Nuance®
eScription One
ShadowScribe ASR and InScribe

Typing and Editing Unstructured Documents

A Guide for the MT and MLS

NUANCE

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Introduction

This user guide is intended to show how to use InScribe to both type and edit using ShadowScribe Automated Speech Recognition (ASR) and assumes you already know InScribe.

ASR is the technology used to create draft transcriptions. Drafts require a skilled person to review and make corrections to transform the draft into a complete, medically accurate document.

Since drafts are already transcribed, the first action is to read rather than type. Because reading is faster than typing, transcriptions can be completed quicker. You only need to edit what is incorrect. This process improves productivity, as less time is spent on straight typing. The system also automates document formatting at both the content level (formatting dates, numeric quantities, frequencies and ranges to name a few) and style level, (formatting section titles - bolding and casing, content placement, and more). This automation further improves productivity and frees you, the MT/MLS, to concentrate more on the medical content of the document.

Note: This guide assumes the “Use ASR-Enhanced Shortcuts” is enabled in InScribe and will refer to these shortcuts throughout. To verify that you have these set, go to the Options Menu, Shortcut Keys. Under the Options section, make sure the shortcuts drop down is set to “Use ASR-Enhanced Shortcuts”.

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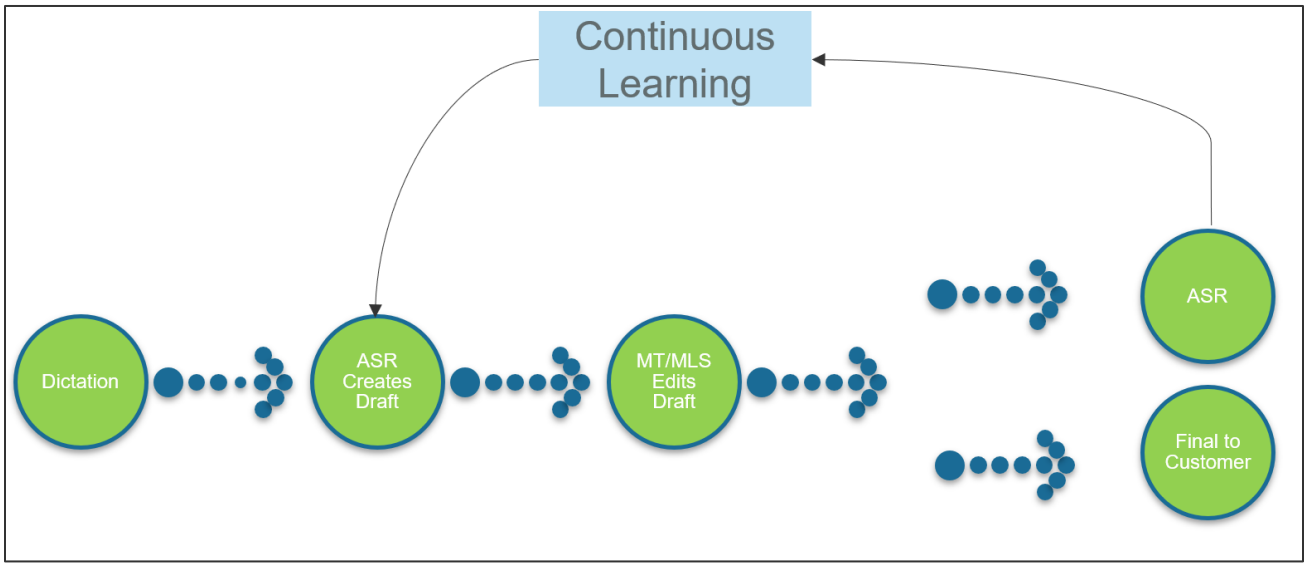
Brief Overview of How ShadowScribe Works

A clinician will dictate and record the narrative of a patient encounter into an audio file. This audio file will be sent to the ShadowScribe Automated Speech Recognition (ASR) system, which transforms the audio into text as a draft transcription.

During the draft generation process, the draft will be assessed to determine whether it should be released for editing. Drafts are released unless the quality results in a greater editing effort, in which case, only the audio will be released for straight typing. After the draft has been edited, it may go through additional levels of QA or be delivered to the client as a final document. Upon delivery, the final document is split into two copies. One copy goes to the client for their workflow, while the other goes back to the ASR system for learning. During the learning process, the system will compare and analyze the edited draft with the original, using the MLS corrections to continually improve upon the quality of drafts over time.



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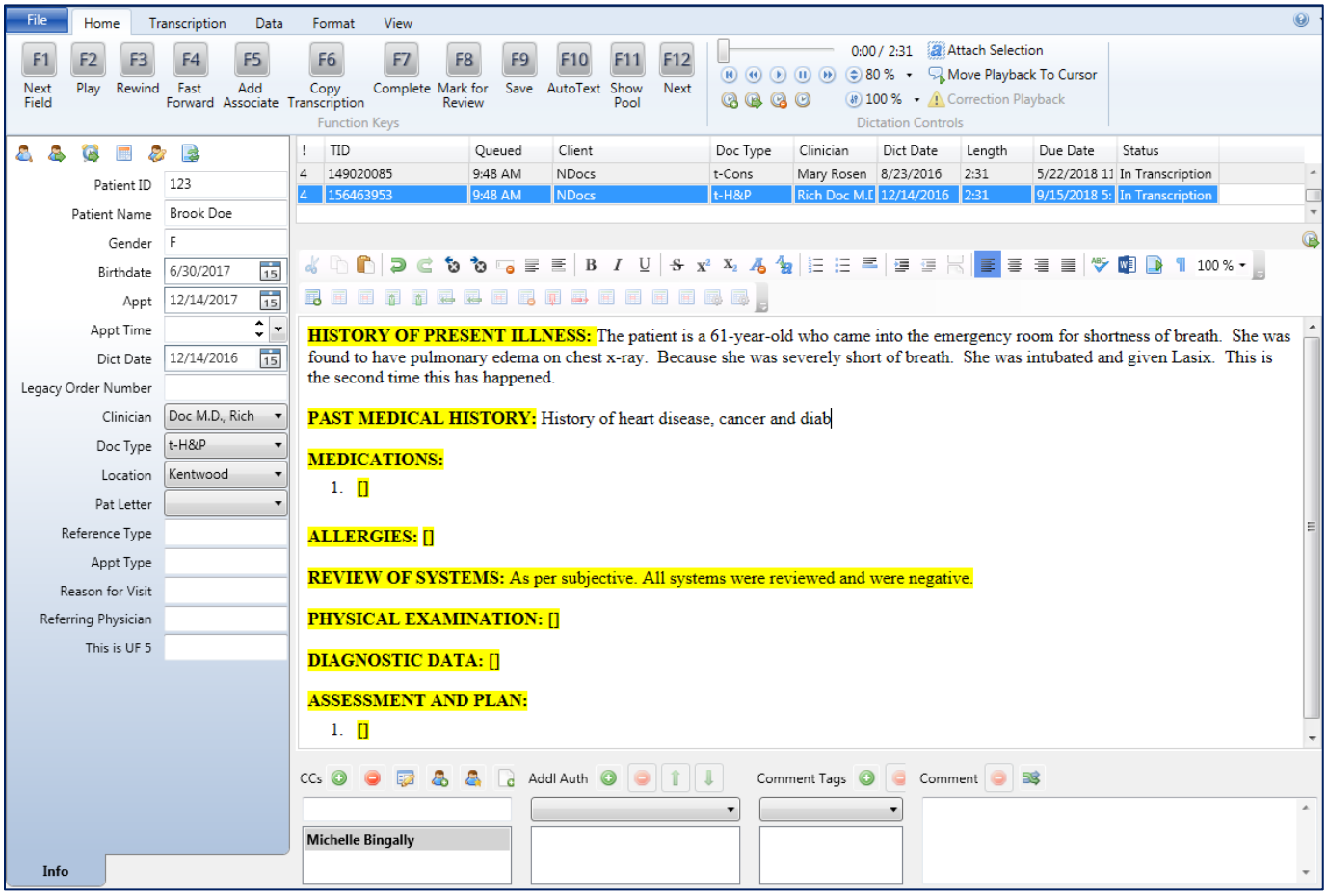
Typing in the Unstructured Format

The process for typing unstructured ShadowScribe ASR jobs is no different than if the client was not using ASR. The job will load into your dictation queue, you'll play the audio and type into the editor as you normally do. If used, document and/or dictation templates work the same as well. What does change is that you will follow a StyleGuide for formatting certain types of content, and completed jobs go back to both the client's workflow and to ShadowScribe ASR for speech model building.



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The StyleGuide

When typing (and editing) certain types of content, it is important the MT/MLS team adheres to specific formatting rules. This ensures that ASR learns to incorporate the correct formatting into future drafts. The StyleGuide is a document that keeps the MT/MLS team aligned on a formatting standard and is agreed upon by the client ahead of time. When you start a new client, your supervisor should provide this document as part of your account specifics for the client. Below is a sample set of what these rules can look like. For example, if you're typing (or editing) a quantity, you would type the quantity in Arabic Numerals.

If working for multiple clients, it may be possible to have more than one StyleGuide. Be sure to apply the appropriate StyleGuide for the client and adhere to it as closely as possible.

INSTITUTION	eS-One (I)
ASR PREDEFINED CONTENT FORMATING	
ASR Transcription Style Item	Style Rule to Follow
Department Names	
Capitalization of Dept Names	Capitalize only "Emergency Department"
Repetition of text	
Repetition of text relative to heading name	Repeat lead sentence after section heading
Abbreviations	
Non-Latin-Based	Standard measurements
Latin-Based	Standard handling
Acronyms	
Standard handling of acronyms	Standard handling of acronyms
Ampersand within acronym	Separate acronyms with & (H&P, H&H, etc.)
Punctuation	
Contractions	Expand all contractions except those in direct quotes
Commas	Exclude comma before conjunction prior to last list item
Hyphenation	Limited hyphenation
Ampersands (&)	Use '&' instead of 'and' within acronyms and in other standard cases
Numeric	
Dates	Concise day, month spelled out, forced 4-digit year - 2 January 2016
Quantities	Write all numeric quantities Arabic Numerals
Numeric Units	Detach number from unit (5 mg)
Numeric Ranges	Use hyphen (3-4 months)
Dimensions	Single unit, spaces around "x" (2 x 3 cm or 2 x 3cm)
Frequencies	"x" no space (...oriented x3)
OB/GYN	When dictated as abbrev., leave a space (G1 P2)
Vertebral Spaces	Literal with hyphen (L5-S1 S1-2)
Roman vs. Arabic	
Grades	Roman (Grade II/VI murmur)
Stages	Roman (Stage II cancer)
Cranial nerves	Roman (Cranial nerves II-XII)
Types of conditions or diseases	Arabic (Diabetes mellitus type 2)
Expansion of "Same"	
Expansion of "Same" in Postoperative Diagnosis	Copy contents of previous section
"Patient" name handling	
Replace with "The Patient" or leave actual name	As dictated - Leave recognition output alone
"Patient" at the beginning of sentence	If sentence begins with "Patient", insert article "The" as in "The patient"
Joint Commission (JC) Prohibited Abbreviations	
Joint Commission (JC) Prohibited Abbreviations	Follow the optional "do not use" list as well (extend JC abbreviation-expansion support)

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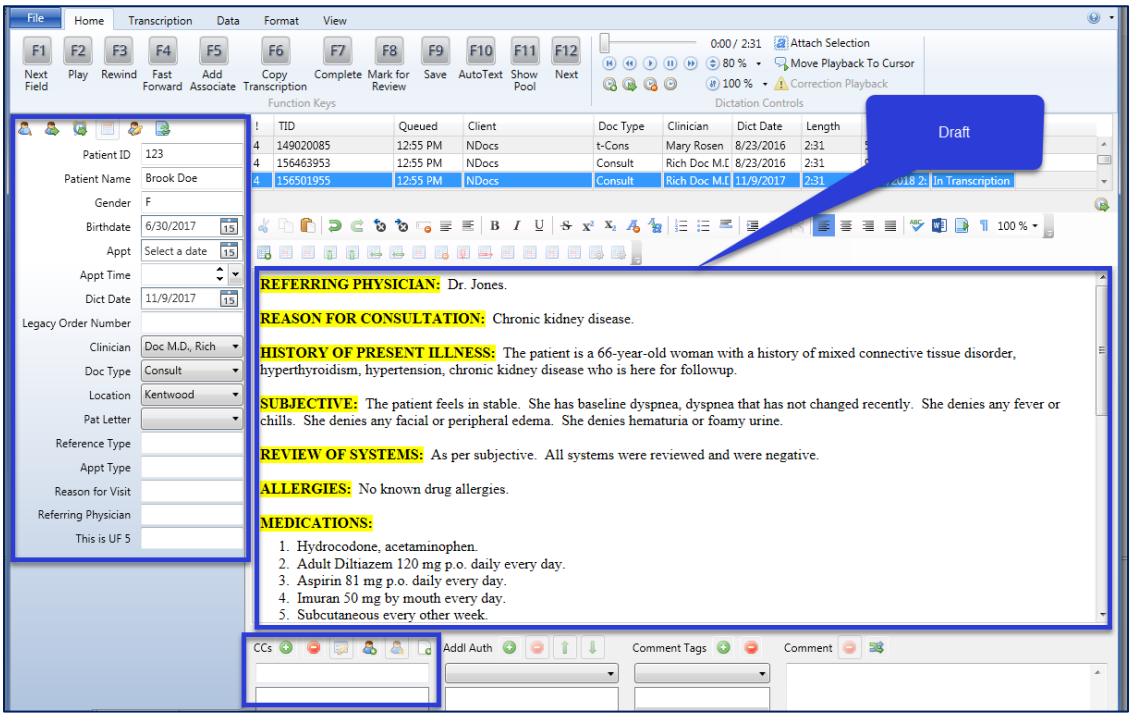
Notes Regarding the StyleGuide

1) The StyleGuide is a guide for the MT/MLS team to follow. If the team consistently types (or edits) something that deviates from the StyleGuide, ASR can learn this. In fact, almost everything in the StyleGuide can be learned by ASR correctly or incorrectly. In some cases, a client may agree to a StyleGuide but require certain items to be formatted differently. In such cases, it may be necessary to type (or edit) against the StyleGuide. Your supervisor will inform you if this is necessary.

