



# **How to Meet Pediatric Well-Visit Requirements using Lean QI Methods**

**Dee Watts**

**Molly O'Neil**

# Presenter Disclosure

The following individuals have responded that they have nothing to disclose:

- *Delitha Watts*, Practice Transformation Facilitator, Institute for Health Policy and Practice, University of New Hampshire
- *Molly O'Neil, BS, Project Director*, Institute for Health Policy and Practice

# What is Lean ?

## Quality improvement tools and concepts

- Reducing waste
- Increasing efficiencies
- While focusing on customer value

# Where did Lean come from?

## After World War II, Japan:

- Lacked Money...
- Lacked Resources...
- Lacked People...
- Needed to fix the problem fast...

# Why do we use Lean?

- **For the same reasons as Japan**
- To keep up with Health Care Transformation
  - Payment Reform
  - Implementation of Quality Measures
  - Meeting Patient Satisfaction Expectations
- Health Care Sustainability

# Who did we use Lean with?

Rochester Pediatric Associates



**Frisbie** Memorial Hospital

**THANK YOU**



# How did we start using Lean?

Strategic  
Objectives

- By reviewing strategic objectives

Watching

- By watching

Listening

- By listening

Identifying

- By identifying

Prioritizing

- By prioritizing

Plan, Do,  
Study, Act

- By planning, doing, studying and acting

# Examples of strategic objectives

## Strategic Objectives

Watching

- Increase productivity

Listening

- Improve patient satisfaction

Identifying

- Improve best practice protocols

Prioritizing

Plan, Do,  
Study, Act

- Improve staff and provider satisfaction



# Examples of what we looked for

## Strategic Objectives

### Watching

### Listening

### Identifying

### Prioritizing

### Plan, Do, Study, Act

- Staff, Provider and Patient movement throughout the area
- Delays in the process
- Location of supplies and equipment
- Length of time for the visit
- Number of patients scheduled vs seen
- Right person doing the right job at the right time
- Everyone has a clear understanding of their role and responsibility

# Observation details

Strategic  
Objectives

Watching

Listening

Identifying

Prioritizing

Plan, Do,  
Study, Act

- Observation timeframe 8:00am-11:45am
- One provider (MD) and one clinical support (RN)
- 8 patients
  - 4 well patients seen
  - 2 cancellations
  - 1 no-show
  - 1 acute appointment added
- 3 well child visits, 1 follow up visit, 1 acute visit
- Additional staff include PSRs and a Triage Nurse
- Practice uses the Bright Futures recommendations for pediatric healthcare schedule

