead time

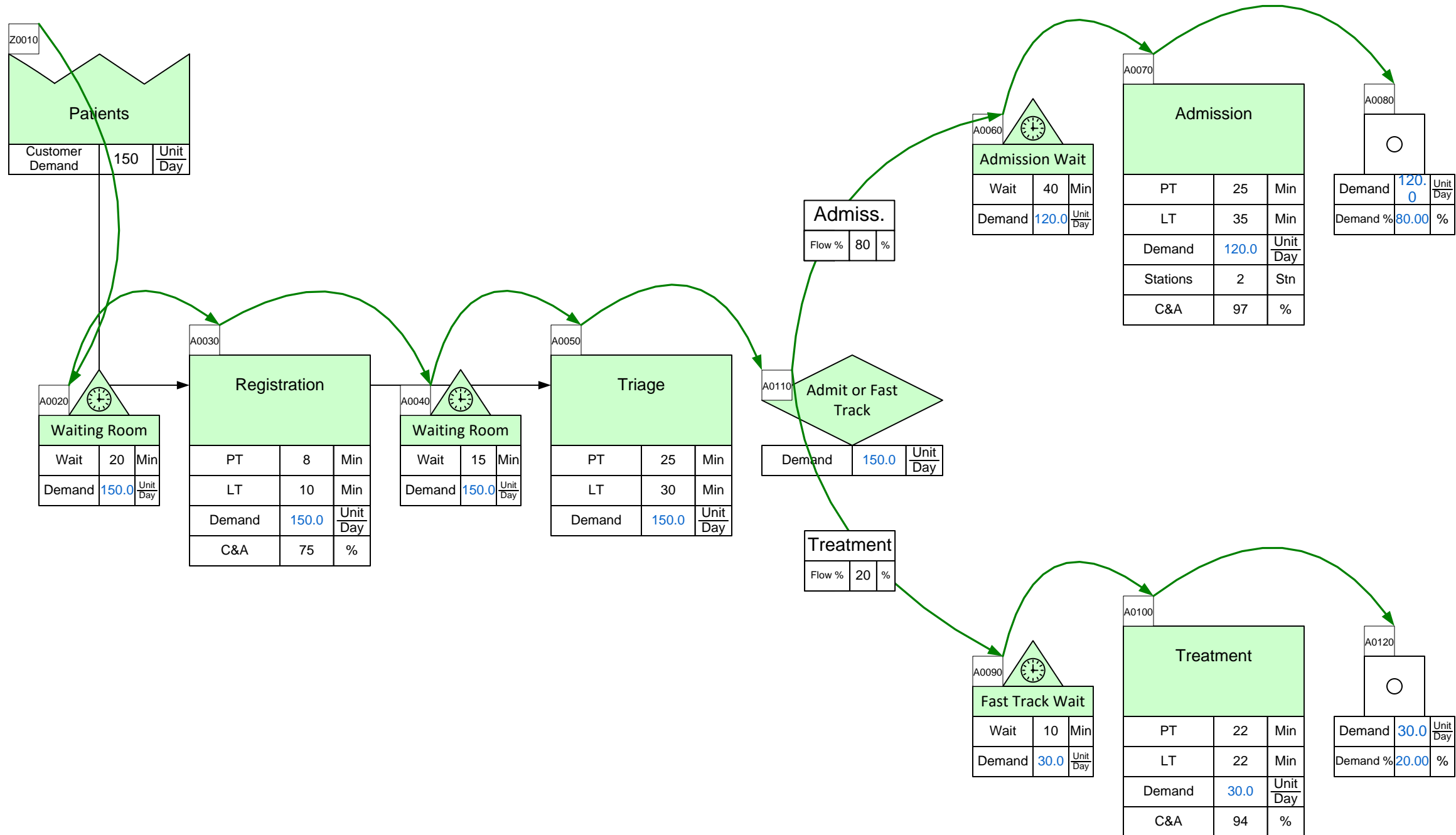


The Lead Time Chart shows which time was value-added and non value-added

Units	Day	Wk	Year
	24	5	52
	Hr	Day	Wk

Healthcare Problem: Complete and Accurate

We have a quality issue with the patient flow. Can we home in on the problem area?