2) There are two exceptions to StyleGuide learning which apply to date and patient formatting. ASR will not learn different formatting from consistent typing (or edits) on these specific rules. The system will always follow the StyleGuide for these two items.

Drafts in the Unstructured Format

When a draft appears in InScribe it will appear in the editor, and at first glance it looks like an almost complete job. The first thing you'll likely notice are the items that make up the framework of the document: section headings with corresponding text, numbered lists, subsections, etc. You will see these items already formatted. Note, there can be cases where there are no section headings. This usually occurs with letter type documents which typically contain paragraphs of text.



The next thing you may notice are the patient demographics and CC's area. ShadowScribe ASR does not automatically populate these areas from the recognition. It is the MT/MLS's responsibility to add this information. However, with many clients using mobile devices or using patient schedule feeds, filling in the demographics can be done quickly.

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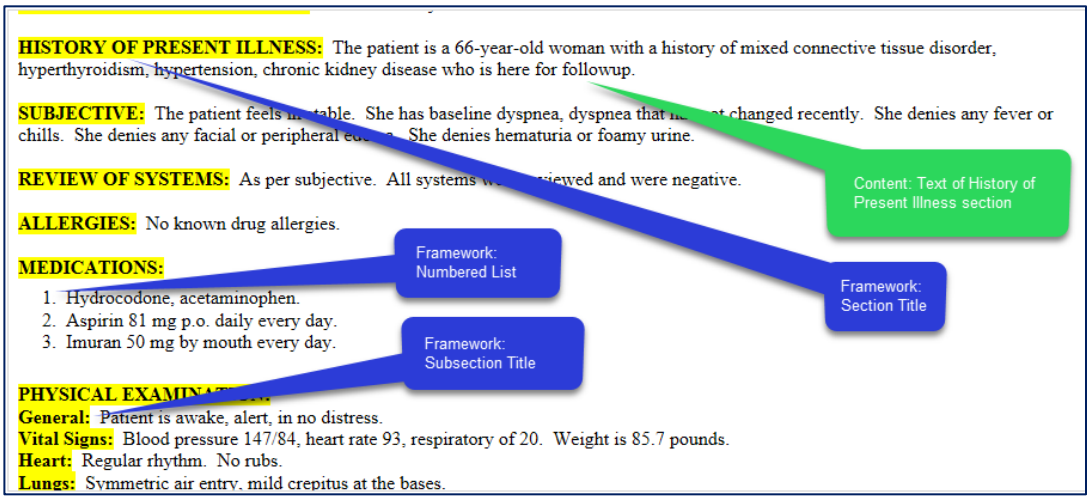
When working with drafts, except for working in the editor, everything with InScribe functions the same as if you were typing the job from scratch.

Components of a Draft

Every draft has two main components: the **Framework** and **Content**. Framework components consist of section and subsection titles, numbered lists, and content placement - anything that makes up the layout of the document. Content components refer to the specific text of the narrative. This can be the content belonging to a section in a letter type format or paragraphs of text. The example below shows the parts of a consult type draft.



Draft Formatting Styles

Both framework and content components have formatting styles. These styles produce the client's desired document look and feel, and are applied automatically when the draft is created.

Formatting styles of Framework components consist of things such as bold, italics, underline, and casing of section/subsection titles, as well as ordering of the titles. Framework components also handle content placement and numbered list formatting.

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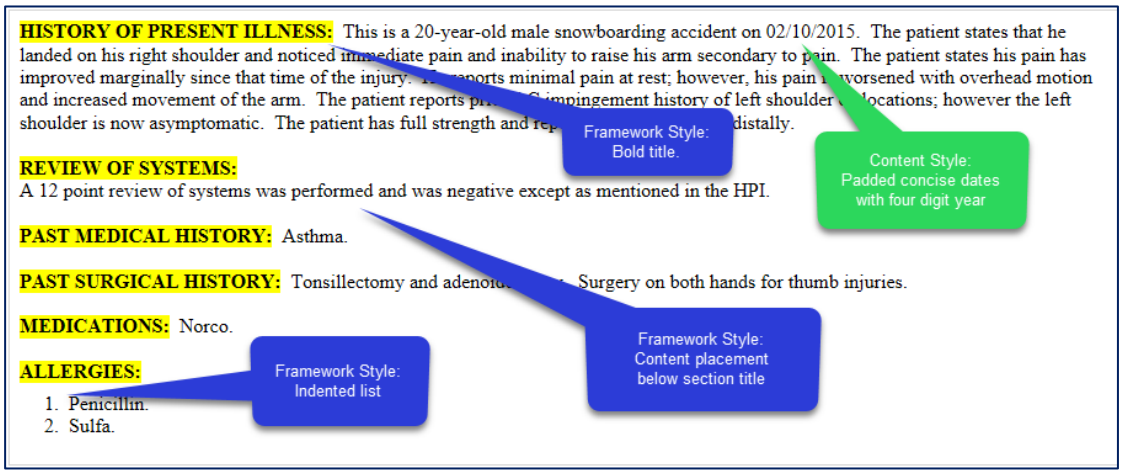
Content placement handles the location of recognized narrative text relative to the section title. It determines whether content appears below or to the right of a title. Numbered list formatting controls whether a list should appear indented or flush left. Keep in mind, with letter type documents framework, formatting is not as pronounced since letters usually contain paragraphs of text.

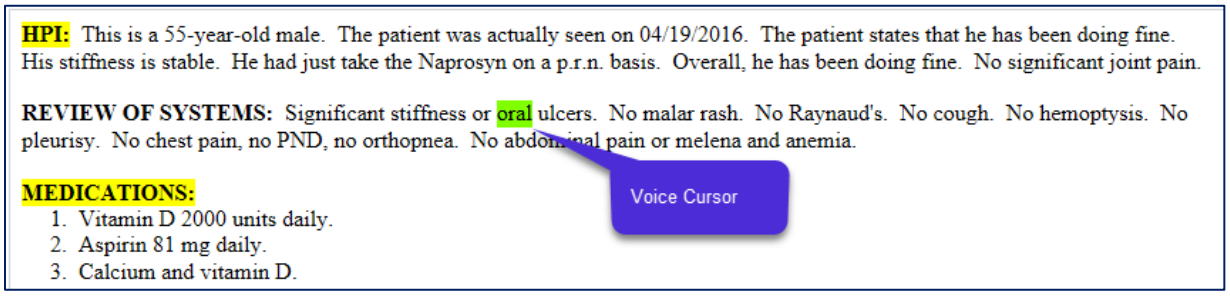


Styled content components, on the other hand, are specific to certain kinds of narrative text. These are things like dates, abbreviations, numeric quantities, frequencies, and ranges to name a few. Formatting for both framework and content are set up ahead of time per client requirements.

The goal with the draft formatting is to shift much of the formatting responsibility to ShadowScribe ASR, and to free you to concentrate more on the medical accuracy of the draft.

Brief Editing Walkthrough

When reviewing drafts, you begin by reading and listening to the audio. The first thing you might notice is the voice cursor.



This moves over the text while the audio is played and helps to focus attention to the text and audio as you read and listen to the dictation. The voice cursor also helps improve editing efficiency because it can be attached to the edit cursor and carried along with the playback. The voice cursor will be covered in more detail later in the section Using the Voice Cursor.

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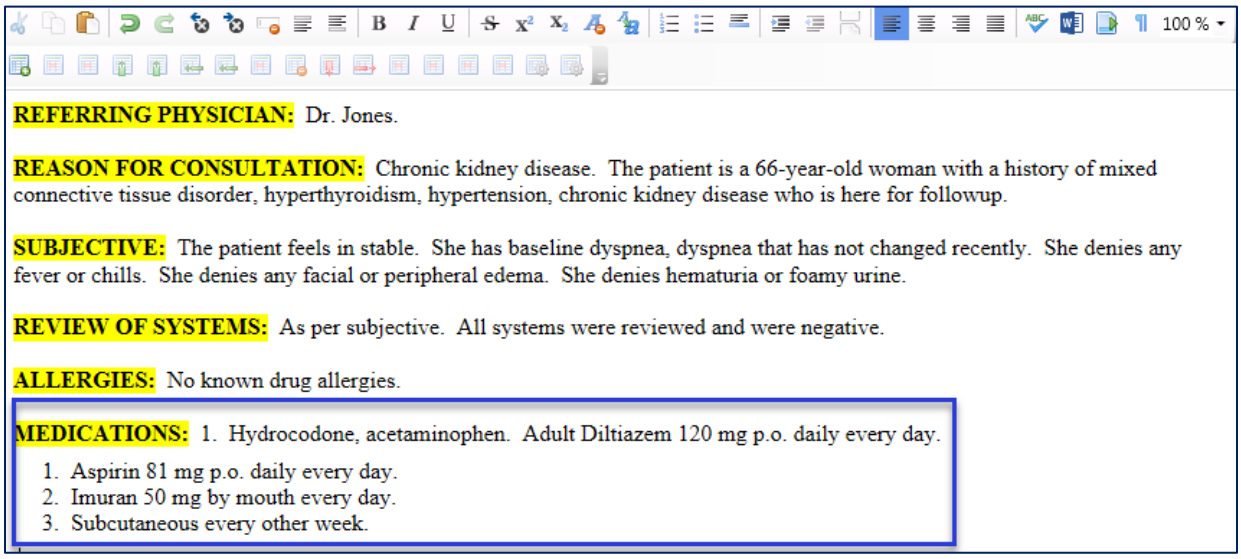
The next thing you may notice is the framework of the document: section titles, content placement, or numbered list items. You may find a title may not have been recognized properly, or maybe a numbered list isn't formatted correctly, such as in the example below. Framework edits are usually more obvious to spot.



REFERRING PHYSICIAN: Dr. Jones.

REASON FOR CONSULTATION: Chronic kidney disease. The patient is a 66-year-old woman with a history of mixed connective tissue disorder, hyperthyroidism, hypertension, chronic kidney disease who is here for followup.

SUBJECTIVE: The patient feels in stable. She has baseline dyspnea, dyspnea that has not changed recently. She denies any fever or chills. She denies any facial or peripheral edema. She denies hematuria or foamy urine.

REVIEW OF SYSTEMS: As per subjective. All systems were reviewed and were negative.

ALLERGIES: No known drug allergies.

MEDICATIONS: 1. Hydrocodone, acetaminophen. Adult Diltiazem 120 mg p.o. daily every day.

1. Aspirin 81 mg p.o. daily every day.
2. Imuran 50 mg by mouth every day.
3. Subcutaneous every other week.

Once done with any framework edits, your focus turns to the content. Content edits are usually identified by listening to the audio. The example below is a content edit. In this case, the word "numbers" should have been "numbness".

HISTORY OF PRESENT ILLNESS: The patient is a pleasant 30-year-old female who slipped on the ice on 03/02/2015 sustaining injury to her right knee. She went to the hospital emergency room. She was diagnosed with patellar fracture. She was placed in a knee immobilizer and today presents to me for followup. Her pain is sharp, moderate constant, worse with activity, better with rest. She denies numbers and tingling.