# Bright Futures Schedule

American Academy of Pediatrics Recommendations

| AGE <sup>1</sup>                                       | INFANCY               |                      |                    |         |      |      |                 |                      | EARLY CHILDHOOD |       |                      |       |       |    | MIDDLE CHILDHOOD |    |    |    |    |    | ADOLESCENCE |     |                 |     |     |     |     |     |     |     |     |     |   |   |
|--|-----------------------|----------------------|--------------------|---------|------|------|-----------------|----------------------|-----------------|-------|----------------------|-------|-------|----|------------------|----|----|----|----|----|-------------|-----|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|---|
|  | Prenatal <sup>2</sup> | Newborn <sup>3</sup> | 3-5 d <sup>4</sup> | By 1 mo | 2 mo | 4 mo | 6 mo            | 9 mo                 | 12 mo           | 15 mo | 18 mo                | 24 mo | 30 mo | 3y | 4y               | 5y | 6y | 7y | 8y | 9y | 10y         | 11y | 12y             | 13y | 14y | 15y | 16y | 17y | 18y | 19y | 20y | 21y |   |   |
| <b>HISTORY</b>   | ●                     | ●                    | ●                  | ●       | ●    | ●    | ●               | ●                    | ●               | ●     | ●                    | ●     | ●     | ●  | ●                | ●  | ●  | ●  | ●  | ●  | ●           | ●   | ●               | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ● | ● |
| <b>MEASUREMENTS</b>                                    |                       |                      |                    |         |      |      |                 |                      |                 |       |                      |       |       |    |                  |    |    |    |    |    |             |     |                 |     |     |     |     |     |     |     |     |     |   |   |
| Length/Height and Weight                               |                       | ●                    | ●                  | ●       | ●    | ●    | ●               | ●                    | ●               | ●     | ●                    | ●     | ●     | ●  | ●                | ●  | ●  | ●  | ●  | ●  | ●           | ●   | ●               | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ● | ● |
| Head Circumference                                     |                       | ●                    | ●                  | ●       | ●    | ●    | ●               | ●                    | ●               | ●     | ●                    | ●     | ●     | ●  | ●                | ●  | ●  | ●  | ●  | ●  | ●           | ●   | ●               | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ● | ● |
| Weight for Length                                      |                       | ●                    | ●                  | ●       | ●    | ●    | ●               | ●                    | ●               | ●     | ●                    | ●     | ●     | ●  | ●                | ●  | ●  | ●  | ●  | ●  | ●           | ●   | ●               | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ● | ● |
| Body Mass Index <sup>5</sup>                           |                       |                      |                    |         |      |      |                 |                      |                 |       |                      | ●     | ●     | ●  | ●                | ●  | ●  | ●  | ●  | ●  | ●           | ●   | ●               | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ● |   |
| Blood Pressure <sup>6</sup>                            |                       | ★                    | ★                  | ★       | ★    | ★    | ★               | ★                    | ★               | ★     | ★                    | ★     | ★     | ★  | ★                | ★  | ★  | ★  | ★  | ★  | ★           | ★   | ★               | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★ |   |
| <b>SENSORY SCREENING</b>                               |                       |                      |                    |         |      |      |                 |                      |                 |       |                      |       |       |    |                  |    |    |    |    |    |             |     |                 |     |     |     |     |     |     |     |     |     |   |   |
| Vision <sup>7</sup>                                    |                       | ★                    | ★                  | ★       | ★    | ★    | ★               | ★                    | ★               | ★     | ★                    | ★     | ★     | ●  | ●                | ●  | ●  | ★  | ●  | ★  | ●           | ★   | ●               | ★   | ★   | ●   | ★   | ★   | ★   | ★   | ★   | ★   | ★ |   |
| Hearing <sup>8</sup>                                   |                       | ● <sup>9</sup>       | ● <sup>10</sup>    | →       | ★    | ★    | ★               | ★                    | ★               | ★     | ★                    | ★     | ★     | ★  | ●                | ●  | ★  | ●  | ★  | ●  | ●           | ←   | ● <sup>11</sup> | →   | ←   | ●   | →   | ←   | ●   | →   | ←   | ●   | → |   |
| <b>DEVELOPMENTAL/BEHAVIORAL HEALTH</b>                 |                       |                      |                    |         |      |      |                 |                      |                 |       |                      |       |       |    |                  |    |    |    |    |    |             |     |                 |     |     |     |     |     |     |     |     |     |   |   |
| Developmental Screening <sup>12</sup>                  |                       |                      |                    |         |      |      |                 | ●                    |                 |       | ●                    | ●     |       |    |                  |    |    |    |    |    |             |     |                 |     |     |     |     |     |     |     |     |     |   |   |
| Autism Spectrum Disorder Screening <sup>13</sup>       |                       |                      |                    |         |      |      |                 |                      |                 | ●     | ●                    |       |       |    |                  |    |    |    |    |    |             |     |                 |     |     |     |     |     |     |     |     |     |   |   |
| Developmental Surveillance                             |                       | ●                    | ●                  | ●       | ●    | ●    | ●               | ●                    | ●               | ●     | ●                    | ●     | ●     | ●  | ●                | ●  | ●  | ●  | ●  | ●  | ●           | ●   | ●               | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ● |   |
| Psychosocial/Behavioral Assessment <sup>14</sup>       |                       | ●                    | ●                  | ●       | ●    | ●    | ●               | ●                    | ●               | ●     | ●                    | ●     | ●     | ●  | ●                | ●  | ●  | ●  | ●  | ●  | ●           | ●   | ●               | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ● |   |
| Tobacco, Alcohol, or Drug Use Assessment <sup>15</sup> |                       |                      |                    |         |      |      |                 |                      |                 |       |                      |       |       |    |                  |    |    |    |    |    |             | ★   | ★               | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★ |   |