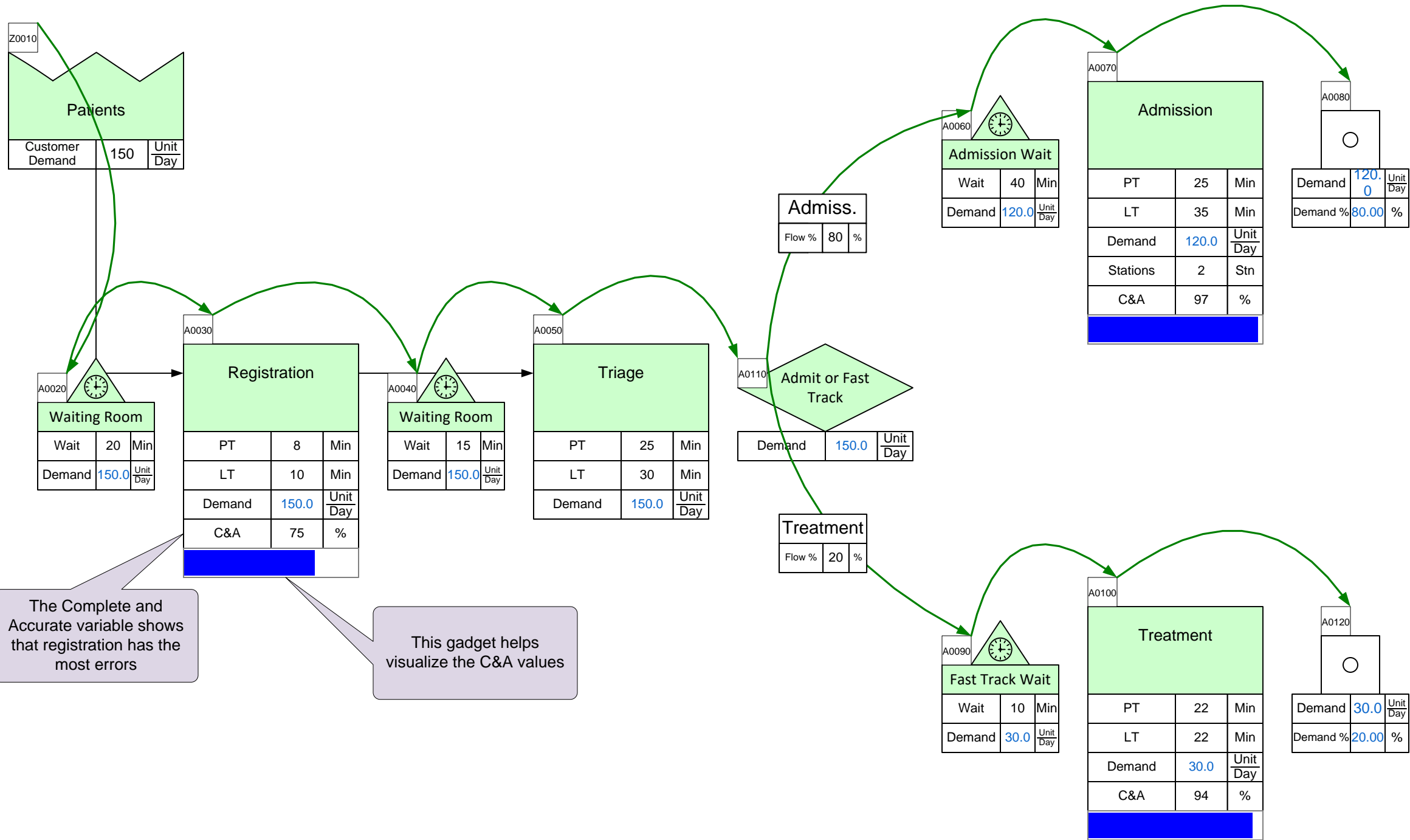


Units	Day	Wk	Year
	24	5	52
	Hr	Day	Wk

Healthcare Solution: Complete and Accurate

We have a quality issue with the patient flow. Can we home in on the problem area?

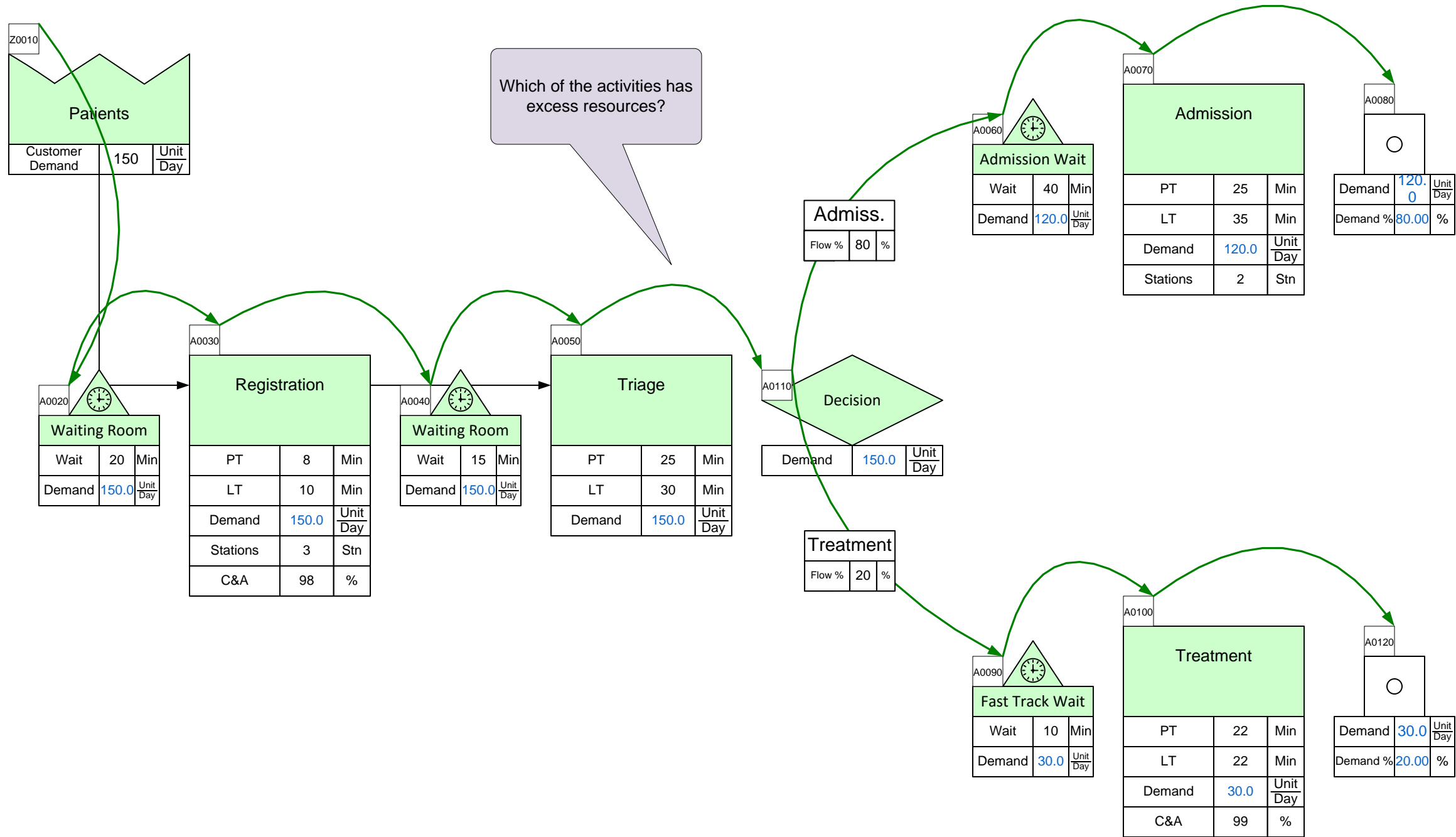
The Complete and Accurate variable shows that quality suffers after registration. If the accuracy is improved there it will help the rest of the patient flow.



Units	Day	Wk	Year
	24	5	52
	Hr	Day	Wk

Healthcare Problem: Excess Capacity

We have hold-ups in several places because we are always short-staffed. Do we have any excess resource we might re-deploy?



Units	Day	Wk	Year
	24	5	52
	Hr	Day	Wk

Healthcare Solution: Excess Capacity

We have hold-ups in several places because we are always short-staffed. Do we have any excess resource we might re-deploy?

The Capacity Chart shows that the Registration process has excess capacity. If these resources were redeployed it would decrease the likelihood of hold-ups by increasing the capacity at other processes.

Which of the activities has excess resources?

