



## Overview

In this module we are going to prepare for the next phase of JB's treatment. We will develop a goal for her as well as take a preliminary look at forecasting when she will reach that goal.

## Setting a Goal for JB

When speaking with JB, you learned that she has some big plans for the summer (e.g. getting her driver's license, getting a summer job) and so you want to build on her motivation for that timeframe to help her develop a **significant improvement** in fluency by the time her summer break begins. With that in mind, you talk it over with her and you set an aggressive goal of doubling (nearly) her baseline median fluency by the start of summer break.

She is excited for the challenge and the idea of experiencing such an improvement. You decide to formally define a goal for her of reaching 55% fluency by week 25. (Her median performance with 28.5% fluency during the baseline phase, doubling would be 57% - hence *nearly doubling* her baseline performance). This is an aggressive target, and you want to be cautious about setting unrealistically high expectations, but in talking with her you feel she has the potential and is ready to make the effort necessary to work towards that goal.

You also decide that showing JB her progress on the iGraph™ will help her to track her progress and motivate her to focus and work hard during the weekly sessions. The next step is to prepare her iGraph™ for the next phase of treatment with the formal goal and timeframe shown visually so that you can share an informative visual with her as motivation.


## Preparing for a New Phase of Treatment

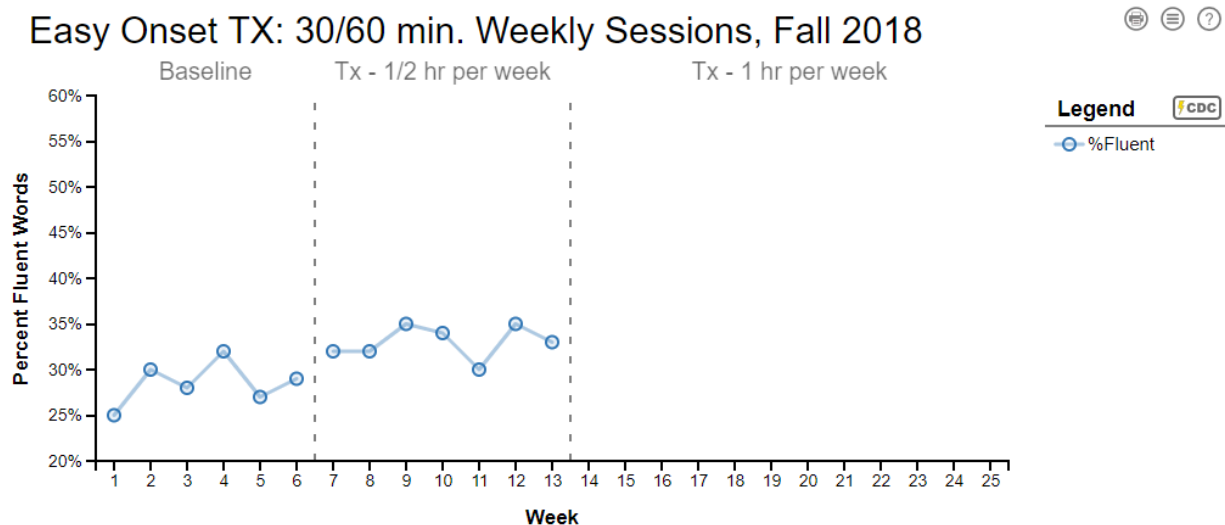
When we first introduced a phase line in module 1.2, we covered when and why phase line were used. From module **1.2 Working with an iGraph™**:

Insert phase lines when you make a change in your treatment approach (e.g., changing to a different method of teaching easy onsets), or to mark a change in circumstances (e.g., new medication schedule, change in school, new AAC device) that may impact your client's performance.

In the last module we decided to adjust JB's treatment plan. This change merits the addition of a phase line to the iGraph™ so that we can identify the change in treatment visually on the iGraph™. We'll do that next.