| Depression Screening <sup>16</sup>                     |                       |                      |                    |         |      |      |                 |                      |                 |       |                      |       |       |    |                  |    |    |    |    |    |             |     | ●               | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ● |   |
| Maternal Depression Screening <sup>16</sup>            |                       |                      |                    | ●       | ●    | ●    | ●               |                      |                 |       |                      |       |       |    |                  |    |    |    |    |    |             |     |                 |     |     |     |     |     |     |     |     |     |   |   |
| <b>PHYSICAL EXAMINATION<sup>17</sup></b>               |                       | ●                    | ●                  | ●       | ●    | ●    | ●               | ●                    | ●               | ●     | ●                    | ●     | ●     | ●  | ●                | ●  | ●  | ●  | ●  | ●  | ●           | ●   | ●               | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ● |   |
| <b>PROCEDURES<sup>18</sup></b>                         |                       |                      |                    |         |      |      |                 |                      |                 |       |                      |       |       |    |                  |    |    |    |    |    |             |     |                 |     |     |     |     |     |     |     |     |     |   |   |
| Newborn Blood  |                       | ● <sup>19</sup>      | ● <sup>20</sup>    | →       |      |      |                 |                      |                 |       |                      |       |       |    |                  |    |    |    |    |    |             |     |                 |     |     |     |     |     |     |     |     |     |   |   |
| Newborn Bilirubin <sup>21</sup>                        |                       | ●                    |                    |         |      |      |                 |                      |                 |       |                      |       |       |    |                  |    |    |    |    |    |             |     |                 |     |     |     |     |     |     |     |     |     |   |   |
| Critical Congenital Heart Defect <sup>22</sup>         |                       | ●                    |                    |         |      |      |                 |                      |                 |       |                      |       |       |    |                  |    |    |    |    |    |             |     |                 |     |     |     |     |     |     |     |     |     |   |   |
| Immunization <sup>23</sup>                             |                       | ●                    | ●                  | ●       | ●    | ●    | ●               | ●                    | ●               | ●     | ●                    | ●     | ●     | ●  | ●                | ●  | ●  | ●  | ●  | ●  | ●           | ●   | ●               | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ● |   |
| Anemia <sup>24</sup>                                   |                       |                      |                    |         | ★    |      |                 |                      | ●               | ★     | ★                    | ★     | ★     | ★  | ★                | ★  | ★  | ★  | ★  | ★  | ★           | ★   | ★               | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★ |   |
| Lead <sup>25</sup>                                     |                       |                      |                    |         |      | ★    | ★               | ● or ★ <sup>26</sup> |                 | ★     | ● or ★ <sup>26</sup> |       | ★     | ★  | ★                | ★  |    |    |    |    |             |     |                 |     |     |     |     |     |     |     |     |     |   |   |
| Tuberculosis <sup>27</sup>                             |                       |                      |                    | ★       |      | ★    |                 | ★                    |                 | ★     |                      | ★     | ★     | ★  | ★                | ★  | ★  | ★  | ★  | ★  | ★           | ★   | ★               | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★ |   |
| Dyslipidemia <sup>28</sup>                             |                       |                      |                    |         |      |      |                 |                      |                 |       | ★                    |       | ★     |    |                  | ★  |    |    |    | ←  | ●           | →   | ★               | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   |   |   |
| Sexually Transmitted Infections <sup>29</sup>          |                       |                      |                    |         |      |      |                 |                      |                 |       |                      |       |       |    |                  |    |    |    |    |    |             | ★   | ★               | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★ |   |
| HPV <sup>30</sup>                                      |                       |                      |                    |         |      |      |                 |                      |                 |       |                      |       |       |    |                  |    |    |    |    |    |             | ★   | ★               | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★ |   |
| Cervical Dysplasia <sup>31</sup>                       |                       |                      |                    |         |      |      |                 |                      |                 |       |                      |       |       |    |                  |    |    |    |    |    |             |     |                 |     |     |     |     |     |     |     |     |     |   |   |
| <b>ORAL HEALTH<sup>32</sup></b>                        |                       |                      |                    |         |      |      | ● <sup>33</sup> | ● <sup>33</sup>      | ★               |       | ★                    | ★     | ★     | ★  | ★                | ★  | ★  |    |    |    |             |     |                 |     |     |     |     |     |     |     |     |     |   |   |
| Fluoride Varnish <sup>34</sup>                         |                       |                      |                    |         |      |      | ←               | ●                    | →               | ●     | →                    | ●     | →     | ●  | →                | ●  | →  | ●  | →  | ●  | →           | ●   | →               | ●   | →   | ●   | →   | ●   | →   | ●   | →   | ●   | → |   |
| Fluoride Supplementation <sup>35</sup>                 |                       |                      |                    |         |      |      | ★               | ★                    | ★               | ★     | ★                    | ★     | ★     | ★  | ★                | ★  | ★  | ★  | ★  | ★  | ★           | ★   | ★               | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★   | ★ |   |
| <b>ANTICIPATORY GUIDANCE</b>                           | ●                     | ●                    | ●                  | ●       | ●    | ●    | ●               | ●                    | ●               | ●     | ●                    | ●     | ●     | ●  | ●                | ●  | ●  | ●  | ●  | ●  | ●           | ●   | ●               | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ● |   |