Z0010 Patients		
Customer Demand	150	Unit Day

A0020 Waiting Room		
Wait	20	Min
Demand	150.0	Unit Day

A0030 Registration		
PT	8	Min
LT	10	Min
Demand	150.0	Unit Day
Stations	3	Stn
C&A	98	%

A0040 Waiting Room		
Wait	15	Min
Demand	150.0	Unit Day

A0050 Triage		
PT	25	Min
LT	30	Min
Demand	150.0	Unit Day

A0110 Admiss.		
Flow %	80	%

A0110 Decision		
Demand	150.0	Unit Day

Treatment		
Flow %	20	%

A0060 Admission Wait		
Wait	40	Min
Demand	120.0	Unit Day

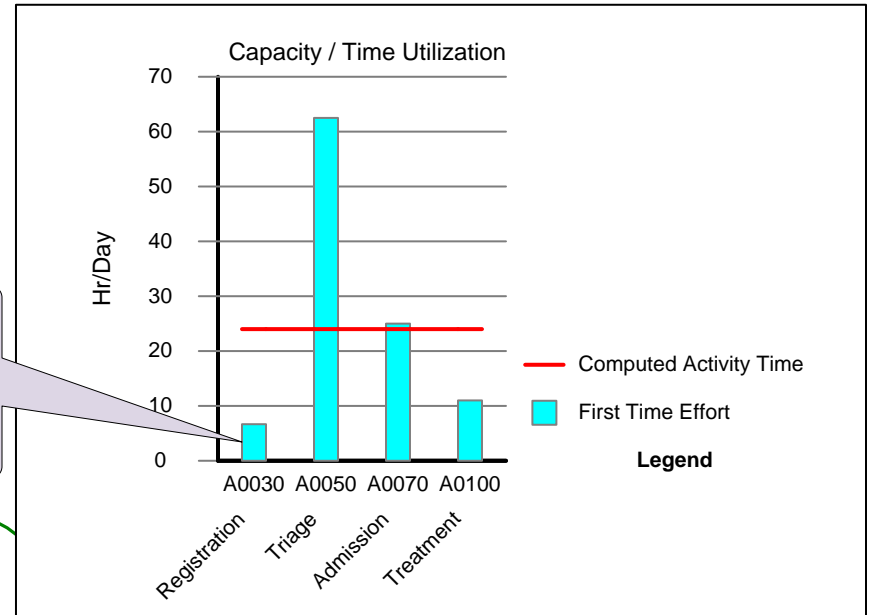
A0070 Admission		
PT	25	Min
LT	35	Min
Demand	120.0	Unit Day
Stations	2	Stn

A0080		
Demand	120.0	Unit Day
Demand %	80.00	%

A0090 Fast Track Wait		
Wait	10	Min
Demand	30.0	Unit Day

A0100 Treatment		
PT	22	Min
LT	22	Min
Demand	30.0	Unit Day
C&A	99	%

A0120		
Demand	30.0	Unit Day
Demand %	20.00	%



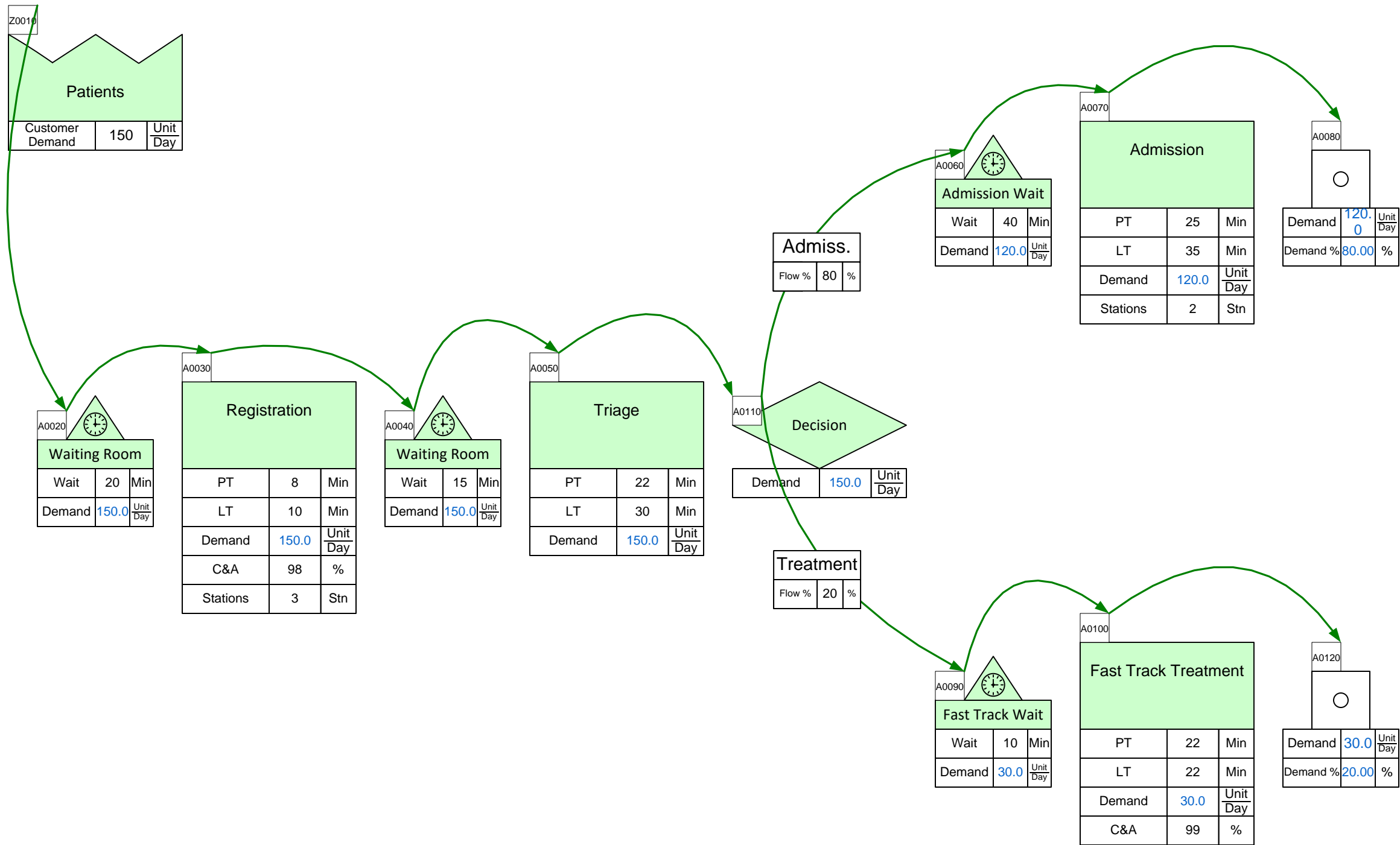
The 3 stations for Registration is creating excess capacity