Whether the edit is obvious or not, your objective is to locate, move to, decide on the type of edit – framework or content – and execute the edit as efficiently as possible. This should be the pattern followed until all edits have been made.

The Editing Mindset

Editing and typing a document require two separate mindsets. When typing, you work in an environment where your hands are always moving. You listen to the dictation and convert words you hear into text. When editing, ASR has already converted the words to text, so your first action is to read. You look at words, phrases, sentences, and their context to understand and verify meaning. As you locate edits, you identify whether they are framework, grammatical, contextual, etc., and then make the edits. To effectively work in drafts, a new set of skills is needed.

Beginning Editing Skills

Editing skills can be broken into two categories: beginning and advanced. In this section, we cover the beginning editing skills, which focus on using keyboard shortcuts for navigating and editing. These are the core skills that all beginners should learn.

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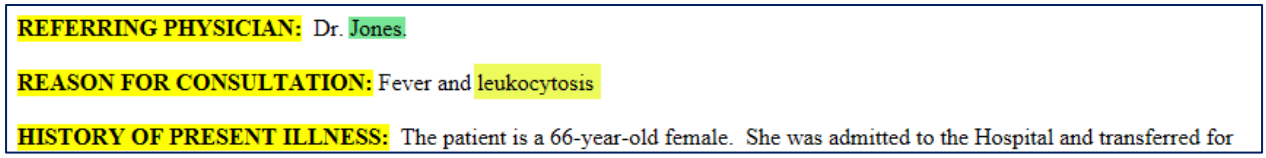
Why Keyboard Shortcuts

Keyboard shortcuts are one of the most important tools for editing efficiently. When you edit, you want to rely on the mouse as little as possible because the mouse will take away from productivity. It may not seem like a lot of effort to use the mouse, but consider this: if you move your hand from the keyboard, to the mouse, position the cursor, then move your hand back to the keyboard, you lose seconds of productivity which can add up to minutes throughout the day. Those minutes could be the difference of additional reports completed by the end of the day. For a better understanding, look at this simple example:



Imagine your edit cursor is after the word “Jones”, highlighted in green, and you want to delete the word “leukocytosis”, highlighted in yellow.

These are the steps to make the edit using the mouse:

1) Remove hand from keyboard.

2) Place hand on mouse.

3) Move mouse to the word “leukocytosis.”

4) Highlight the word “leukocytosis.”

5) Move your hand off the mouse and back to the delete key on the keyboard.

6) Press delete.

Now, compare that with the steps using only the keyboard:

1) Hit the **CTRL + DOWN ARROW** twice to place the edit cursor in front of the “R” in REASON FOR CONSULTATION.

2) Hit the **END** key, which places the edit cursor at the end of “leukocytosis”.

3) Hit the **CTRL + BACKSPACE** key to delete the word.

Notice the difference. Using the keyboard, we didn’t lose any seconds moving our hand to grab the mouse. We kept our hands on the keyboard the entire time and did the same edit in half the steps.

The next three sections break down what we call the “core editing” shortcuts.

Navigation Shortcuts

These shortcuts are meant to take the place of the mouse for quickly moving the edit cursor to the spots that need corrections.

CTRL + ↑	Move edit cursor Up one Paragraph
CTRL+ ↓	Move edit cursor Down one Paragraph
CTRL + →	Move edit cursor one whole word right
CTRL + ←	Move edit cursor one whole word left
Ctrl + Home	Move edit cursor to the top of report

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Ctrl + End	Move edit cursor to the bottom of report
Home	Move edit cursor to beginning of line
End	Move edit cursor to end of line

Editing Shortcuts

Use these shortcuts to delete whole words (instead of characters), to select words, and to move words around. These shortcuts will help you quickly execute edits, fixing misrecognitions and errors.

Ctrl + Delete	Delete one whole word right of edit cursor
Ctrl + Backspace	Delete one whole word left of edit cursor
CTRL + X, C, V, Z	Cut, Copy, Past, Undo
CTRL + U	Toggle case of word between Sentence Case, Lower Case, and Upper Case
SHIFT + ____	Add Shift to any of the navigation keys for selection. E.g., Shift + Ctrl + → to select one whole word right

Playback Shortcuts

While you can use the foot pedal to control playback, if you are planning on editing, you are encouraged to use the playback keyboard shortcuts. There are shortcuts to play, stop, rewind and fast forward as well as shortcuts that allow you to control the playback speed. These shortcuts complement editing and navigation shortcuts nicely and can further help efficiency.

F2 or CTRL + SHIFT + X	Play and Pause
F3 or CTRL + SHIFT + C	Rewind
F4 or CTRL + SHFIT + V	Fast Forward
CTRL + E	Slow down playback rate
CTRL + T	Speed up playback rate
CTRL + R	Return playback rate to normal

Also, using the keyboard gets you into a better mindset because all playback, as well as typing and editing functions, are controlled from one place.

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Shortcuts to learn first

Between navigation, editing, and playback, there are many shortcuts to learn. Plus, there are additional shortcuts for advanced editing covered later in this document. It can seem like a daunting task to learn these at once. That's not the goal here. Working with shortcuts is a skill that takes practice. The strategy is to start off slowly; learning a few shortcut keys, and working with them until you are comfortable, then slowly adding a few more. Keep following this strategy until you have built up your shortcut repertoire.

Here are the recommended core editing shortcuts to start with. Keep it simple and start with just the Navigation Keys (Paragraphs and Words). Try incorporating them into your editing work daily. Once you are proficient with these, move on to Navigation Keys (Larger movements) and then to the Editing Keys. Getting these under your belt will be a good foundation to learning other advanced shortcuts, such as using the voice cursor.

1) Navigation Keys (Paragraph and Words)

•**CTRL +** ↑	Move Edit Cursor Up one Paragrah
•**CTRL+** ↓	Move Edit Cursor Down one Paragraph
•**CTRL +** →	Move edit cursor one whole word right
•**CTRL +** ←	Move edit cursor one whole word left

2) Navigation Keys (Larger movments)

•**Ctrl + Home**	Move edit cursor to the top of report
•**Ctrl + End**	Move edit cursor to the bottom of report
•**Home**	Move edit cursor to beginning of line
•**End**	Move edit cursor to end of line
•**CTRL + F**	Bring up find dialog, type word/phrase to find and move edit cursor to that part of document

3) Editing Keys

•**Ctrl + Delete**	Delete one whole word right of edit cursor
•**Ctrl + Backspace**	Delete one whole word left of edit cursor
•**CTRL + X, C, V, Z**	Cut, Copy, Past, Undo
•**CTRL + U**	Shift case of word (sentence, lower, upper case)
•**SHIFT+____**	Add Shift to any of the navigation keys for selection. E.g Shift + Ctrl + → to select one whole word right

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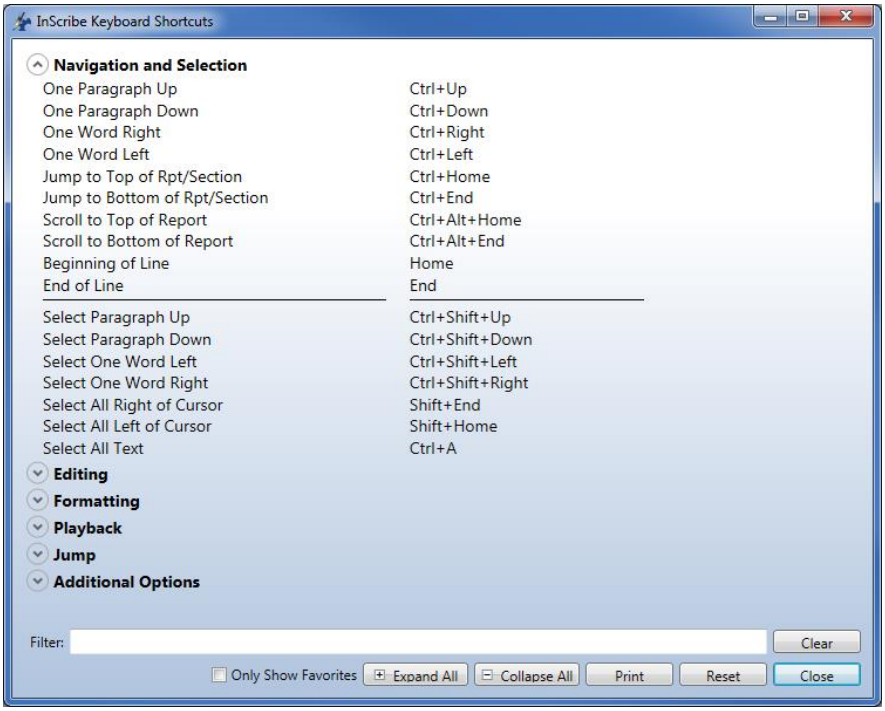
InScribe Shortcut Reference

InScribe has a built-in Shortcut Reference dialog which lists all the major shortcuts, not just editing and navigation, but also shortcuts specific to InScribe. The shortcuts are listed by expandable category. You can use the filter box to narrow down the shortcuts by keyword. You can also double click on a shortcut to add them to a favorites list for easier access. To access this dialog, go to the View menu and select 'Show Shortcut Reference' or use the shortcut **SHIFT + CTRL + S**.



Editing Process Walkthrough

When you start working, you begin by reading, listening, and looking for edits. You also will notice the voice cursor as it moves over the content of the document, but will probably not use it much as a beginner. Most of your focus should be on locating edits, moving to them efficiently with your navigation shortcut keys, and applying the correction. When editing, your natural tendency may be to stop the audio, which is okay. Your workflow should be to locate the next edit, decide the type – framework or content and make the correction. Continue in this manner until all corrections identified in the draft are made.

Over time, as you practice and gain experience you should become more comfortable with the navigation keys and become less reliant on the mouse. You will start adding some of the editing shortcuts and begin to learn little efficiency tricks, such as deleting whole words instead of single characters. You will start to get a feel for the best times to use select, cut, copy and paste, and undo. As you become more and more comfortable, you may start to learn how to make certain edits without stopping the audio and start to minimize replaying certain portions of the audio. Through experience, you will learn when it's appropriate to keep the audio going while making the edit and when the audio should be stopped to make the edit.

Remember, these editing behaviors will not happen overnight. It takes time and practice. The more you practice, the more proficient you will become.

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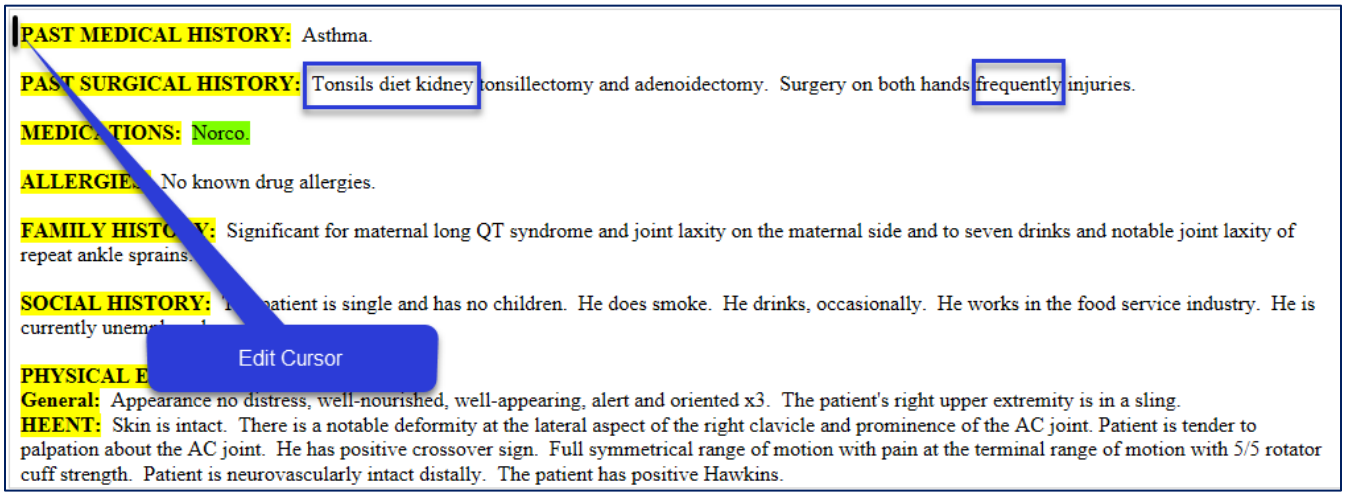
Editing with the CORE skills

What might editing with the core skills look like? Let's break down an example located in the PAST SURGICAL HISTORY section. Imagine the audio is playing back, and we see the voice cursor moving along. This is represented by the green highlighter in our example. As we listen to the audio through the PAST SURGICAL HISTORY section, we notice our first couple of edits that are needed. The clinician misspoke and corrected their speech in the first sentence, which caused the phrase "Tonsils diet kidney" to appear. Then, in the second sentence, we hear clearly spoken text "surgery on both hands for thumb injuries" but ASR missed the word "for" and recognized the word "frequently" instead of "thumb". We stop the audio and make our edits.