# Floor Plan

Strategic Objectives

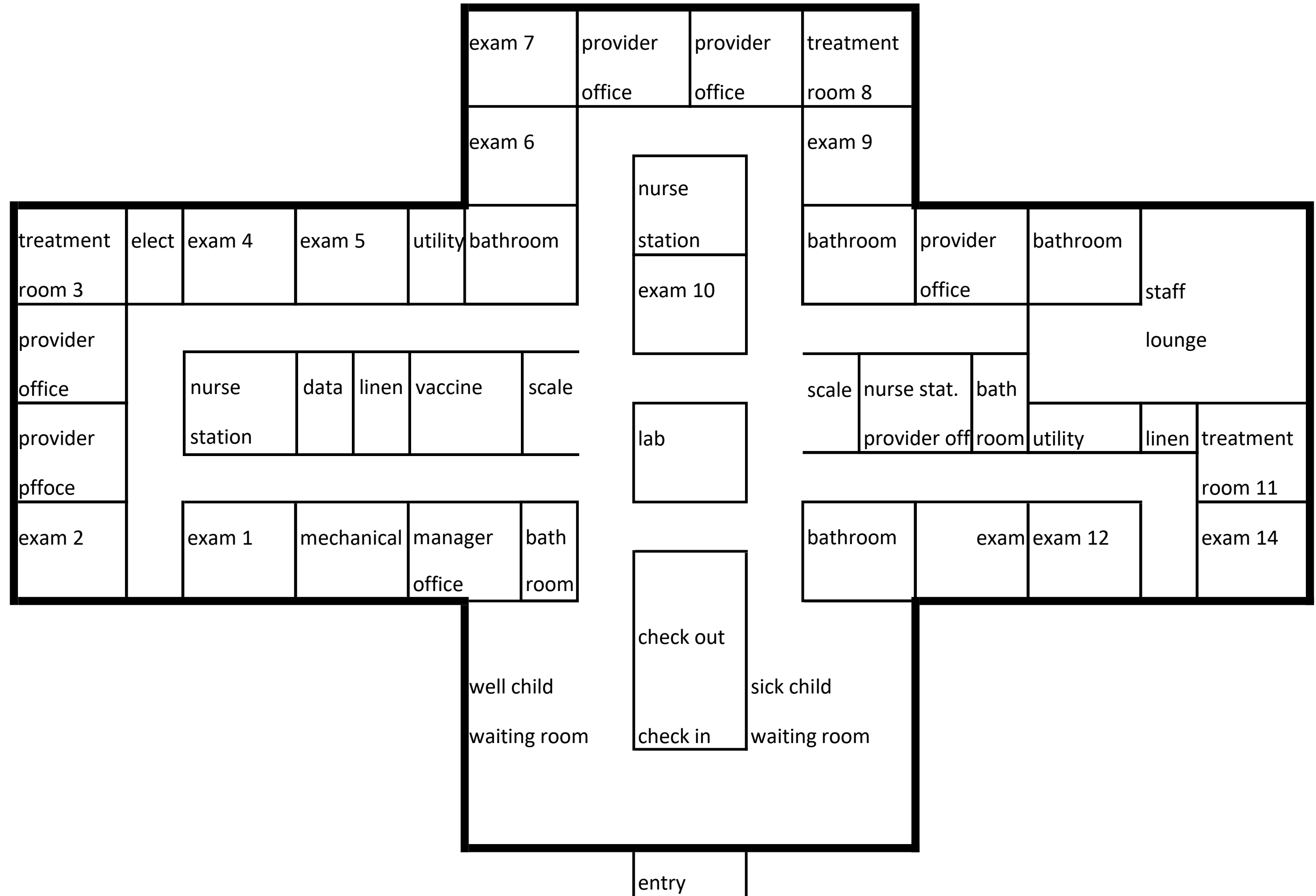
Watching

Listening

Identifying

Prioritizing

Plan, Do, Study, Act



# Spaghetti Diagram

Strategic Objectives

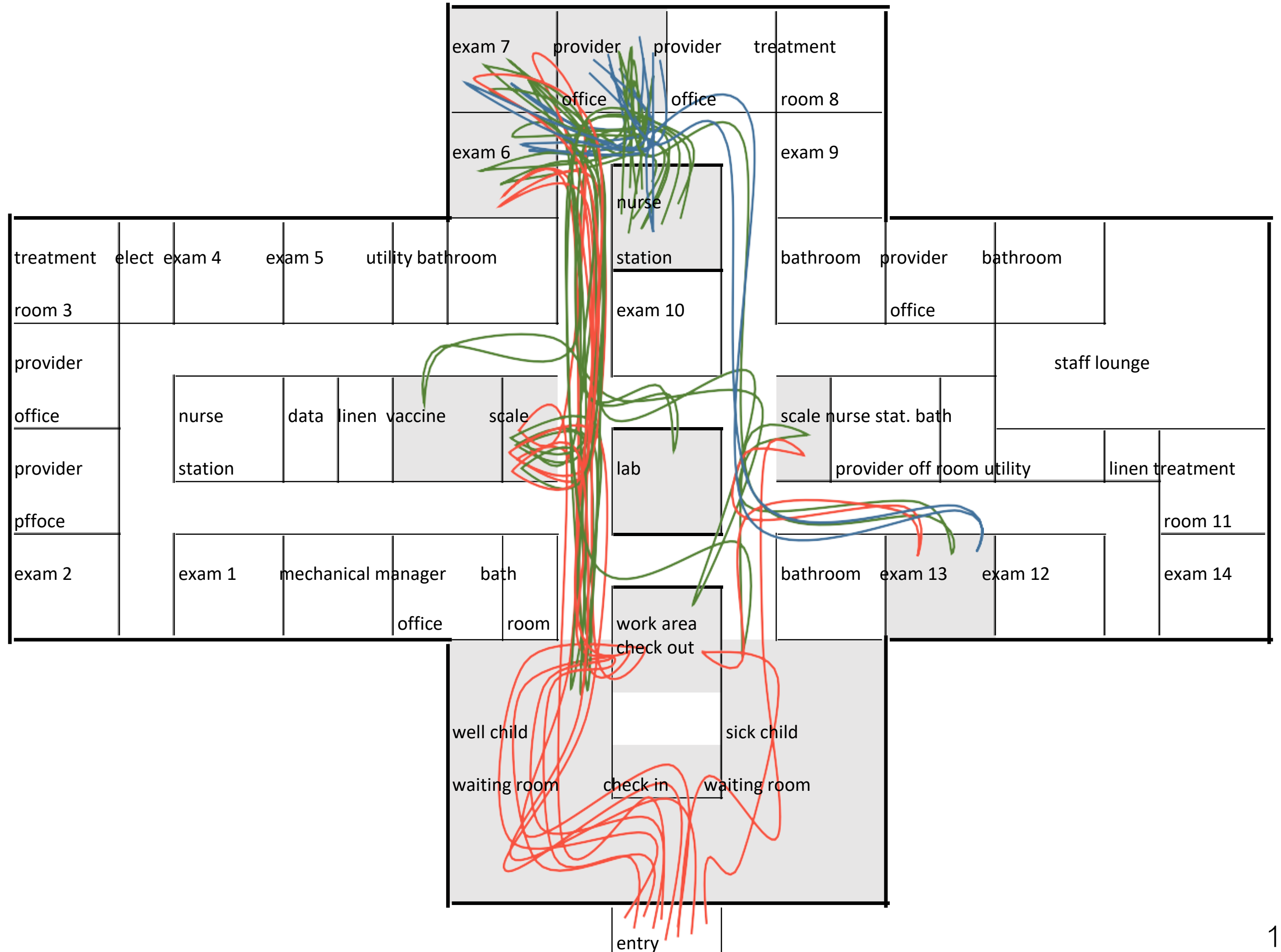
Watching

Listening

Identifying

Prioritizing

Plan, Do, Study, Act



# Patient 1 (6 year old female)

Strategic  
Objectives

Watching

Listening

Identifying

Prioritizing

Plan, Do,  
Study, Act

Appointment - 8:00-8:30am Follow-Up Visit

Reason - ADHD follow up post Neurologist visit

8:06-8:11 – Patient arrived, checked in and seated

8:11-8:13 – Nurse collected weight and height

8:13-8:16 – Nurse collected additional intake and history

8:16-8:18 – Nurse updated provider patient set to be seen

8:18-8:21 – Patient waiting in exam room for provider

8:21-8:43 – Provider in exam room with patient

8:43-8:47 – Patient discharged

41 minutes total clinic time for patient

15 minutes additional Provider time after visit



# Patient 2 (No Show)

Strategic  
Objectives

Watching

Listening

Identifying

Prioritizing

Plan, Do,  
Study, Act

Appointment – 8:30-9:00am

Office policy states that patient is not a no show until at least one half of the visit is over.



# Patient 3 (11 year old female)

Appointment - 9:00-9:30am Well Child Visit