The capacity chart shows that Registration has excess capacity

Units	Day	Wk	Year
	24	5	52
	Hr	Day	Wk

Healthcare Problem: Resource Estimation

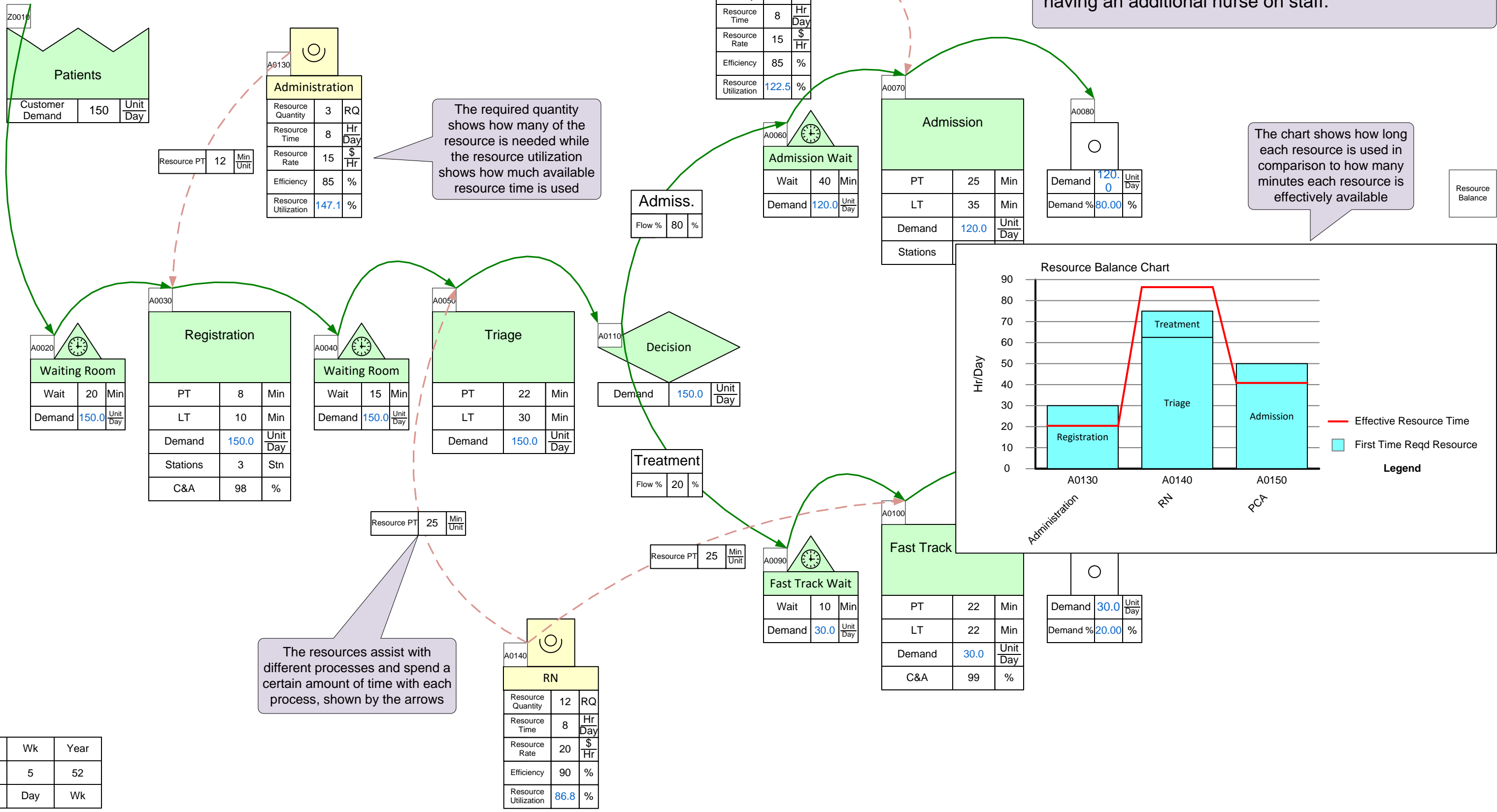
We are dealing with around 150 patients per day in ER 7x24.
 How many full-time nurses, administrators, and personal care assistants do we need per day?



Units	Day	Wk	Year
	24	5	52
	Hr	Day	Wk

Healthcare Solution: Resource Estimation

We are dealing with around 150 patients per day in ER 7x24. How many full-time nurses, administrators, and personal care assistants do we need per day?



The Resource Balance Chart shows that we need 30 hours of administrator time and 50 hours of PCA time per day. to be on duty at all times. The RN resource utilization is over 100% though so we should consider having an additional nurse on staff.

The required quantity shows how many of the resource is needed while the resource utilization shows how much available resource time is used