PAST MEDICAL HISTORY: Asthma.

PAST SURGICAL HISTORY: Tonsils diet kidney tonsillectomy and adenoidectomy. Surgery on both hands frequently injuries.

MEDICATIONS: Norco.

ALLERGIES: No known drug allergies.

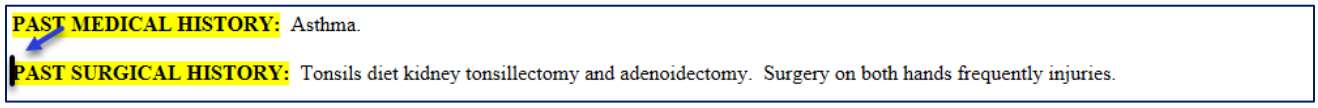
FAMILY HISTORY: Significant for maternal long QT syndrome and joint laxity on the maternal side and to seven drinks and notable joint laxity of repeat ankle sprains.

SOCIAL HISTORY: The patient is single and has no children. He does smoke. He drinks, occasionally. He works in the food service industry. He is currently unemployed.

PHYSICAL EXAM:
General: Appearance no distress, well-nourished, well-appearing, alert and oriented x3. The patient's right upper extremity is in a sling.
HEENT: Skin is intact. There is a notable deformity at the lateral aspect of the right clavicle and prominence of the AC joint. Patient is tender to palpation about the AC joint. He has positive crossover sign. Full symmetrical range of motion with pain at the terminal range of motion with 5/5 rotator cuff strength. Patient is neurovascularly intact distally. The patient has positive Hawkins.

There are a few different ways this can be edited. Here is one way to do it:

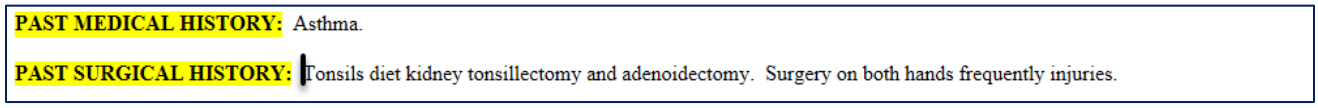
1. Use **CTRL + DOWN ARROW** to move the edit cursor to the PAST SURGICAL HISTORY section.



PAST MEDICAL HISTORY: Asthma.

PAST SURGICAL HISTORY: Tonsils diet kidney tonsillectomy and adenoidectomy. Surgery on both hands frequently injuries.

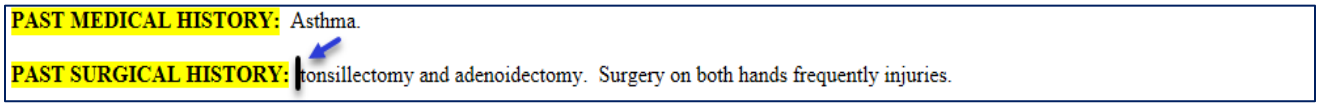
2. Use **CTRL + RIGHT ARROW** to move the edit cursor right until it's in front of the "T" in "Tonsils".



PAST MEDICAL HISTORY: Asthma.

PAST SURGICAL HISTORY: Tonsils diet kidney tonsillectomy and adenoidectomy. Surgery on both hands frequently injuries.

3. Use **CTRL + DELETE** three times to delete the words "Tonsils diet kidney".



PAST MEDICAL HISTORY: Asthma.

PAST SURGICAL HISTORY: tonsillectomy and adenoidectomy. Surgery on both hands frequently injuries.

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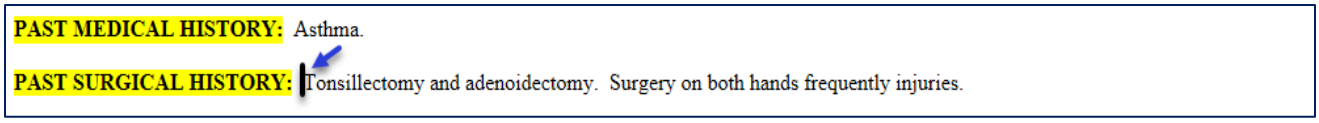
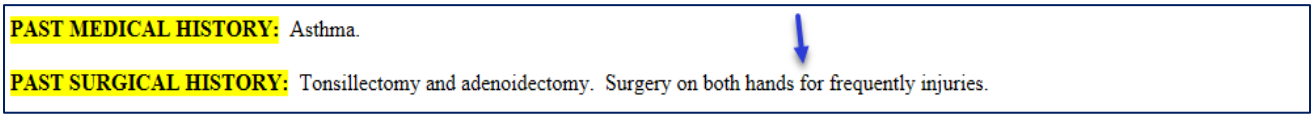
4. Use **CTRL + U** to upper case the word “Tonsillectomy”.

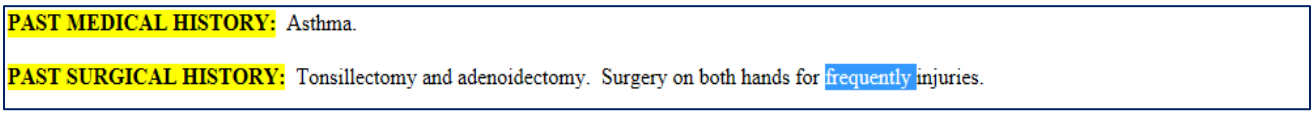


Next edit is to add the word “for” and change the word “frequently” to “thumb”. Here’s one way to do it:

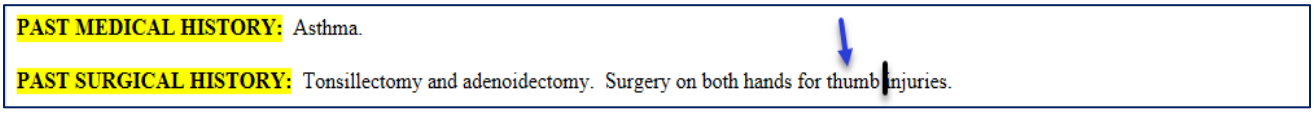
1. Use **CTRL + RIGHT ARROW** until the edit cursor is on the word “frequently” and type “for”.



2. Use **SHIFT + CTRL + RIGHT ARROW** once to highlight the word “frequently”.



3. Type the word “thumb”.



We made these two edits quickly by using our navigation and editing shortcuts. You’ll be using these shortcuts the most when editing, especially as a beginner.

What do we do next? At this point, we’d start the audio again and look for the next edit using the same technique: identify the edit, stop the audio, navigate to it, and edit it using the navigation and editing shortcuts. While we’ve demonstrated a set of five core shortcuts, as you edit your own documents, you may find situations where a different set of core shortcuts would be used. You’ll learn the best shortcuts to apply to your situation through experience. When you get comfortable, the trick is to try to make edits using the fewest number of keystrokes to increase efficiency.

Common Editing Scenarios

Whether you’re a beginner or an advanced editor, remember almost every draft typically has two kinds of edits: framework and content. Framework edits are edits to the layout of the document. These are edits to section titles, content placement, lists, and ordering. Content edits are edits to the actual paragraphs of text. Depending on the document type, these can be freestanding paragraphs such as in a letter, or they can be tied to a section title such as History and Physical. Some drafts may have only content edits, and some may have both framework and content edits.

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Framework edits

1) Missing Title, Incorrect title – occurs when ASR doesn't properly recognize a title, or the clinician doesn't properly speak a title or speaks the wrong title.

2) Titles recognized as text – occurs when ASR recognizes certain text that it thinks might be a title based on past corrected drafts and recognizes the text in upper case, but not as an actual formatted title.

3) Mis-ordered title – occurs when the ShadowScribe template isn't configured correctly or a recognized title is matched to the wrong section, causing an ordering issue.

4) Numbered list misrecognition – occurs when A) the clinician doesn't speak the audio cues to start a list or speaks only partial audio cues. B) the clinician speaks something which ASR incorrectly recognizes as a list.

Content edits

1) Added words, deleted words – occurs when ASR doesn't recognize the spoken text and adds what it thinks should be there, or it doesn't add anything. This can occur because a) the clinician didn't speak clearly, b) there was excessive amount of background noise, or the clinician was dictating on a speaker phone, c) the clinician hesitates, self-corrects, or repeats d) ASR just didn't get the text.

2) Incorrect punctuation -occurs when ASR adds wrong punctuation. This typically happens when clinicians don't dictate punctuation, so ASR tries to make a best guess where it detects pauses in certain contexts.

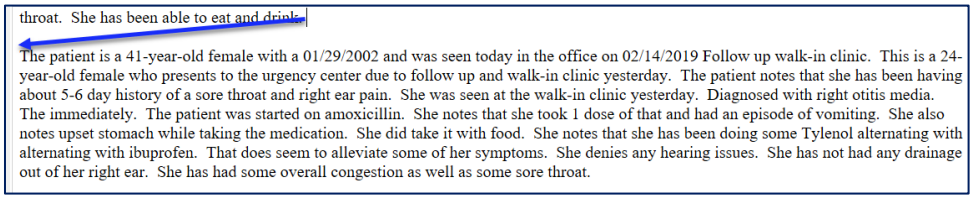
3) Template insertions – occurs with clinicians who use dictation templates (or normals). The clinician will dictate to insert the template, e.g., "insert my normal bone injection template", and this phrase will appear in the draft as text. You'll have to edit this out and insert the actual template.

Next, we'll show you some common ways to handle framework and content edits. Note there is more than one way to do these edits. In all examples, we always use the least number of keystrokes possible to maximize efficiency.

Working with Titles (Framework Edits)

There are a couple of different scenarios you can run into with titles.

- **Title isn't recognized at all. In this scenario, the content is lacking the title.**


throat. She has been able to eat and drink.

The patient is a 41-year-old female with a 01/29/2002 and was seen today in the office on 02/14/2019 Follow up walk-in clinic. This is a 24-year-old female who presents to the urgency center due to follow up and walk-in clinic yesterday. The patient notes that she has been having about 5-6 day history of a sore throat and right ear pain. She was seen at the walk-in clinic yesterday. Diagnosed with right otitis media. The immediately. The patient was started on amoxicillin. She notes that she took 1 dose of that and had an episode of vomiting. She also notes upset stomach while taking the medication. She did take it with food. She notes that she has been doing some Tylenol alternating with alternating with ibuprofen. That does seem to alleviate some of her symptoms. She denies any hearing issues. She has not had any drainage out of her right ear. She has had some overall congestion as well as some sore throat.

The fix:

1) Position the edit cursor at the beginning of the section. In this example, we'll assume the edit cursor is at the end of the previous paragraph.

2) Type the title in the correct format. Here the title should be bold, uppercase and have the text "History of Present Illness". One way to edit this is: Hit **Ctrl+B** followed by the Caps Lock key.

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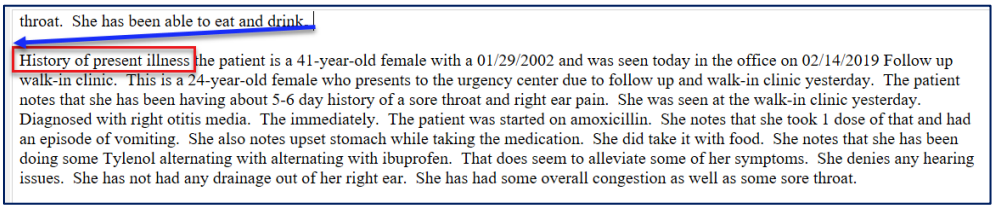
- **The words of the title are recognized as text, but they are not formatted correctly.**

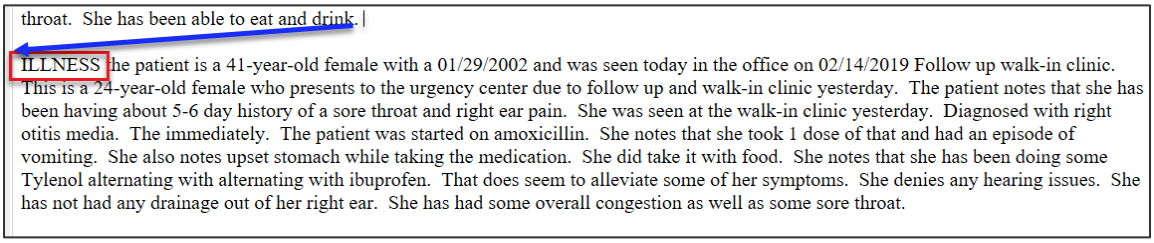


The fix:

1) Position the edit cursor at the beginning of the section. In this example, we'll assume the edit cursor is at the end of the previous paragraph.