### iGraph™ Practice 1.4.a

1. In this instance, you decided to double JB's therapy time (going from 1/2 hour to 1 hour, once a week). Let's put a new phase line in at the end of the data markup to indicate this change in her treatment. Add the phase line character | and then click the **Update iGraph™** button.
2. To help make the change in treatment clear, let's adjust the phase labels so that they are more descriptive. For the second phase, let's change it from "Treatment" to "Tx - 1/2 hr per week" and for the third phase, change it from "Phase C" to "Tx - 1 hr per week".
3. Next, we will adjust the x-axis so that we can project out her progress to the end of the school year – which ends in 12 weeks. With the baseline data that JB brought to her first appointment, we are now at week 13 of data collection. If we adjust the x-axis range to week 25 then the iGraph™ will show the weekly sessions through until the start of summer break. Open the **Settings** dialog  and set the **Pad x-axis to** value to 25.
4. Next, let's correct that graph title so that we reflect the fact that there are now going to be both 30- and 60-minute sessions performed during the treatment. Change the graph title to read: **Easy Onset TX: 30/60 min. Weekly Sessions, Fall 2018**. The resulting graph should look like the one below.



## Goals and the Goal Line Visual

Next, we'd like to add the goal to the iGraph™ as a visual target for JB to see when we show her the iGraph™. Goals can be defined and visualized for each phase by adding them to the data markup. We will cover the details on how to add a goal next.

Because there is natural variability to a client's performance, it is normally appropriate to try and ensure that they are performing at the desired level by requiring that they achieve that level more than just once. This helps to minimize the chance that the goal was achieved by "luck" and that your client can consistently perform at the desired level.

As indicated in **Chapter 4.2**, the format for the data markup for a goal is **goal(N, R, ±C)**, where:

- **N** is the Targeted number of sessions that must be at or above the stated criteria.
- **R** is the Range of sessions in which the target behavior needs to be at or above the criteria.
- **±** indicates whether the goal pertains to increasing (+) or decreasing (-) performance.
- **C** is the Criteria that must be achieved.

For example, **goal(3, 5, +80)** means that: **At least 3 out of the last 5 sessions must be 80 or above** in order to consider the goal to have been met.

Another example – this time with a decreasing criteria – is **goal(2, 4, -30)** which means that: **At least 2 out of the last 4 sessions must be 30 or below** in order for the goal to have been met.

It is easy to construct this syntax of **goal(N, R, ±C)** by simply saying it out loud with the phrase:

*At least **N** out of the last **R** sessions must be at or above/below (+/-) **C***

Only replace the terms in the sentence **N, R, above** (or **below**), and **C** with the appropriate goal criteria.

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***NOTE:** The +/- sign will become critical to analyzing criteria using the analysis panel, which will be described later.*


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One final example before we move on. Let's say that you want your client to perform at a level that is at or above 65% - and you want them to do it three times in a row to ensure that they have confidently achieved that level of performance. In this case, your goal would look like this: **goal(3, 3, +65)** And would be read as: **At least 3 out of the last 3 sessions must be 65% or above.**

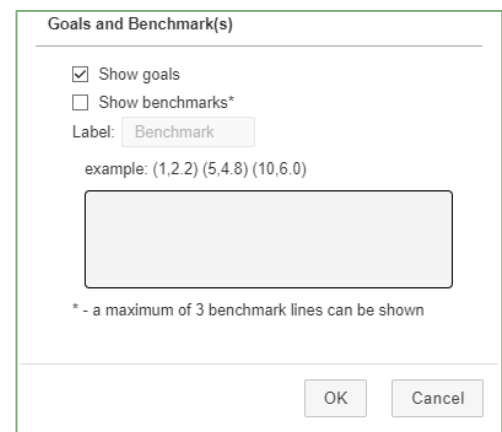
In many instances, you will have a goal in mind of what you want your client to achieve within a specific time period. **Chapter 4.2 Constructing Goals** addresses this topic, so we will not dwell on the details here. For now, we'll just practice setting a goal in the data markup assuming that

when it comes to defining a goal for a client that you have derived some reasonable criteria for the goal based on all of the relevant components of the intervention plan.