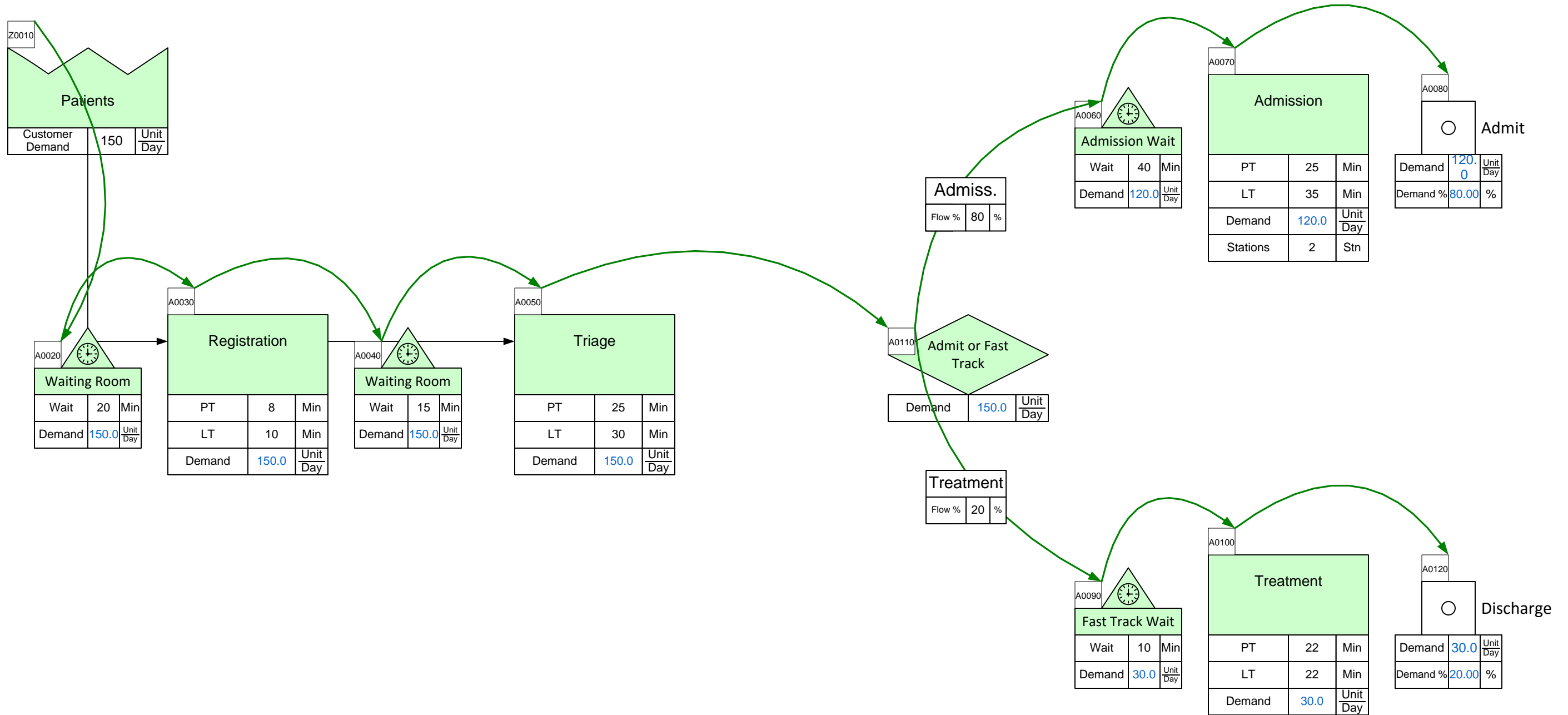
The chart shows how long each resource is used in comparison to how many minutes each resource is effectively available

The resources assist with different processes and spend a certain amount of time with each process, shown by the arrows

Units	Day	Wk	Year
	24	5	52
	Hr	Day	Wk

Healthcare Problem: Handling Variation

There is a lot of variation in the number of patients per day and also in the Triage turnaround time. How can you handle this on a VSM?