2) Highlight the words "History of present illness" using **SHIFT + CTRL + RIGHT ARROW** until all four words are highlighted. Then use **CTRL + U**, followed by **CTRL + B**, **RIGHT ARROW**, **LEFT ARROW** and add a colon.

- **The title was incorrectly recognized.**



The fix:

1) Position the edit cursor at the beginning of the section. In this example, we'll assume the edit cursor is at the end of the previous paragraph.

2) In this case, only ILLNESS appears. Type the rest of the words "History of present" in upper case, use **HOME** to position edit cursor at beginning of line, highlight the words "History of present illness" using **SHIFT + CTRL + RIGHT ARROW** until all four words are highlighted and then **use CTRL + B, RIGHT ARROW, LEFT ARROW** and add a colon.

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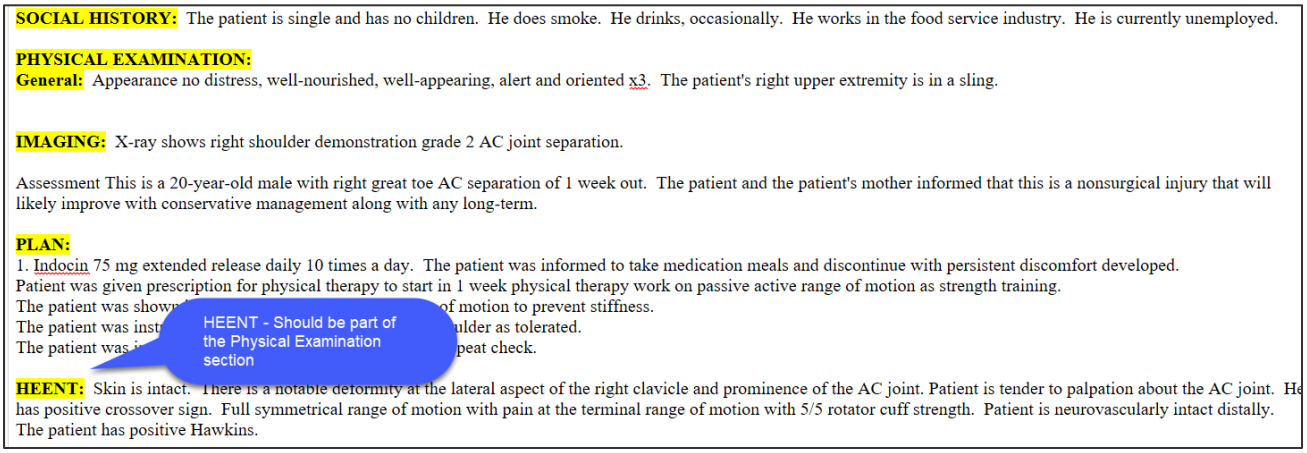
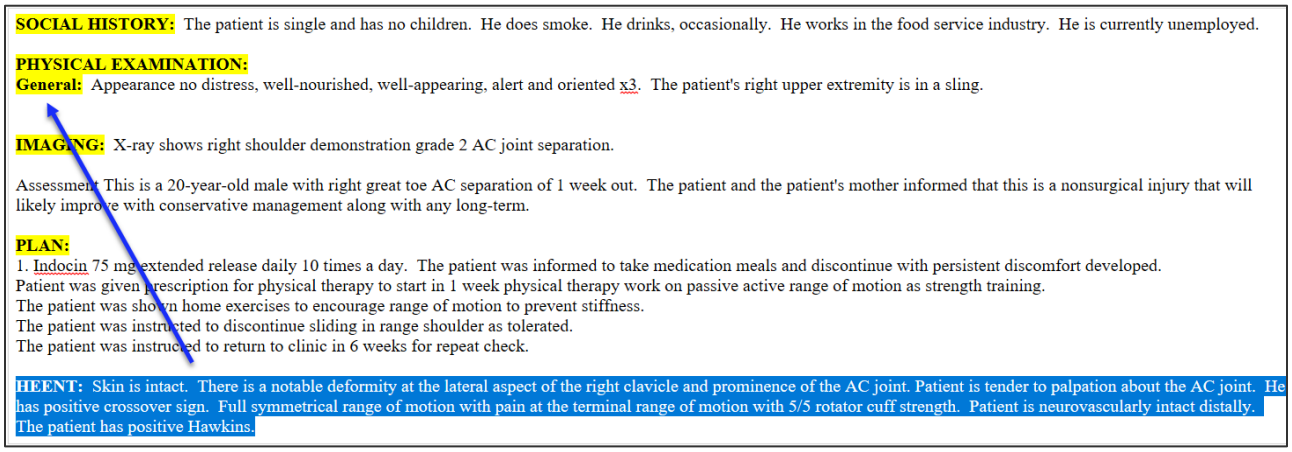
- **The title was recognized but out of order.**



The fix:

1) Review the document before listening to playback, locating edits such as mis-ordering.
2) Navigate to those sections and move them to the appropriate section using the best keystrokes.
    a. In the above example, place the edit cursor in front of the “H” of the word “HEENT”.
    b. Hold **SHIFT + CTRL + DOWN ARROW** to highlight the entire paragraph.
    c. Use **CTRL + X** to cut the text, navigate to the Physical Examination section, place the edit cursor in the appropriate position, and use **CTRL + V** to paste the text.



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ALLERGIES: No known drug allergies.

FAMILY HISTORY: Significant for maternal long QT syndrome and joint laxity on the maternal side and to seven drinks and notable joint laxity of repeat ankle sprains.

SOCIAL HISTORY: The patient is single and has no children. He does smoke. He drinks, occasionally. He works in the food service industry. He is currently unemployed.

PHYSICAL EXAMINATION:
General: Appearance no distress, well-nourished, well-appearing, alert and oriented x3. The patient's right upper extremity is in a sling.
HEENT: Skin is intact. There is a notable deformity at the lateral aspect of the right clavicle and prominence of the AC joint. Patient is tender to palpation about the AC joint. He has positive crossover sign. Full symmetrical range of motion with pain at the terminal range of motion with 5/5 rotator cuff strength. Patient is neurovascularly intact distally. The patient has positive Hawkins.

IMAGING: X-ray shows right shoulder demonstration grade 2 AC joint separation.

Assessment This is a 20-year-old male with right great toe AC separation of 1 week out. The patient and the patient's mother informed that this is a nonsurgical injury that will likely improve with conservative management along with any long-term.

PLAN:
1. Indocin 75 mg extended release daily 10 times a day. The patient was informed to take medication meals and discontinue with persistent discomfort developed.
Patient was given prescription for physical therapy to start in 1 week physical therapy work on passive active range of motion as strength training.
The patient was shown home exercises to encourage range of motion to prevent stiffness.

Working with Numbered Lists (Framework Edits)

Numbered lists may need to be edited for the following reasons: 1) The list wasn't recognized because either the clinician failed to dictate the list, or the system missed the list cue. 2) the list was partially recognized because either the clinician started dictating but didn't speak the first number (or spoke the first number but forgot subsequent numbers), or the list number was recognized as text and not a number.

- **The list wasn't recognized because either the clinician failed to dictate the list, or the system missed the list cue**.

  In this example, no list was identified, and we see a paragraph in the PL section (abbreviated for PLAN).

  ASSESSMENT: Right ear pain.

  PL: We discussed with the patient that it does appear that she has an ear infection at that point in time. There is definitely fluid may be causing some of her discomfort. I recommend she use a 5-day course of Afrin to see if this will help dry her up. She has not been tolerating the antibiotic well. Sore throat. I did run strep today was negative. We will continue supportive treatment such as Tylenol or ibuprofen saltwater gargles.

  The fix:

  1) Position the edit cursor at the beginning of the section. In this example, we'll assume the edit cursor is at the end of the previous paragraph.

     ASSESSMENT: Right ear pain.

     PL: We discussed with the patient that it does appear that she has an ear infection at that point in time. There is definitely fluid may be causing some of her discomfort. I recommend she use a 5-day course of Afrin to see if this will help dry her up. She has not been tolerating the antibiotic well. Sore throat. I did run strep today was negative. We will continue supportive treatment such as Tylenol or ibuprofen saltwater gargles.

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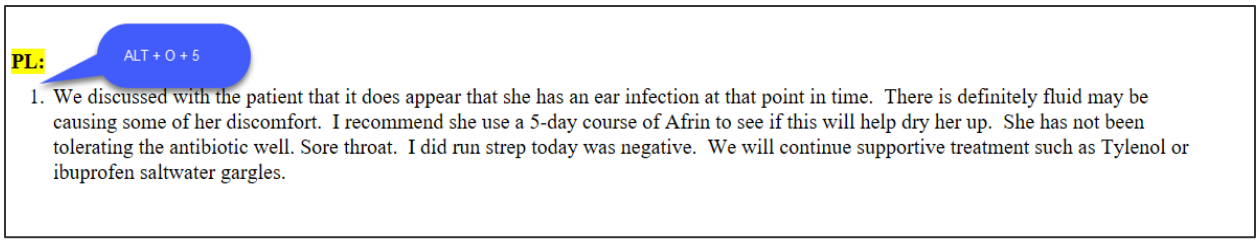
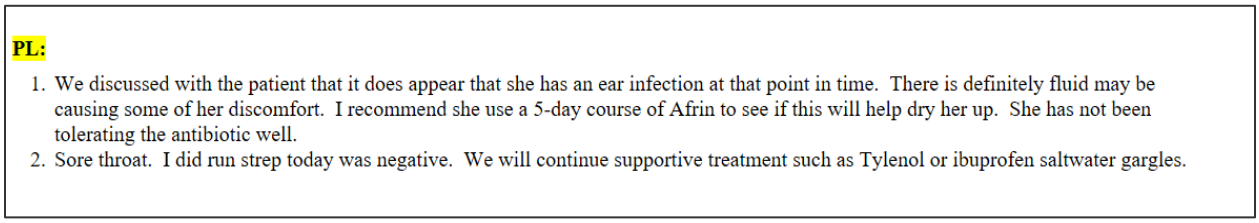
2) Listen to the dictation and locate where number breaks should be. Position the edit cursor at that location, hit enter, and then use **ALT + O + 5** to start the list.

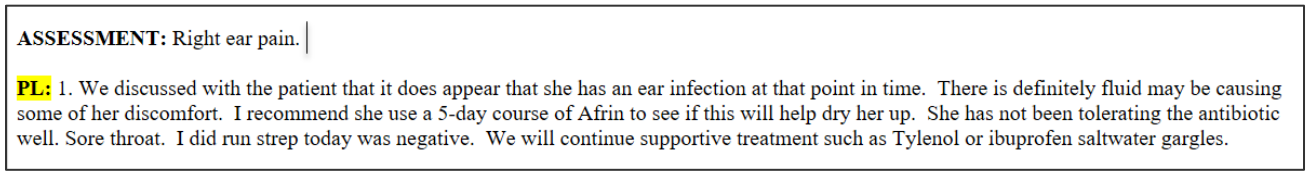


3) Continue listening to the dictation, determine the next break and hit enter. Repeat until all numbers have been added.



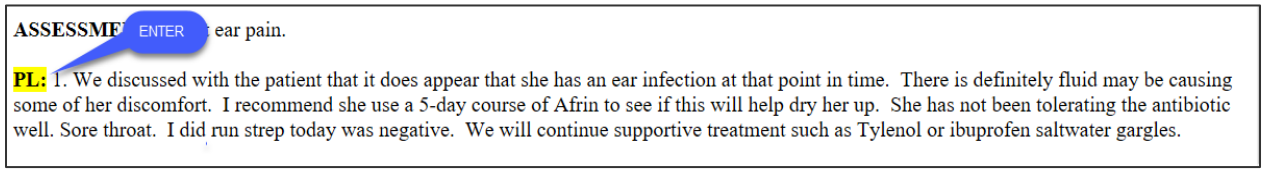
- **The list was partially recognized because either the clinician started dictating but didn't speak the first number or the list number was recognized as text and not a number.**

In this example, the list number was recognized as text and not a number

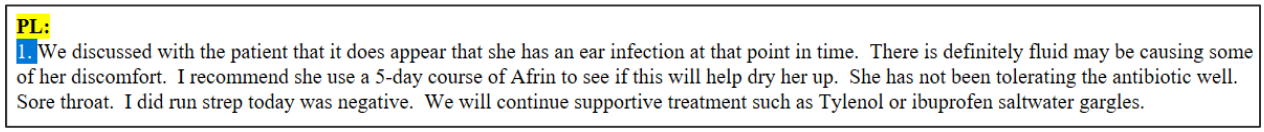


The fix:

1) Position the edit cursor in front of the 1 and hit enter.