Reason – Well child visit, one year behind in vaccines

Strategic Objectives

Watching

Listening

Identifying

Prioritizing

Plan, Do, Study, Act

8:28-8:45 – Patient arrived, checked in and seated

8:48-8:50 – Nurse collected weight and height

8:50-8:54 – Nurse collected BP, BMI and history

8:54-8:55 – Nurse updated provider child

8:55-9:24 – Provider in exam room with patient

9:24-9:46 – Patient waiting for vaccines

9:42-9:45 – Nurse drawing and administering vaccines

9:45-9:47 – Patient discharged

1 hour, 19 minutes total clinic time for patient

4 minutes additional nurse time entering orders and charges for vaccines

15 minutes additional Provider time after visit



# Patient 4 (6 year old male)

Strategic  
Objectives

Watching

Listening

Identifying

Prioritizing

Plan, Do,  
Study, Act

Appointment - 9:30-10:15am Well Child Visit & Follow Up

Reason – Well child visit, med check for ADHD, sleeping disorder and anxiety

9:21-9:25 – Patient arrived, checked in and seated

9:26-9:28 – Nurse cleaned room and set up screening

9:29-9:31 – Nurse collected weight and height information

9:31-9:40 – Nurse collected BP, BMI, history, vision and hearing

9:40-9:42 – Nurse updated provider mom has concerns