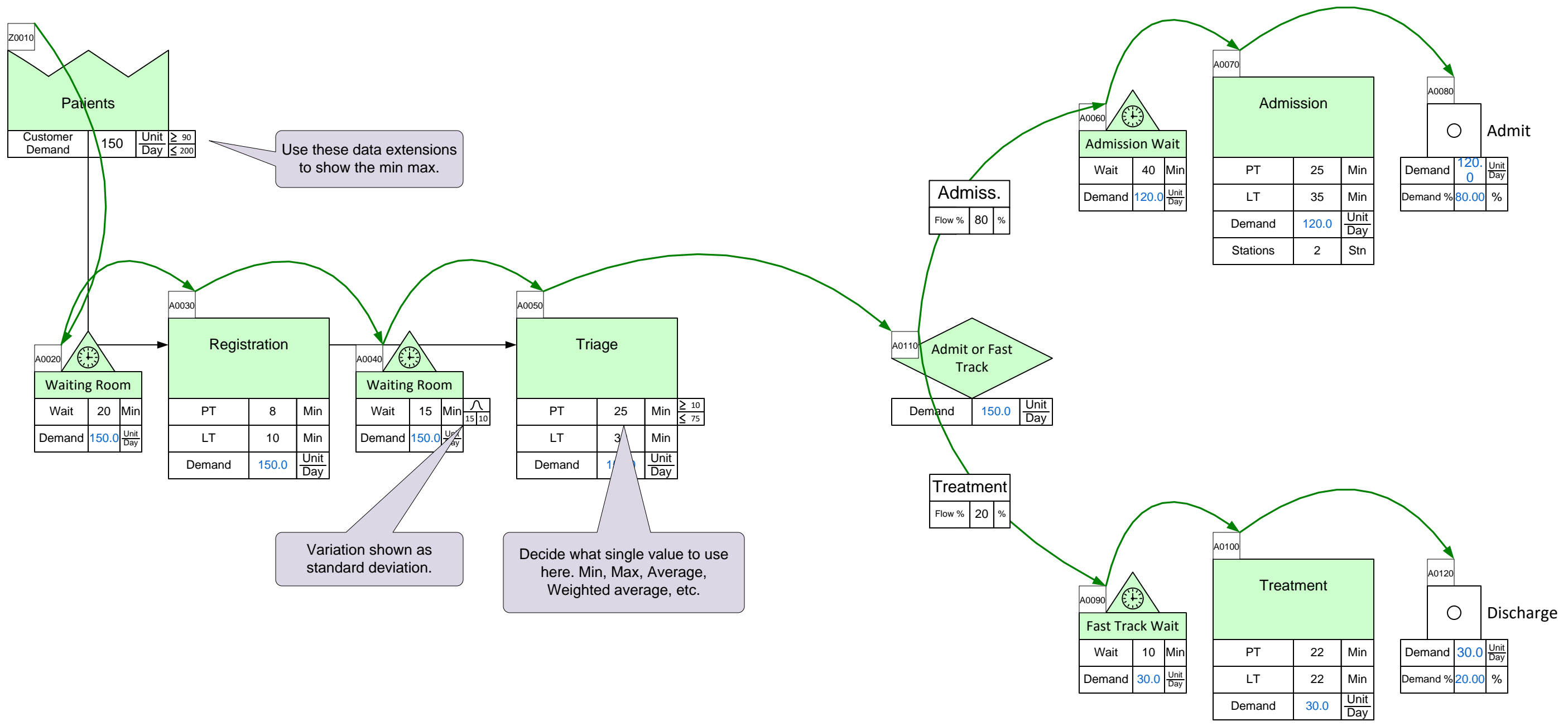


Units	Day	Wk	Year
	24	5	52
	Hr	Day	Wk

Healthcare Solution: Handling Variation

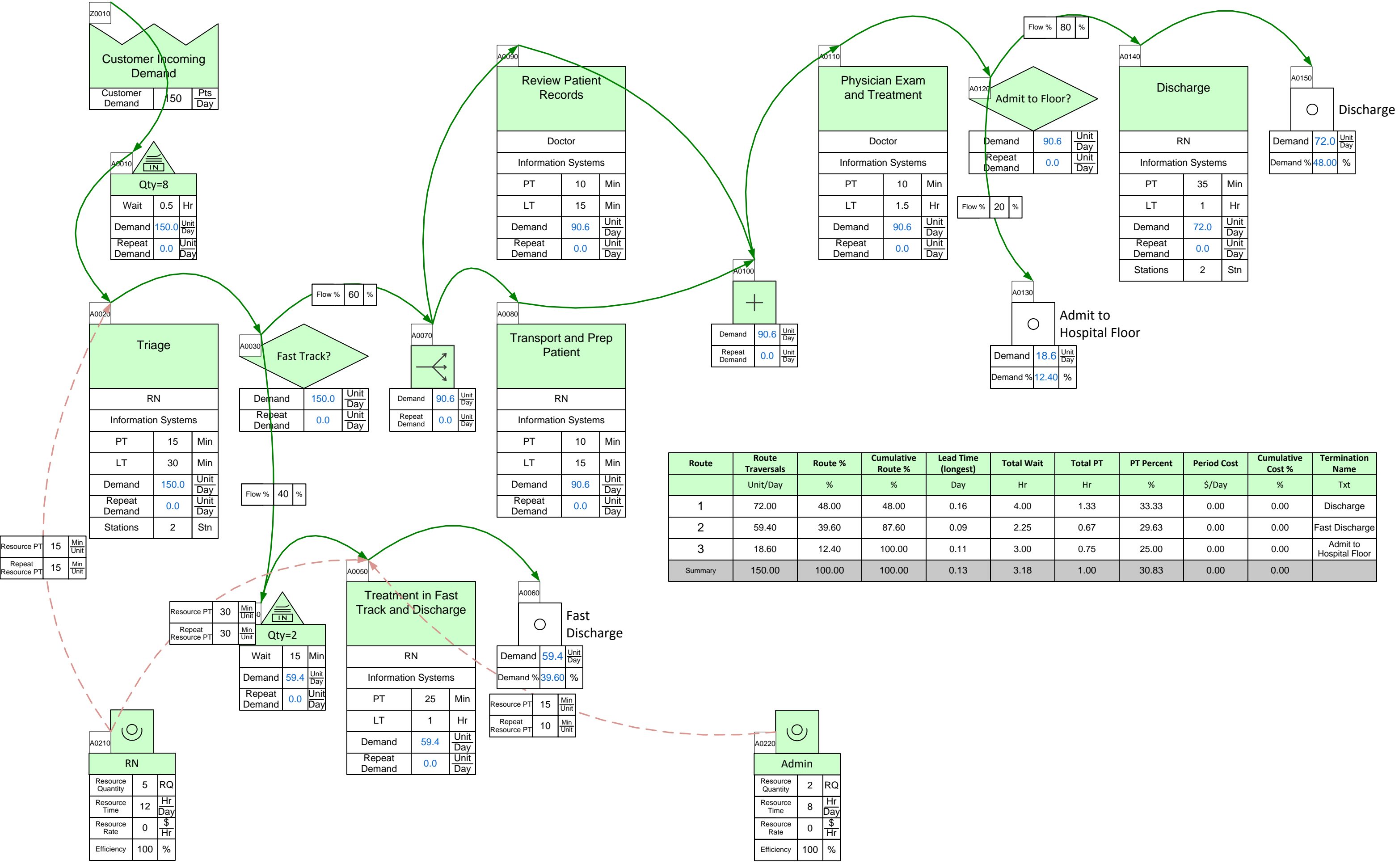
There is a lot of variation in the number of patients per day and also in the Triage turnaround time. How can you handle this on a VSM?

Variation is the root cause of most problems in value streams. Here, variation could be causing long wait times, staff stress, unnecessary costs, medical errors, etc. The first challenge is to make sure everyone concerned is aware of the variation the value stream has to deal with. This can be done as shown in the example. Value stream mapping is normally a static analysis based on a single data value for each input. You may use min, max, average, weighted average, or some other value which best represents the data for the analysis you are doing.