2) Hit **SHIFT + CTLR + RIGHT ARROW** twice to highlight the "1." Then hit delete.



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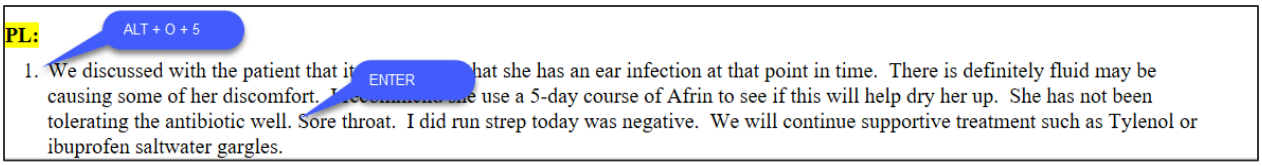
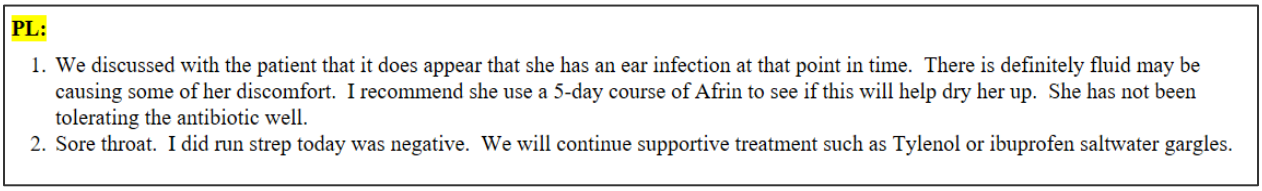
3) Use **ALT + O + 5** to insert the list item. Continue listening through the dictation to determine additional places where a list item should occur and hit enter.



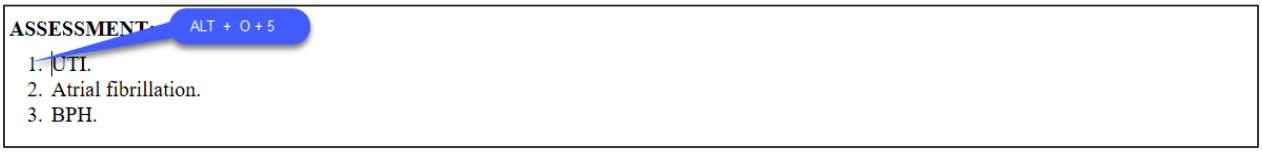


In this next example, the clinician started dictating, didn't dictate the first number, but dictated the second and third number.

The fix:

1) Position the edit cursor in front of the first word and hit enter.

2) Use **ALT + O + 5** to insert the list.



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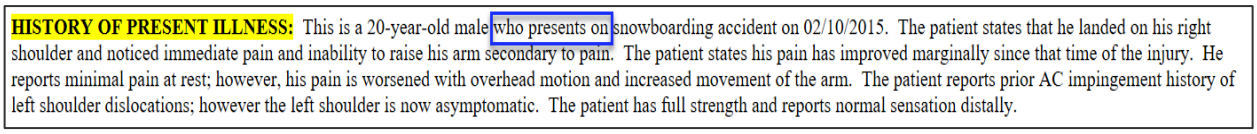
Working with Content (Content Edits)

With content, there can be a few scenarios for editing specific words or phrases. Drafts may contain words added that were not part of the draft or words that were deleted (or omitted) from the draft. These can happen for a variety of reasons.

- **In this scenario, the words "who presents on" appear in the text and do not belong.**



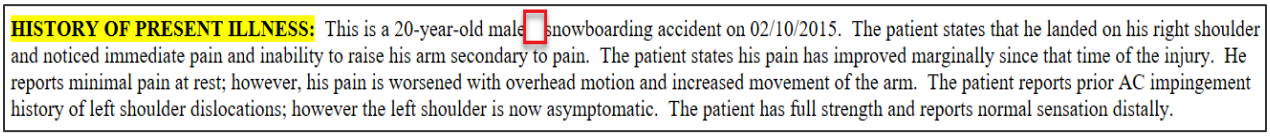
The fix:

1) Position the edit cursor after the word "male".
2) Hit **CTRL + DELETE** three times to delete the words "who presents on".

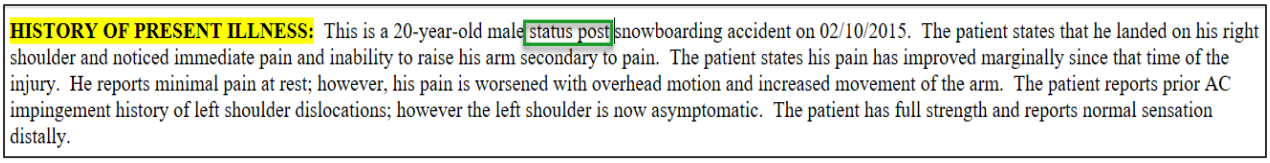
Alternatively, if the edit cursor was after the word "on" and before the word "snowboarding", you could use **CTRL + BACKSPACE** three times to delete these words.

How you approach this fix depends on placement of the edit cursor. Remember, the goal is to delete the words using the least number of keystrokes.

At this point, the text should look like this, but notice also the red box shows a couple of words missing. Listening to the audio we hear the words "status post". These words were left out (or deleted) from the recognized text.



Now the edit cursor should be in between male and snowboarding where you'll type "status post" so it looks like this highlighted in green.



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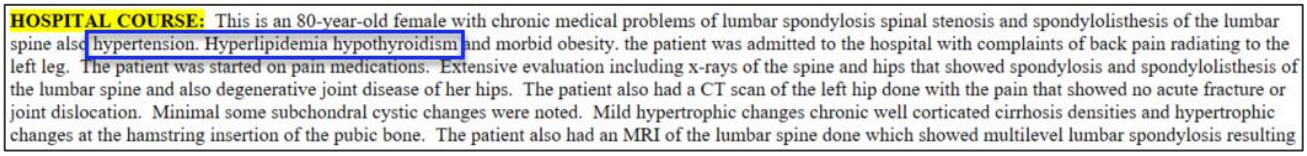
Another common scenario is working with incorrect punctuation. There are a few reasons for incorrect punctuation. Often, this happens when the clinician doesn't speak punctuation and the system attempts to add it based on pauses.

- **In this scenario, notice the period after "hypertension" followed by "Hyperlipidemia hypothyroidism".**

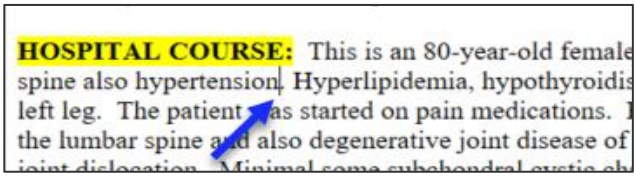
Listening to the audio, we hear the clinician speaking what sounds more like a list of medical conditions.



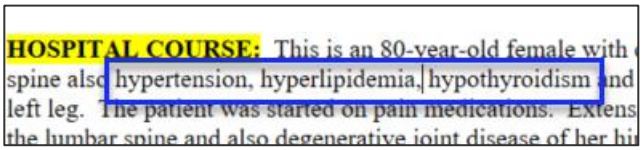
The fix:

Note: Ensure you have "Capitalize First Letter of Sentence As You Type" enabled under File > Options > Spelling.

1) Position the edit cursor after the "n" in hypertension, then type a comma. The period is removed, the comma is added and the "H" in "Hyperlipidemia" is automatically set to lower case.



2) Navigate to the space after Hyperlipidemia and add a comma.



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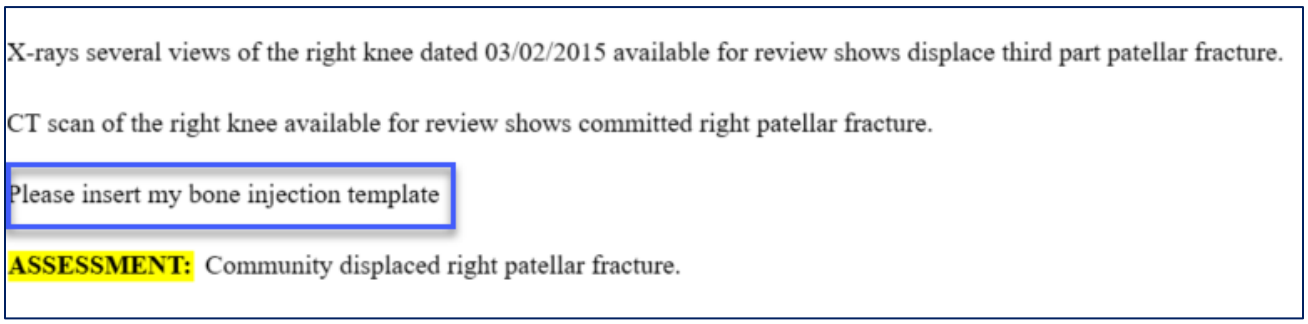
Still another scenario is with template insertions. Often, a clinician uses a variety of templates to help complete the dictation. With ASR, the template is not automatically inserted. The clinician will speak the words to insert the template, and the MLS will need to search for and insert the template.

- **In this scenario, the clinician requests to insert the bone injection template.**

Listening to the audio we hear the request and see it in the text.



The fix:

1) Position the edit cursor in front of the “P” in the word “Please”.
2) Highlight the entire line with **SHIFT + CTRL + DOWN ARROW** and hit delete to remove the text.
3) Use **SHIFT + CTRL + G** to insert the template.

Advanced Editing Skills

Advanced editing skills incorporate more editing techniques into your workflow to help further increase efficiency. We recommend working on these after having good command of the core editing shortcuts.

Editing During Playback

Editing during playback is editing when the audio is playing while trying to minimize start/stop editing. To learn this skill, start by making smaller edits during playback such as editing articles and prepositions, and then work your way up to larger edits, such as words and phrases. Note, this technique does not apply in all cases. There will be times when it is necessary to stop the audio for more complex edits. As you practice this skill, you’ll eventually learn when you can keep the audio going and when you should stop the audio.

Adjusting Playback Rate

This skill allows you to control the playback speed. Knowing how to change the rate of playback is another way to increase efficiency.

You can speed up, slow down, or return the dictation to normal speed using the keyboard shortcuts: **Ctrl+T**, **Ctrl+E**, and **Ctrl+R**.

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- **Ctrl+T to speed up** the dictation.
    - Use with clinicians who speak slowly.
    - Speeding up on these dictators allows you to move through the draft quicker and more efficiently.
    - This option is great to use with more consistent dictators where less edits are needed.
- **Ctrl+E to slow down** the dictation.
    - Use on fast dictators, or bad dictators where more edits are needed.
    - Slowing down also gives you time to think about which keystroke to use to make the edit.
- **Ctrl+R to return the playback rate to normal.**
    - Use when dictation was sped up or slowed down and you wish to quickly get back to normal playback speed.
    - For example, you sped up the playback to quickly re-read a particular section and you want to bring the playback to normal.

Any time you can make a speed adjustment, it can go a long way towards improving efficiency.

Using the Voice Cursor

The voice cursor is a powerful editing tool and is the cursor that highlights each word as the audio is played back. You can attach your edit cursor to the voice cursor, which allows you to read and navigate to edits at the same time. When you come to an edit, you separate the edit cursor from the voice cursor, make the edit, and then reattach the edit cursor and start the process again.

This feature has several advantages. First, it allows your eyes to follow along with each word as it is played, which helps you listen and read more efficiently. Second, when used with the Attach Edit Cursor to Voice Cursor option, it keeps your edit cursor moving with the text, allowing you to navigate more efficiently to edits, while keeping the edit cursor close by. Third, it can be used to start playback from virtually any word in the draft. Having this ability eliminates the need for fast forward and rewind. Fourth, for those tough to hear spots, it can be used to re-play a portion of the audio without having to rewind. Finally, it provides a reference point to return to when you read ahead.

There are two methods that can be used when editing with the voice cursor during playback. You can edit with the voice cursor detached or attached on playback. We'll explore these in more detail in the next sections.

Editing with the Voice Cursor Detached

This is the preferred method and gives the user more control when editing. In this scenario:

1. Start playback.
2. Use **CTRL + SPACE** to attach the edit cursor to the voice cursor. When the two cursors are attached, the voice cursor will turn blue.
3. When you come to an edit, separate the edit cursor from the voice cursor by using any of the **ARROW KEYS**. Stop the audio if necessary, or keep it going if you are comfortable editing during playback. Next, make the edit.
4. Use **SHIFT + CTRL + SPACE** to bring the playback back to your edit cursor and use **CTRL + SPACE** to reattach the edit cursor to the voice cursor.
5. Repeat steps 3 and 4 until you are finished editing.