### *iGraph™ Practice 1.4.b*

1. First, we will adjust the settings so that goals will be shown by default. Open the **Settings** dialog  and under the **Goals and Benchmarks** section (found near the bottom of the settings dialog) check the box next to **Show goals**. Click **OK** to exit the dialog and save your settings.
2. For JB, you decided that she should target a goal of 55% fluent speech by the start of summer. To be able to assess her progress towards this goal, you need to set the y-axis min and max a little below her lowest performance levels (min) and a bit above her goal (max). If your y axis range is still set between 20% and 60%, then you are all set, if not, then adjust the range to match these values.

As a reminder, you can do set these values by clicking on the y-axis to bring up the **Y-axis Settings** dialog and setting the min and max values under the **y-axis range** section.



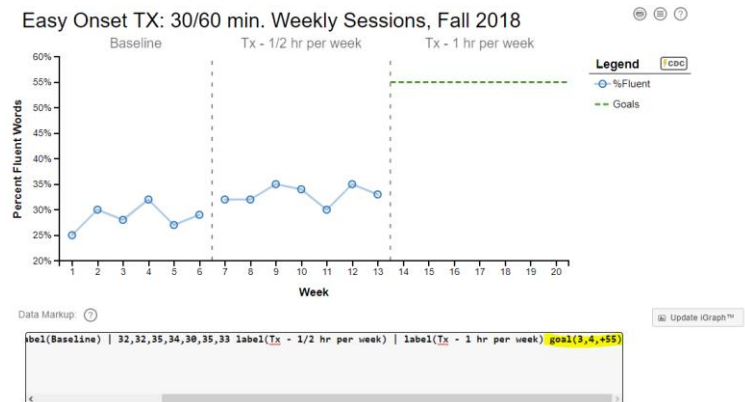
3. Because her performance varies, you want her to repeatedly perform her targeted fluency level to ensure that she is consistently performing at that level. With this in mind, you set a criterion that **at least 3 out of the last 4 sessions must be at or above 55%**. These criteria translate into a goal markup that looks like ...what? Try and write it down in the space below.

809|(3' 4' +22)

You can check your work by using your phone camera to reverse and flip the image of the answer shown on the right (or – if you want to go old school - by flipping the page upside down and holding it up to a mirror).



Now, enter your goal markup after the second phase line (at the very end will do – see highlighted markup in iGraph™ image on the right). By doing this, you will place the goal in the third phase in the markup and it will be shown in the third phase on the iGraph™. Once you are done, your updated graph should look like the graph shown on the right.



You should see the goal show up as a dashed green line in the third phase.

Note that the Goal also shows up as a legend item, which when clicked will toggle the visibility of the goal line.

## Revisiting the Question: When can I expect my client to reach their goal?


Back in module 1.2 we asked the question “*When can I expect my client to reach their goal?*” Now that we have a goal specified, this question becomes more relevant. The process answering this question involves forecasting the performance of the client and estimating when the progress will attain the desired performance level.

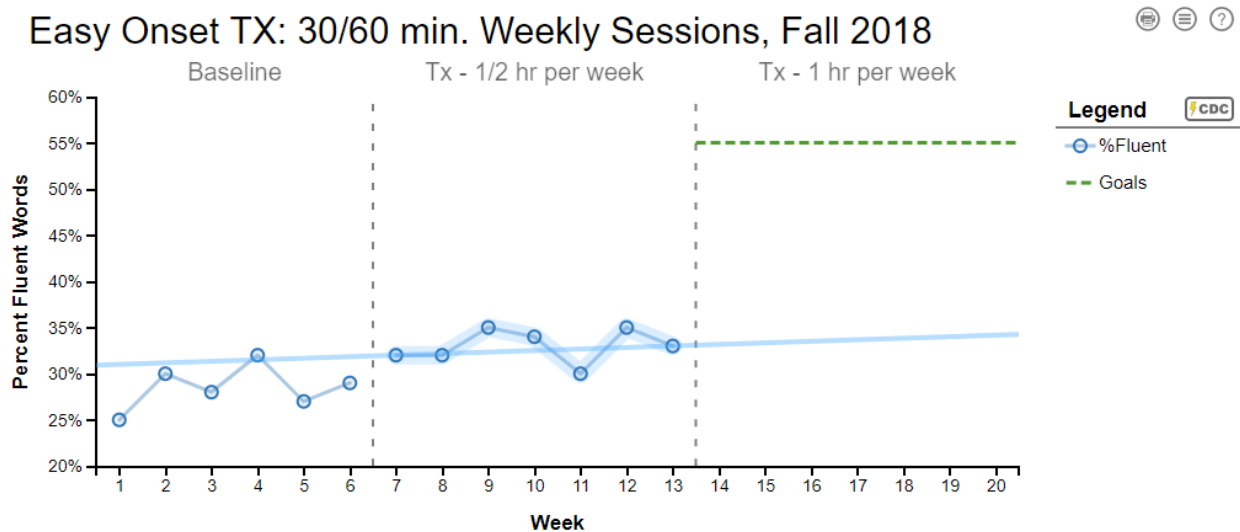
Trendlines can help us to project progress into the future to forecast how the client might perform at a later date. While helpful, we must remember that trendlines are estimates based on a small number of data points. We know that there are multiple variables governing any individual’s performance, so **it is a mistake to assume that any client will continue on a linear trajectory through all time.**