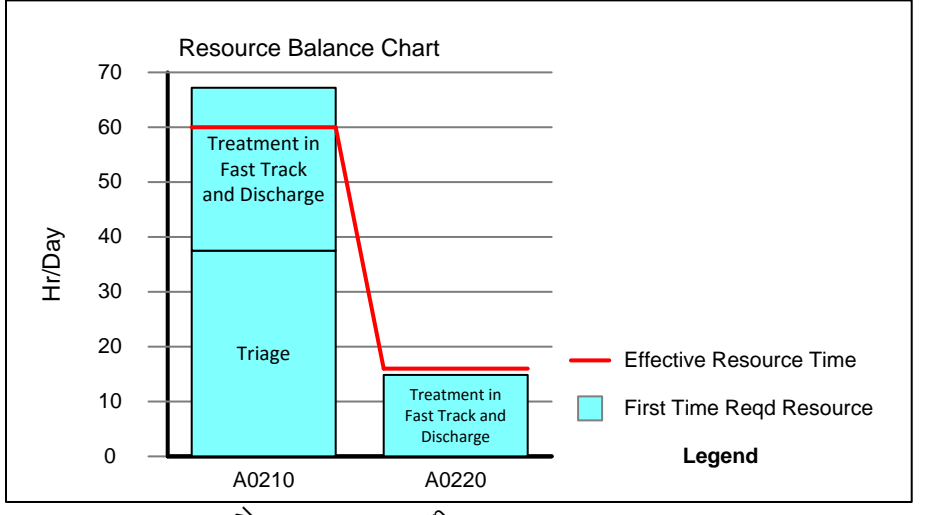


Units	Day	Wk	Year
	24	5	52
	Hr	Day	Wk

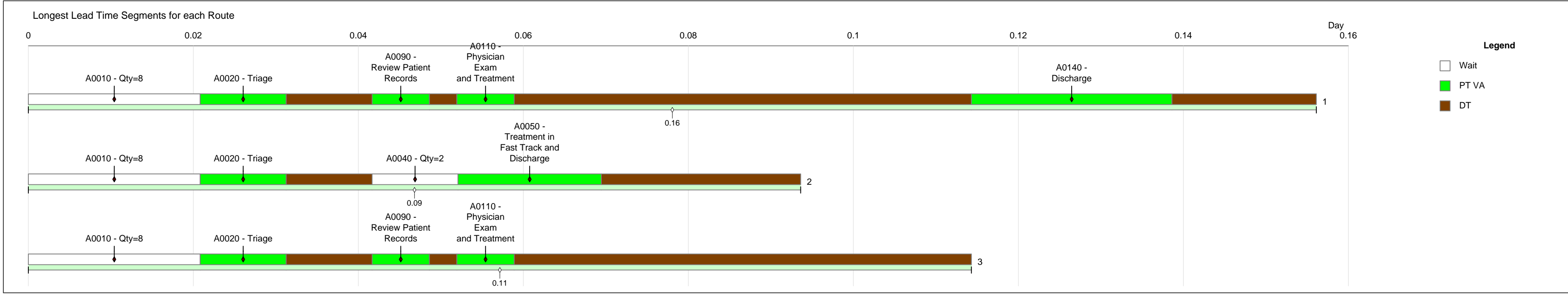
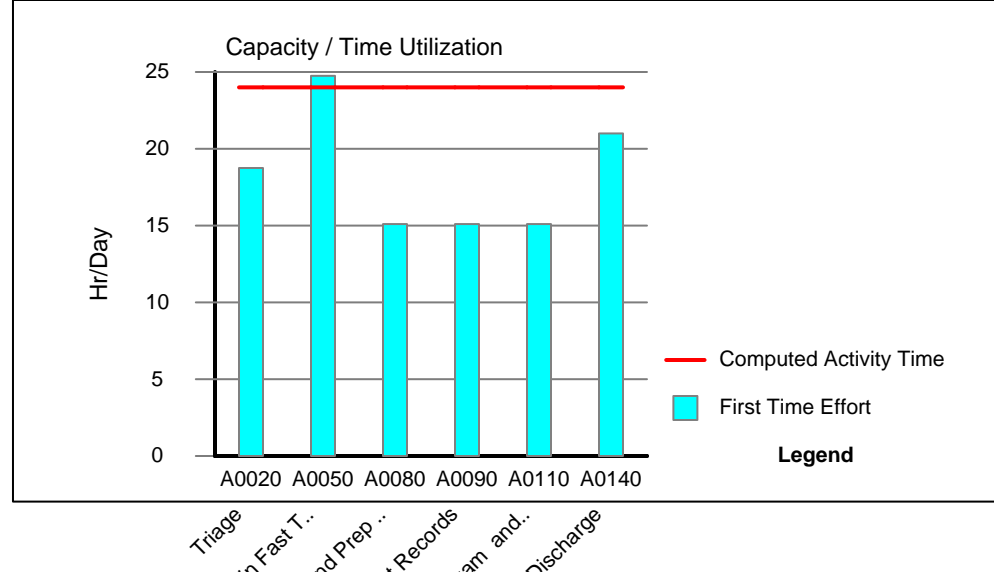
Emergency Department



Units	Day	Wk	Year	Pts
	24	5	52	1
	Hr	Day	Wk	Unit



Route	Route Traversals	Route %	Cumulative Route %	Lead Time (longest)	Total Wait	Total PT	PT Percent	Period Cost	Cumulative Cost %	Termination Name
	Unit/Day	%	%	Day	Hr	Hr	%	\$/Day	%	Txt
1	72.00	48.00	48.00	0.16	4.00	1.33	33.33	0.00	0.00	Discharge
2	59.40	39.60	87.60	0.09	2.25	0.67	29.63	0.00	0.00	Fast Discharge
3	18.60	12.40	100.00	0.11	3.00	0.75	25.00	0.00	0.00	Admit to Hospital Floor
Summary	150.00	100.00	100.00	0.13	3.18	1.00	30.83	0.00	0.00	

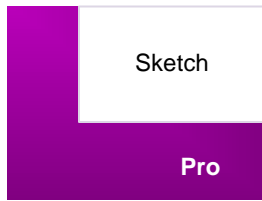


Quick Healthcare Stencil



[Quick Healthcare](#) is one of eVSM's [Quick Stencils](#) and supports value stream mapping for healthcare. It includes concepts of divergent flow, shared resources across activities, resource balancing charts, and activity based costing. It provides *easy*, *fast*, and *focused* mapping as shown below:

Quick Healthcare is actually a compatible set of 2 stencils as shown below.



Sketch: Simple sketch shapes, no data blocks

Pro: + additional concepts that increase map leverage.

Quick stencils are popular because of their capability and also because of the excellent deployment materials available. These include example maps, publications, and learning options.

Easy

Fast

4x mapping speed and quantified improvements with a well designed set of icons, variables, macro shapes, equations, and charts.