Tip: When you first start using the voice cursor, slow down the audio to help keep up with the playback while reading and editing.

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Editing with the Voice Attached on Playback

With this method, the edit cursor will automatically be attached to the voice cursor as soon as the audio is played. Some users prefer this method when working with a foot pedal. In this scenario:

First, ensure this feature is enabled by going to File > Options > Playback and checking the box “Attach voice cursor on play”.

1. Start playback. The edit cursor is immediately attached to the voice cursor. When the two cursors are attached, the voice cursor will turn blue.
2. When you come to an edit, separate the edit cursor from the voice cursor by using any of the **ARROW KEYS**. Stop the audio if necessary, or keep it going if you are comfortable editing during playback. Next, make the edit.
3. Use **SHIFT + CTRL + SPACE** to bring the playback back to your edit cursor and use **CTRL + SPACE** to reattach the edit cursor to the voice cursor. OR, if you stopped the audio, start it again. However, note that if the audio is further ahead, the edit cursor will attach and jump further into the transcription.
4. Repeat steps 2 and 3 until you are finished editing.

As you become more comfortable, you will find using the voice cursor works well with editing during playback and adjusting the playback rate. Combining all three of these skills will further increase your editing efficiency.

Best Practices

These are additional techniques to further enhance your editing skills.

Focused Listening

Focused listening is making a conscientious effort to really listen to what the clinician is saying. There is a difference between hearing and listening. When you *hear* something, you notice sound, but you do not actively think about what you are hearing. When you *listen* to something, you are actively engaged and thinking about what you are hearing.

This skill shouldn’t be anything new to the MT who does traditional transcription, but in the MLS editing world, it becomes more important. Not focusing your listening may lead to missed edits and mistakes. When you edit, it’s important to listen to the spoken words, but it’s also equally, if not more important, to listen for context of those spoken words. This will enhance your ability to quickly locate edits in draft documents.

Listen for:

- Gender
- Sound-alike words
- Numbers
- Medications
- Account specific discrepancies
- Missing or added words
- Speaker intent, take in entire picture instead of individual pieces
- Facts, figures, and ideas

Remember to always question things you do not understand.

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The Power of Suggestion

What is the power of suggestion? It's when you hear and read what you think is the same, when actually it is not. At one time or another, we've all run across a case when we transcribed something we thought was correct, only after re-listening to it, hear something different. When we don't focus our listening, we can sometimes misunderstand what we hear. This situation is what is commonly known as the Power of Suggestion.

With editing, the power of suggestion can be more of an issue because all transcription is recognized by ASR. If not paying close attention to the audio and text matchup, you can easily be misled into thinking what you heard and saw was correct when it was not, and portray the wrong information.

Power of Suggestion often occurs with:

- Sound-alike Words – words that ASR recognized incorrectly because they sounded alike, e.g., dictated "drug eluting stent" recognized "drug-alluding stent".
- Repetitions – clinician loses train of thought and repeats what was said, or pauses dictation and forgets what was already dictated, or repeating words while dictating
- Self-corrections – clinician misspeaks, realizes it and speaks correction
- Words not transcribed by ASR, especially articles and prepositions
- Accented Dictators – certain word pronunciations spoken differently
- Poor dictation – bad audio, poor speaking habits

By focusing your listening on content and paying attention, you can avoid the Power of Suggestion.

Using Draft Output

A major advantage to editing is having the entire transcribed draft output. This can be a valuable tool when editing for the following reasons:

- You know what is said
  - You have the entire transcribed draft and can make editing decisions based on what is said
- You can review the draft before listening
  - You can quickly locate obvious edits such as left/right discrepancies, dictation template insertion instruction, misformatted titles, misformatted lists, etc.
- You have all the sentences and phrases
  - You can easily read and get context of what is said to aid in editing decisions.
- You can learn new terms
  - ASR may output terms unfamiliar to you; you can use this as a starting point to research.

Using the draft output can provide many advantages to the editing environment and make you a more productive and efficient editor.

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Unnecessary Editing

Unnecessary editing is making corrections to a draft to make it more readable without affecting medical accuracy or meaning. When transcribing, it's easy to change what is spoken as it is typed, improving grammar, readability, and in general, making clinician reports look better. When editing drafts, however, this is not easy or recommended. The ASR system produces highly accurate results and gets most of the words right. In cases were the draft does not exactly match the dictation, but the meaning is close, an MLS should focus on the meaning of the dictator's words and consciously avoid making an edit for purely cosmetic reasons. The most productive editors are those who make edits which are necessary to the medical accuracy of the report.

Unnecessary editing often involves changes to grammar, punctuation, dictation style, and readability. The job of the MLS is to ensure the medical accuracy of the submitted document, not to unnecessarily "pretty up" the document.

Goals of Unnecessary Editing

- Edit for content, not cosmetics.
- Make necessary edits - edits that are needed to make the report medically accurate.
- Save keystrokes and improve efficiency.

If uncertain, always edit:

- Discrepancies such as Left or Right, or Gender Discrepancies
- Measurements in Lab Results
- Inconsistencies in Medication Dosages

Applying Editing Skills

In this section, we will pick an example and walk though some of the edits, discussing how to approach this from a beginner and advanced editor perspective.

Correcting Obvious Edits

Look at this draft below. Whether you are a beginner or an advanced user, the first step is to scan the draft and search for any obvious edits that can be made before starting playback. These are typically edits that can be made in 30 seconds or less.

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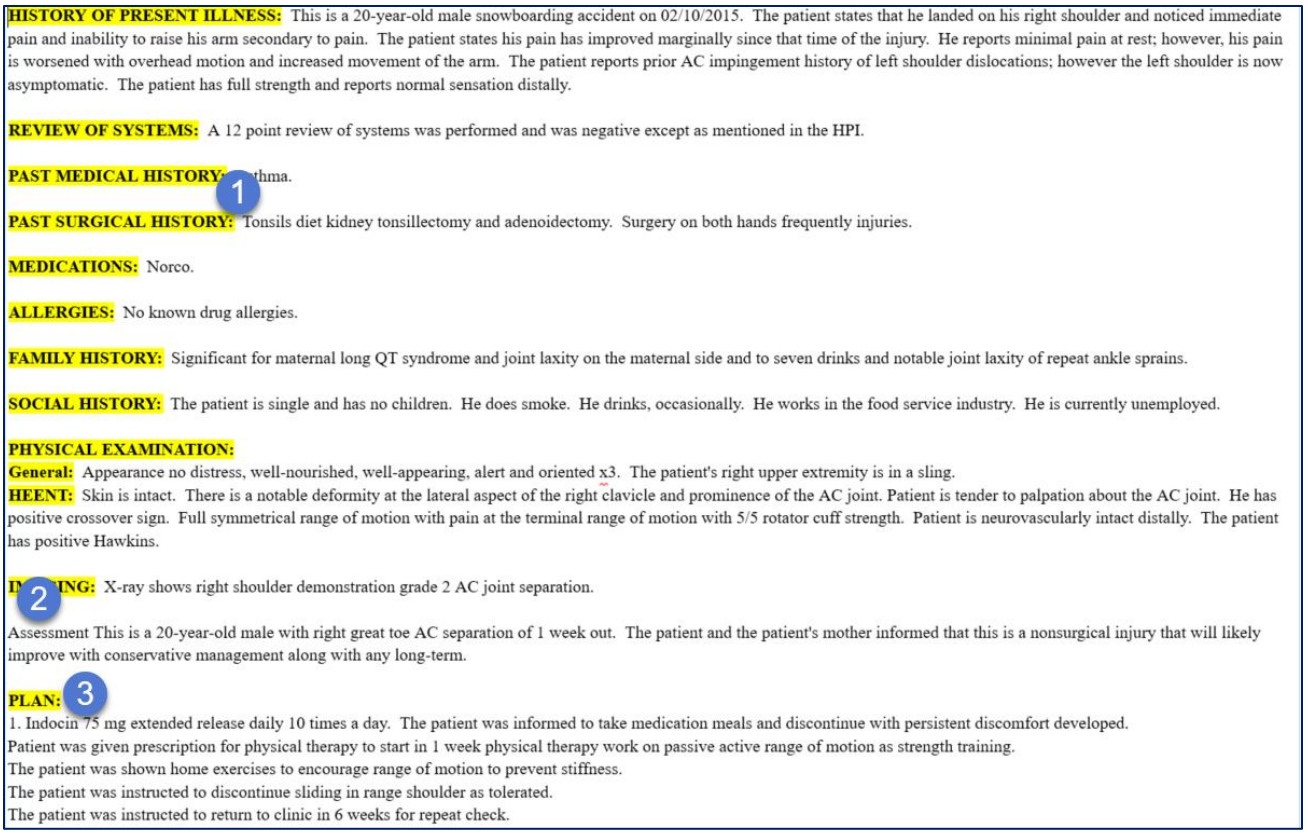


HISTORY OF PRESENT ILLNESS: This is a 20-year-old male snowboarding accident on 02/10/2015. The patient states that he landed on his right shoulder and noticed immediate pain and inability to raise his arm secondary to pain. The patient states his pain has improved marginally since that time of the injury. He reports minimal pain at rest; however, his pain is worsened with overhead motion and increased movement of the arm. The patient reports prior AC impingement history of left shoulder dislocations; however the left shoulder is now asymptomatic. The patient has full strength and reports normal sensation distally.

REVIEW OF SYSTEMS: A 12 point review of systems was performed and was negative except as mentioned in the HPI.

PAST MEDICAL HISTORY: thma.

PAST SURGICAL HISTORY: Tonsils diet kidney tonsillectomy and adenoidectomy. Surgery on both hands frequently injuries.

MEDICATIONS: Norco.

ALLERGIES: No known drug allergies.

FAMILY HISTORY: Significant for maternal long QT syndrome and joint laxity on the maternal side and to seven drinks and notable joint laxity of repeat ankle sprains.

SOCIAL HISTORY: The patient is single and has no children. He does smoke. He drinks, occasionally. He works in the food service industry. He is currently unemployed.

PHYSICAL EXAMINATION:
General: Appearance no distress, well-nourished, well-appearing, alert and oriented x3. The patient's right upper extremity is in a sling.
HEENT: Skin is intact. There is a notable deformity at the lateral aspect of the right clavicle and prominence of the AC joint. Patient is tender to palpation about the AC joint. He has positive crossover sign. Full symmetrical range of motion with pain at the terminal range of motion with 5/5 rotator cuff strength. Patient is neurovascularly intact distally. The patient has positive Hawkins.

I NG: X-ray shows right shoulder demonstration grade 2 AC joint separation.

Assessment This is a 20-year-old male with right great toe AC separation of 1 week out. The patient and the patient's mother informed that this is a nonsurgical injury that will likely improve with conservative management along with any long-term.

PLAN:
1. Indocin 75 mg extended release daily 10 times a day. The patient was informed to take medication meals and discontinue with persistent discomfort developed.
Patient was given prescription for physical therapy to start in 1 week physical therapy work on passive active range of motion as strength training.
The patient was shown home exercises to encourage range of motion to prevent stiffness.
The patient was instructed to discontinue sliding in range shoulder as tolerated.
The patient was instructed to return to clinic in 6 weeks for repeat check.

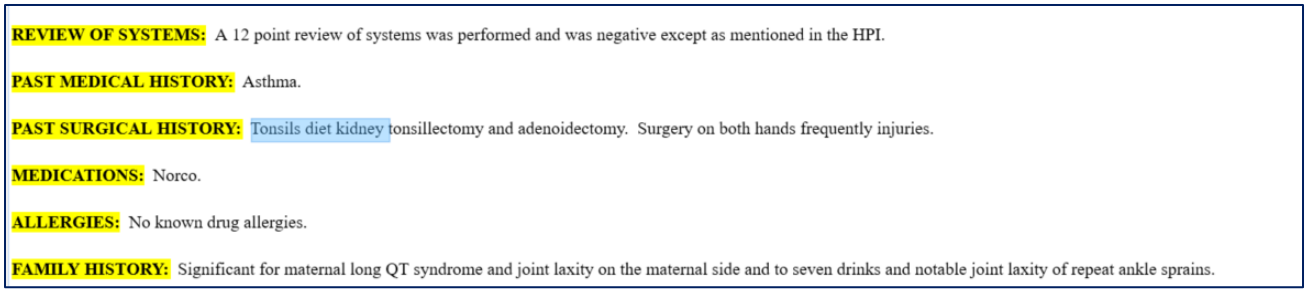
In this case, our scan shows we can quickly fix the following:

1. "Tonsils diet kidney tonsillectomy and adenoidectomy" – the first 3 words do not sound as if they should be part of this sentence. However, the last three words, tonsillectomy and adenoidectomy, do.