In JB’s case, it is safe to assume that at some day she will plateau. For example, in the extreme, JB – no matter what the rate of her improvement is - will ultimately plateau when she reaches 100% fluency! Putting aside that extreme case for a moment, let’s take a look at the data for JB as she is performing now and ask ourselves when we think she will reach her goal.

### iGraph™ Practice 1.4.c

1. JB's goal is to achieve 55% fluency. To help forecast when JB will reach 55% fluency, let's project her performance into the future and see when it reaches 55%. We can estimate the session when her goal is achieved by identifying the point at which the trendline crosses the 55% line in the iGraph.

We don't have any data for our new, 1-hour treatment session phase, so we will use the data that we have for the second phase (30-minute sessions) to make our estimate. Click on the second phase data path to bring up the Analysis Result panel for that phase and then click on the trendline icon  to show the trendline on the iGraph™.



2. Looking at the trendline as compared to the 55% goal line, it looks like they will cross sometime well past the 25<sup>th</sup> week on our iGraph™. The only thing we can say for certain is that – based on her current rate of improvement – it looks like it's going to be quite a long time until she will reach that 55% fluency goal.

This isn't an encouraging discovery. However, in this case it may be best to reserve final judgement until we can see the impact of the new, longer sessions on JB's performance. We will proceed with our modified treatment and then perform this analysis again in a few weeks once we have collected some additional data and have a better understanding of whether or not the changes have the impact we are hoping for.

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*NOTE: Since it doesn't show on the graph, you definitely get bonus points if you used the slope to find the equation of the trendline and then went on to calculate that – at the current rate of improvement of 0.17% per week – JB would reach her goal sometime during the session held on the 143<sup>rd</sup> week. (And yes, Mrs. Penapento, you were right. I \*would\* need to know algebra after I graduated from middle school.)*

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## Congratulations!

You have defined and set up a specific goal for JB to target for her fluency performance and her iGraph™ is prepared and ready for this next phase of treatment. You have also taken a preliminary look at how we can use a data trendline to forecast a client's performance into the future and how that can inform our estimates of when a goal might be achieved.

We'll revisit the question about when we can expect our client to reach their goal again once we have some current data under the new treatment plan (1-hour long sessions as opposed to 1/2-hour sessions). We will also see how this type of forecasting can help communicate realistic expectations to our client even as we remain cautious about the certainty of trendlines that are derived from a small number of datapoints.

Below are listed a series of How-To resources that you can use to obtain more information on analyzing data series and entering goals using Therapy-Science and the included iGraph™ visualization and analysis methods.

## Relevant How-To Resources

Additional information on some of the technical steps covered in this tutorial are covered in the following How-To articles. You can find these in the **How-To Index** that is in the **Quick Links** section of the **Resources** page.

- How-To Analyze Data I: Single Data Series
- How-To Analyze Data II: Level, Trend, and Variability
- How-To: Make Goals and Benchmarks