9:45-10:25 – Provider in exam room with patient

10:25-10:27 – Patient discharged

1 hour, 6 minutes total clinic time for patient

30 minutes additional Provider time after visit

# Patient 5 (2 year old female)

## Strategic Objectives

### Watching

### Listening

### Identifying

### Prioritizing

### Plan, Do, Study, Act

Appointment – 10:30-11:00 Well Child Visit

Reason – Well child visit

10:18-10:30 – Patient arrived, checked in and seated  
 10:28-10:30 – Nurse cleaned room and prepped room  
 10:30-10:32 – Nurse collected weight and height  
 10:32-10:36 – Nurse collected lead screening, BMI, and MCHAT  
 10:36-10:38 – Nurse updated provider with normal lead  
 10:32-10:42 – Patient waited in room for provider  
 10:42-11:03 – Provider in exam room with patient  
 11:03-11:09 – Patient discharged

51 minutes total clinical time for patient

5 minutes additional nurse time entering orders, running test and entering charges for lead screening

15 minutes additional provider time after visit

# Patient 6 & 7 (Cancellations)

Strategic  
Objectives

Watching

Listening

Identifying

Prioritizing

Plan, Do,  
Study, Act

Appointments – 11:00-11:30 & 11:30-12:00

Cancellations left on the overnight voicemail and retrieved first thing in the morning