   Most efficient way to edit this:

   a. **CTRL + F**, type "tonsils" in the find box, hit **ESC**, and the cursor is at the beginning of Tonsils.

   b. **CTRL + SHIFT + RIGHT ARROW** to highlight all three words and hit **DELETE.**



REVIEW OF SYSTEMS: A 12 point review of systems was performed and was negative except as mentioned in the HPI.

PAST MEDICAL HISTORY: Asthma.

PAST SURGICAL HISTORY: Tonsils diet kidney tonsillectomy and adenoidectomy. Surgery on both hands frequently injuries.

MEDICATIONS: Norco.

ALLERGIES: No known drug allergies.

FAMILY HISTORY: Significant for maternal long QT syndrome and joint laxity on the maternal side and to seven drinks and notable joint laxity of repeat ankle sprains.

   c. **CTRL + U** to upper case "Tonsillectomy".

   With completed edit looking like this:

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REVIEW OF SYSTEMS: A 12 point review of systems was performed and was negative except as mentioned in the HPI.

PAST MEDICAL HISTORY: Asthma.

PAST SURGICAL HISTORY: Tonsillectomy and adenoidectomy. Surgery on both hands frequently injuries.

MEDICATIONS: Norco.

ALLERGIES: No known drug allergies.

FAMILY HISTORY: Significant for maternal long QT syndrome and joint laxity on the maternal side and to seven drinks and notable joint laxity of repeat ankle sprains.

2. The word “Assessment” should have been a title.

I NG: X-ray shows right shoulder demonstration grade 2 AC joint separation.

2

Assessment This is a 20-year-old male with right great toe AC separation of 1 week out. The patient and the patient's mother informed that this is a nonsurgical injury that will likely improve with conservative management along with any long-term.

Most efficient way to edit this:

a. Use **CTRL + F**, bring up the find box and type in “Assessment”. Hit **ESC** and the cursor is at beginning of “Assessment”.
b. Use **CTRL + RIGHT ARROW** to highlight the word, **CTRL U** to switch to uppercase, **CTRL + B** to bold.
c. Hit **RIGHT ARROW** once, then **LEFT ARROW** once and type “:” a colon.

The completed edit looks like this:

ASSESSMENT: This is a 20-year-old male with right great toe AC separation of 1 week out. The patient and the patient's mother informed that this is a nonsurgical injury that will likely improve with conservative management along with any long-term.

3. The “Plan” section should have been recognized as a list.

Most efficient way to edit this:

a. Navigate to the number one. Hit **CTRL + DELETE** twice to delete the number. This is not an actual formatted number; it was recognized as text.
b. Use **ALT + O + 5** to convert the first line to a number.

PLAN:

1. Indocin 75 mg extended release daily 10 times a day. The patient was informed to take medication meals and discontinue with persistent discomfort developed.

Patient was given prescription for physical therapy to start in 1 week physical therapy work on passive active range of motion as strength training.
The patient was shown home exercises to encourage range of motion to prevent stiffness.
The patient was instructed to discontinue sliding in range shoulder as tolerated.
The patient was instructed to return to clinic in 6 weeks for repeat check.

c. Move the edit cursor to the end of the word “developed” and hit **DELETE**, followed by **ENTER**, which creates the second number.
d. Move the edit cursor to the end of line with the second number, use **END**, then hit **DELETE** followed by **ENTER**, creating the third number. Follow this pattern until all numbers are added.
The complete edit looks like this:

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PLAN:

1. Indocin 75 mg extended release daily 10 times a day. The patient was informed to take medication meals and discontinue with persistent discomfort developed.
2. Patient was given prescription for physical therapy to start in 1 week physical therapy work on passive active range of motion as strength training.
3. The patient was shown home exercises to encourage range of motion to prevent stiffness.
4. The patient was instructed to discontinue sliding in range shoulder as tolerated.
5. The patient was instructed to return to clinic in 6 weeks for repeat check.

Making Edits with Audio Playback

Having completed the obvious edits, we move onto the rest of the edits with the audio. Beginners will play the audio while reading the text, find an error, stop the audio, and make the correction. The key is to minimize mouse usage and concentrate on the keyboard shortcuts for navigation and editing. Depending on comfort level, this may be using navigation shortcuts at first but following the strategy in the Shortcuts to learn first section of this document. You will eventually build to incorporate editing shortcuts as well.

Advanced MLS's have all editing and navigation shortcuts mastered and will incorporate attaching the edit cursor to the voice cursor to carry the edit cursor along with the audio. They may make edits while the audio is playing and use the voice cursor shortcuts to bring the playback back to the edit, or they may slow down and speed up the audio where appropriate. Or, the edit may be too complex to keep the audio going. Edit execution is dependent on the level of experience of the MLS.

Let's look at an edit at the beginning of the draft and show the strategy of how a beginner and an advanced MLS would make this. In this example there are only two edits.

HISTORY OF PRESENT ILLNESS: This is a 20-year-old male snowboarding accident on 02/10/2015. The patient states that he landed on his right shoulder and noticed immediate pain and inability to raise his arm secondary to pain. The patient states his pain has improved marginally since that time of the injury. He reports minimal pain at rest; however, his pain is worsened with overhead motion and increased movement of the arm. The patient reports prior AC impingement history of left shoulder dislocations; however the left shoulder is now asymptomatic. The patient has full strength and reports normal sensation distally.

Beginner MLS

1. Play audio, listen and read text. Notice the words "status post" missing after the word "male" and before "snowboarding".

   HISTORY OF PRESENT ILLNESS: This is a 20-year-old male snowboarding accident on 02/10/2015. The patient states that he landed on his right shoulder and noticed immediate pain and inability to raise his arm secondary to pain. The patient states his pain has improved marginally since that time of the injury. He reports minimal pain at rest; however, his pain is worsened with overhead motion and increased movement of the arm. The patient reports prior AC impingement history of left shoulder dislocations; however the left shoulder is now asymptomatic. The patient has full strength and reports normal sensation distally.

2. Stop the audio, move the edit cursor after the word "male" using **CTRL + RIGHT ARROW** a few times and type "status post".

3. Resume playback reading and listening, while looking for the next edit. This new edit is found after the words "AC impingement". The word missing is "and".

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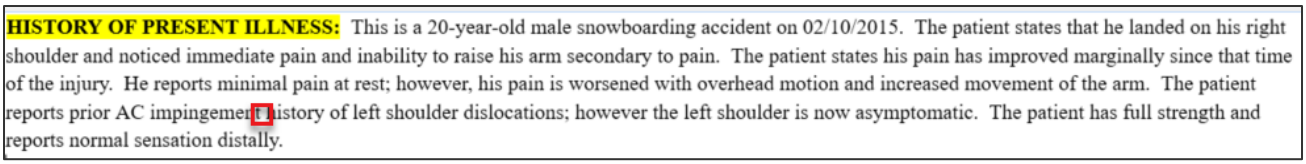
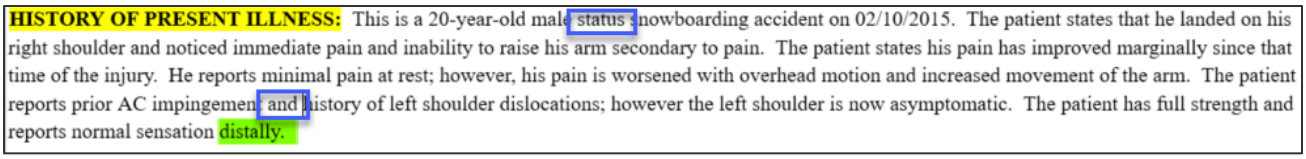


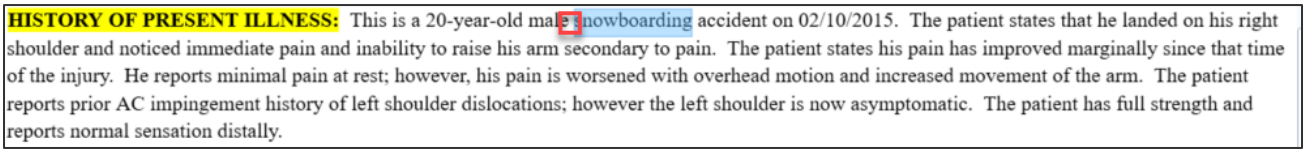
4. Stop the playback, use **DOWN ARROW** to move the edit cursor to the line with “AC impingement”. Use **CTRL + LEFT ARROW** to move the edit cursor between the words impingement and history. Next, add the word “and”. Resume playback to listen to the remainder of the paragraph.

   After all edits, the text will look like this. Edits highlighted in blue.

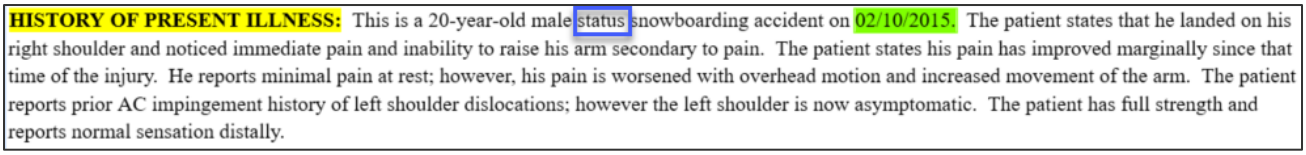


Advanced MLS

1. Start playback, use **CTRL + SPACE** to attached the edit cursor to the voice cursor, then read text and listen to the audio. Notice “status post” is missing between “male” and “snowboarding”.



2. Use **LEFT ARROW** key to separate the edit cursor as “snowboarding” is highlighted. While audio continues to play, type the word “status post”.



3. Use **SHIFT + CTRL + SPACE** followed by **CTRL + SPACE** to start playback from edit and reattach the edit cursor to the voice cursor. Resume listening to the audio. Scan the words ahead of playback and decide to speed up playback by hitting **CTRL + T** a few times.

4. Approach line that has “AC impingement”. Let audio play. Notice the word “and” after the word “impingement” is missing. Use **CTRL + R** to return playback to normal.

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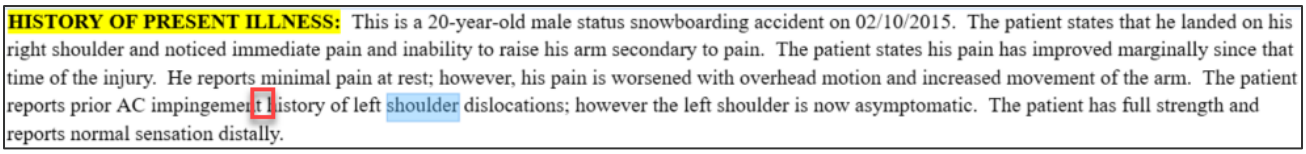
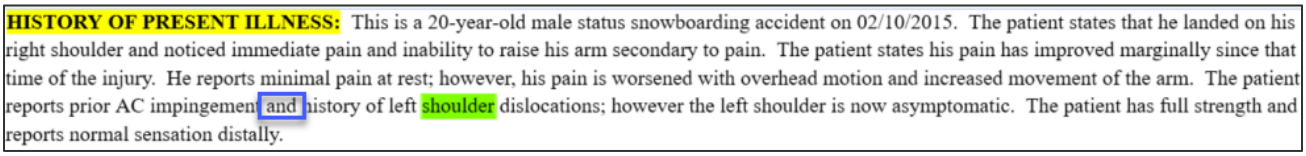
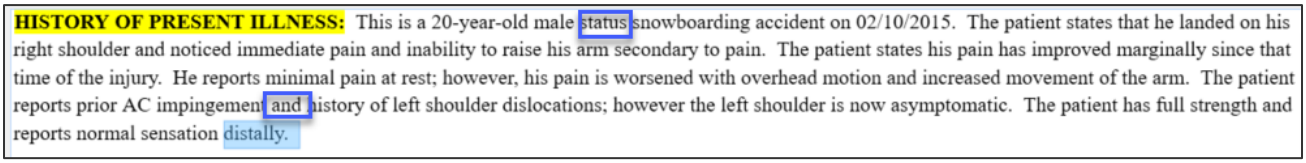


5. Use the **LEFT ARROW** to break the edit cursor and move it after the word “history”. Type the word “and” while the audio continues to play.



6. Bring playback to the edit with **SHIFT + CTRL + SPACE**, then reattach the edit cursor to the voice cursor with **CTRL + SPACE**. Let the audio continue to play while reading and listening to the rest of the text in the paragraph.

After all edits, the text will look like this. Edits highlighted in blue.



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