Standard Variables



Design Macro Shapes



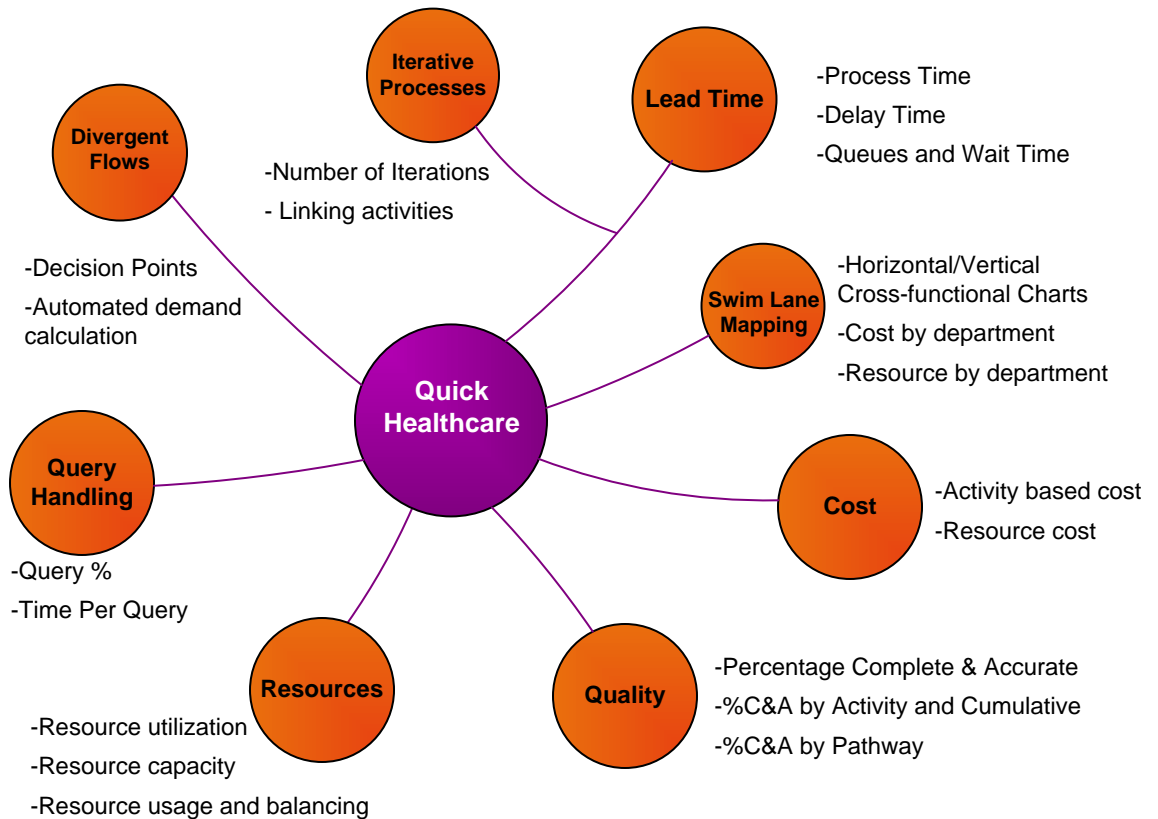
Built-in Equations



Built-in Charts

Focused

The technical concepts addressed by the Quick Healthcare stencil are shown below.



An example map drawn in Quick Healthcare is shown overleaf.

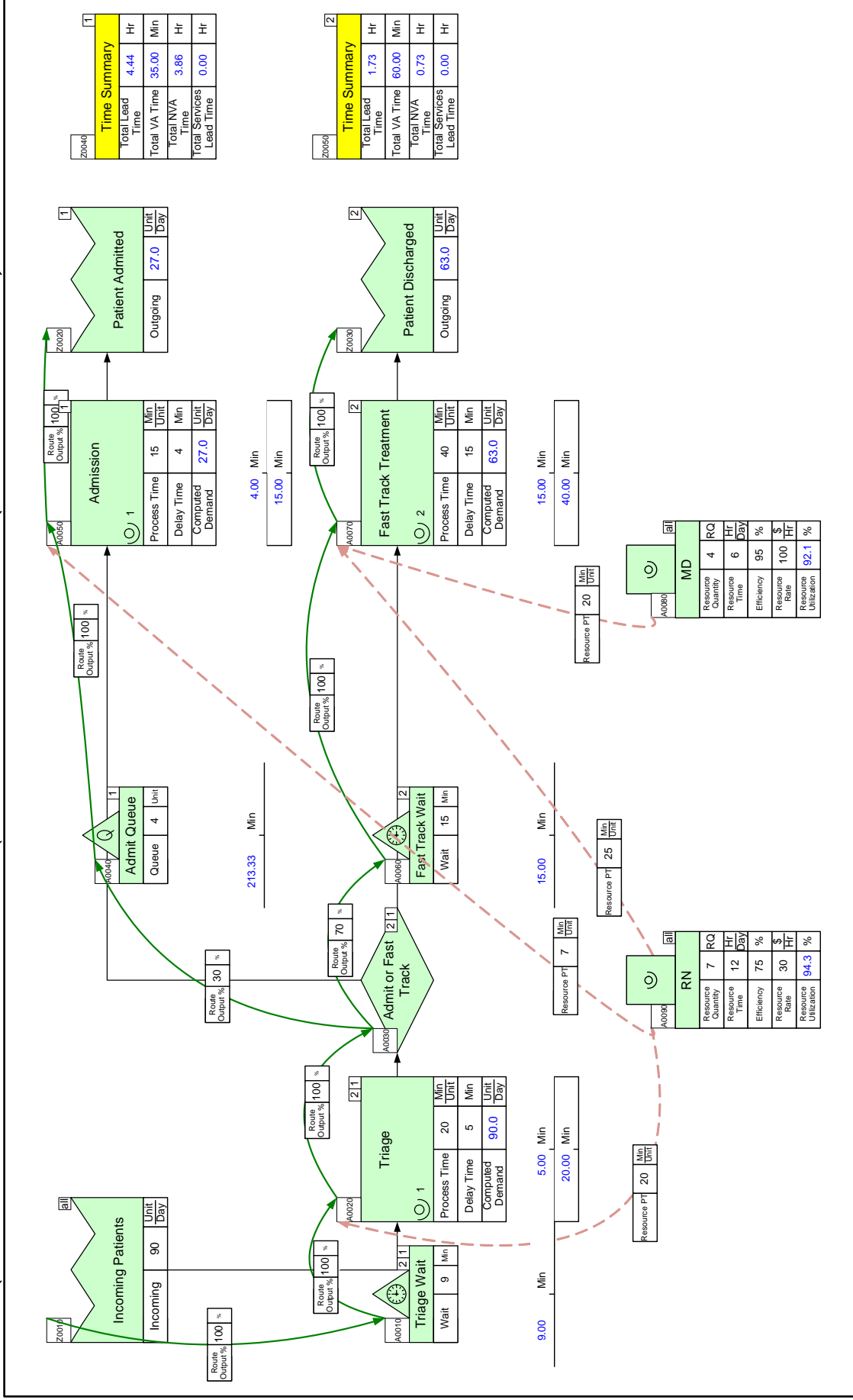
Support for activity overlap

Explicit support for query, interactions, and C&A (Complete and Accurate) concepts

Support for dedicated and shared resource pools

Resource balance charts and FTC calculation

Automatic charts for lead time, capacity, and cost



Decision-based routing with percentage input for each route

Support for multiple lanes, multiple outcomes

Hide/show data capability to simplify maps for printing and communication

Critical path support and summary calculation for each value stream path

Automated demand calculation at each activity based on routing percentage

Quick Healthcare Example Map with Features