One opening was rebooked with another patient

# Patient 8 (7 year old female)

## Strategic Objectives

Appointment – 11:00-11:30 Acute Visit

## Watching

Reason – Rash

## Listening

## Identifying

10:50-11:01 – Patient arrived, check in and seated

11:01-11:02 – Nurse collected weight and height

11:02-11:05 – Nurse collected additional intake and history

## Prioritizing

11:05-11:06 – Nurse updated provider with history and reason

11:06-11:25 – Provider in exam room with patient

## Plan, Do, Study, Act

11:25-11:29 – Patient discharged

39 minutes total clinic time for patient

10 minutes additional provider time after visit

# Examples of what we heard

Strategic  
Objectives

Watching

Listening

Identifying

Prioritizing

Plan, Do,  
Study, Act

- Electronic Health Record isn't always user friendly or customizable
- Providers aren't always comfortable with "select all" options
- Hard stops in the registration process create problems when the patient doesn't have the information
- Patients are encouraged to come 15 minutes early but most are not put in early
- Previous medical records are often hard to obtain or decipher
- In order to meet time requirements some patients have to be seen without records
- Not sure which services need charges



# Examples of what we heard

Strategic  
Objectives

Watching

Listening

Identifying

Prioritizing

Plan, Do,  
Study, Act

- Entering orders can be repetitive and it takes a lot of time
- Vaccine administration always requires 2 clinical staff
- Staff can be left on hold for extended periods of time or they play a lot of telephone tag
- No shows and late cancelations are a problem for everyone
- Information collected during intake depends on how much time the nurse has available to spend with the patient
- Information prepped for next days patients depends on how much time the nurse has that day
- Clinical supplies are inventoried and re-ordered weekly

# Examples of strategic objectives

## Strategic Objectives

Watching

Listening

Identifying

Prioritizing

Plan, Do,  
Study, Act

- Increase productivity
- Increase patient satisfaction
- Improve best practice protocols
- Improve staff and provider satisfaction

# Examples of what we can identify

## DOWNTIME

Strategic Objectives

Watching

Listening

Identifying

Prioritizing

Plan, Do, Study, Act



DEFECTS



OVER-  
PRODUCTION



WAITING



NON-UTILISED  
TALENT



TRANSPORT



INVENTORY



MOTION



EXTRA  
PROCESSING

The 8 Wastes



# Defects

Strategic  
Objectives

Watching

Listening

Identifying

Prioritizing

Plan, Do,  
Study, Act

- Registration or scheduling errors
- Missing charges or incorre
- Misdiagnosis or missed ser



# Overproduction

## Strategic Objectives

### Watching

### Listening

### Identifying

### Prioritizing

### Plan, Do, Study, Act

- Preparing tests or vaccines before the patient gives consent
- Printing more medical records than necessary
- Not staffing to volumes



# Waiting

Strategic  
Objectives

Watching

Listening

Identifying

Prioritizing

Plan, Do,  
Study, Act

- Time spent in waiting room by patient
- Uneven workloads
- Time spent on hold



# Non-Utilized Talent

Strategic  
Objectives

Watching

Listening

Identifying

Prioritizing

Plan, Do,  
Study, Act

- Staff not working at the top of their license
- Roles and duties so restricted that staff can't help each other
- Not listening to employees



# Transportation

Strategic  
Objectives

Watching

Listening

Identifying

Prioritizing

Plan, Do,  
Study, Act

- Moving patients back and forth between locations
- Moving supplies back and forth between locations



# Inventory

Strategic  
Objectives

Watching

Listening

Identifying

Prioritizing

Plan, Do,  
Study, Act

- Excessive supplies taking up space
- Needing to discard expired supplies
- Running out of supplies



# Motion

Strategic  
Objectives

Watching

Listening

Identifying

Prioritizing

Plan, Do,  
Study, Act

- Printers and fax machines not close at hand
- Paper supplies and forms not easy to reach
- Exam rooms not laid out efficiently





# Extra Processing

Strategic  
Objectives

Watching

Listening

Identifying

Prioritizing

Plan, Do,  
Study, Act

- Information printed or collected and not used
- Unnecessary referrals
- Unnecessary testing





# Example of how we can prioritize

Strategic Objectives

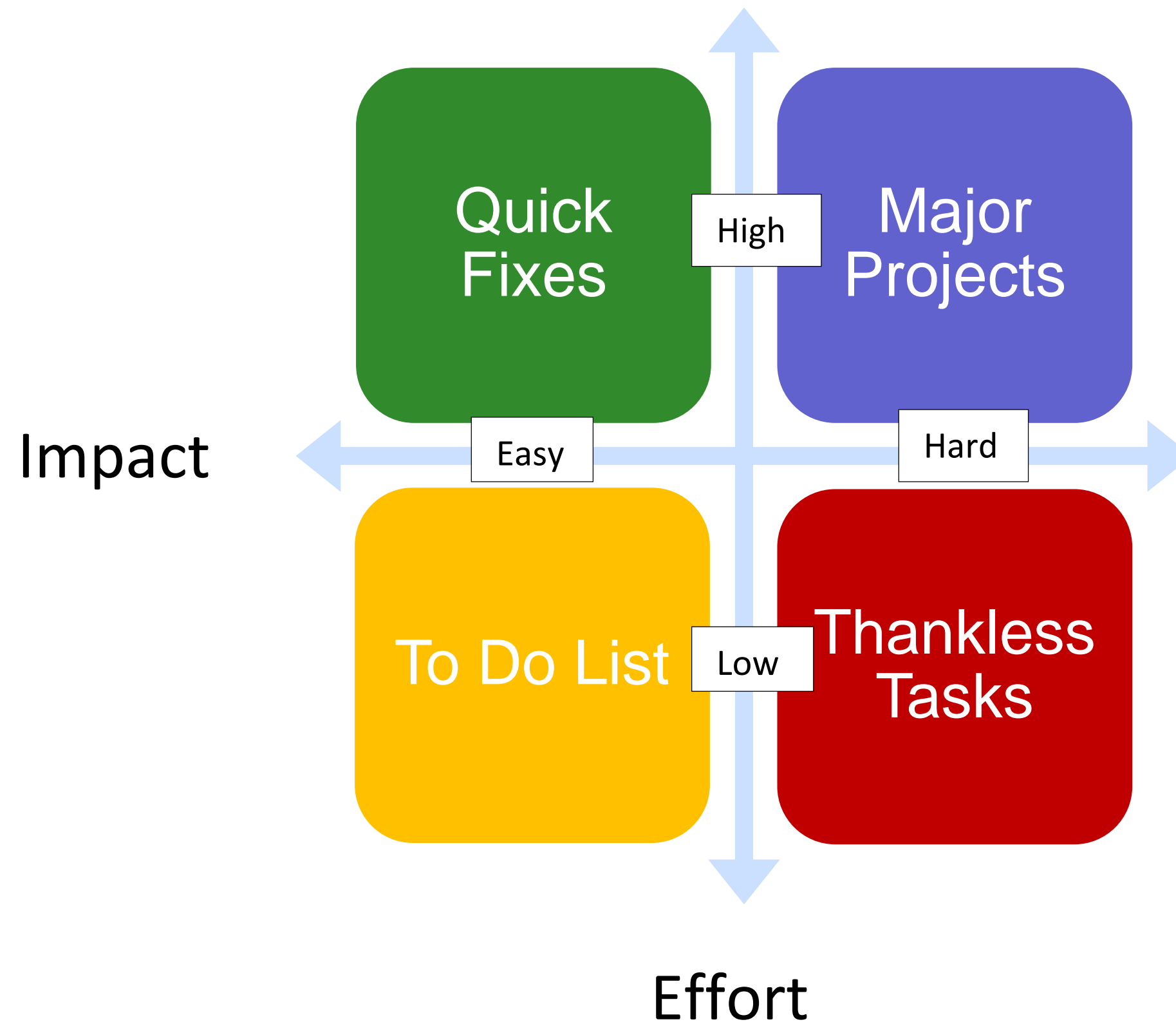
Watching

Listening

Identifying

Prioritizing

Plan, Do, Study, Act



# Examples of PDCA cycles

|                      |
|----------------------|
| Strategic Objectives |
| Watching             |
| Listening            |
| Identifying          |
| Prioritizing         |
| Plan, Do, Study, Act |

