

MITRE / FLUX NOTES **CONCEPTS v16**- New note flow, medications, capture guidance  
DANIEL REEVES, JUHAN SONIN, 7.Mar.2019



## I NEW NOTE WORKFLOW



Reason

Summary

Imaging

Conditions

Labs

Disease Status

Medications

Pathology

Genetics

Allergies

Timeline

Treatment Options

Dr. Jraker299 referred ms. Debra24 Hernandez98Aj due to pain in left breast. Dr. Jraker299 is ms. Debra24 Hernandez98Aj's primary care physician for 12 years.

## Summary



Ms. Debra24 Hernandez98Aj is a 51-year-old menopausal non hispanic or latino woman with invasive ductal carcinoma of the breast, diagnosed on 13 January 2012. Her most recent status, recorded on 15 May 2017, is of worsening disease progression based on pathology, imaging, and symptoms.

She underwent a lumpectomy. She underwent a sentinel lymph node biopsy on 20 September 2012 which revealed infiltrating poorly differentiated ductal carcinoma, stage IV, estrogen receptor 0, etc.

diagnostic mammogram on 4 October 2013 revealed a 2 cm mass in the right breast at 7 o'clock and an

Blank Note

Search templates

### Clinical follow-up

designed by  
Dr. Free2 Will, Feb 2017

### Initial Consult

designed by  
Dr. Free2 Will, Feb 2017

### Clinical follow-up 2

designed by  
Dr. Free2 Will, Feb 2017

### Initial Consult 2

designed by  
Dr. Free2 Will, Feb 2017

### New Patient

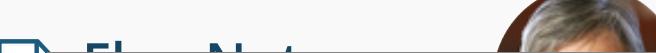
designed by  
Dr. Free2 Will, Feb 2017

### New Patient 2

designed by  
Dr. Free2 Will, Feb 2017

Sign note





## Incomplete @ phrases

The note is started, and the user can begin writing and editing even with incomplete @ phrases. Indicators in the margin, in the scroll region, and/or around the element itself alerts the user that these critical elements must be finished.

Birth  
1967 (51)Admin. sex  
FemaleLocation  
Boston, MALanguage  
English24  
24  
24

## Progress note

signed by: Dr. Bran24 Michel09A  
source: Dana Farber Cancer Institute

signed date: 10 April 2018

Close

B / U ≡ 1 2 3

## Reason for Visit

→ Debra is a 51 year old Female following up on @condition on 6 Mar 2019.



Templates

Shortcuts

Placeholders

Search shortcuts

Patient

@patient

@age

@gender

@dateofbirth

@name

Summary ≡ 田

Ms. Debra24 Hernandez98Aj is a 51-year-old menopausal non hispanic or latino woman with invasive ductal carcinoma of the breast, diagnosed on 13 January 2012. Her most recent status, recorded on 15 May 2017, is of worsening, disease progression based on pathology, imaging, and symptoms.

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## Oncology History

@oncohist

## &gt; Review of Systems

A complete 15 point ROS was done and was unremarkable except for alopecia, amen...

## Allergies

no allergies

## &gt; Medications

imatinib 100 mg capsule QD started 10 Aug 2017...

## Assessment

&lt;disease status&gt;

## Plan

Delete note

1 incomplete

1

Placeholder

Sign note

signed by: Dr. Bran24 Michel09A  
source: Dana Farber Cancer Institute

signed date: 10 April 2018

B / U ≡ 1  
2  
3

### Reason for Visit

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@age

Date of birth  
5 Apr 1967 (51)Admin. sex  
FemaleLocation  
Boston, MAROID  
12345432312Language  
English

Condition

invasive ductal carcinoma of breast

Debra24 search...



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Search shortcuts

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@patient  
@age  
@gender  
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@name  
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@dateofbirth  
@name  
@age  
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@dateofbirth  
@name  
@age  
@gender  
@dateofbirth  
@name  
@age  
@gender  
@dateofbirth  
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imatinib 100 mg capsule QD started 10 Aug 2017...

**Assessment**

&lt;disease status&gt;

**Plan**

Delete note

1 incomplete

1

Placeholder

Sign note

2

## MEDICATION REVISIONS

## Medication graphical view

The current implementation (right) brought several comments from the tester:

- inefficient use of space
- number of refills is missing, and of lower importance
- route is low importance if oral

Additional issues:

- svg becomes illegible in a browser

## Medications Gastrointestinal stromal tumor



loperamide hydrochloride 2mg tablet 1 tablet 2 tablets after the first loose stool; 1 tablet after each subsequent loose stool. as needed



Route	Prescribed	Prescribed By	Number of Refills
Oral route	17 Jan 2019	Dr. Mona341 Brown483	

hydrocortisone 2.5% ointment 1 g BID as needed



Route	Prescribed	Prescribed By	Number of Refills
Topical route	19 Jan 2017	Dr. Mona341 Brown483	

Ibuprofen 200 mg tablet

2 tablets  
TID as needed



increased from 1 tablet TID on 13 Nov '17

2 refills remaining

prescribed: 13 Nov 2017  
Dr Yosemite299a

-- edits for readability --

increased type and line widths in graphic  
soft line break after unit before timing info  
unit is in same color as value

hopefully, these help associate the unit with the graphic

PACLitaxel

180 mg/m<sup>2</sup>  
5 cycles



intravenous route

prescribed: 13 Nov 2017  
Dr Yosemite299a

-- edits to condense --

grey alternating backing allows for tighter packing  
condense prescriber info

fix elements relative left. Do not fill horizontal space.

hydrocortisone 2.5% ointment

1 g  
BID as needed



topical route  
1 refill remaining

prescribed: 13 Nov 2017  
Dr Yosemite299a

-- Experimenting --

Omit labels for route, refills, etc.

Identify relevant elements, like non-oral route, refills is present.  
List relevant items only.

## Medication table view

The current implementation (right) solves several of the complaints from the reviewer. But, it does not indicate out of range dosages.

The concept here highlights out of range values in red, and gives more information upon clicking on the dosage.

## Medications Invasive ductal carcinoma of breast



Medication	Change	Dosage	Timing	Start	End
PACLitaxel	Reduced on 20 Feb 2019 from 200mg/m2	180 mg/m2	5 cycles	20 Feb 2019	Missing Data
Trastuzumab		9 mg/kg	5 cycles	04 Nov 2018	20 Feb 2019
Tamoxifen		4 mg	6 cycles	27 Oct 2017	18 Oct 2018
Lisinopril 20mg tablet		1 tablet	QD	07 Mar 2017	Missing Data
ibuprofen 600mg					

Medication	Dosage
PACLitaxel	180 mg/m2
	Reduced on 2
Trastuzumab	9 mg/kg
Tamoxifen	4 mg

### ! outside recommended range

The maximum recommended dosage is 8 mg/kg

+ insert "Trastuzumab, 9 mg/kg"

open source note

Dr. Freedom Brown 31 Aug 2013

Start	End
20 Feb 2019	missing data
4 Nov 2018	20 Feb 2019
27 Oct 2017	18 Oct 2018

3

## USER GUIDANCE FOR # CAPTURES

## Highlight in shortcut menu

After a capture context is opened, such as #toxicity, the user is expected to add more capture shortcuts immediately. Cue the user by highlighting the expected attributes classes in the shortcuts menu.

Two ideas are shown here.

**Progress note**

signed by: Dr. Bran24 Michel09A signed date: 10 April 2018  
source: Dana Farber Cancer Institute

B / U ≡ 1/3 | *Invasive ductal carcinoma of breast | toxicity*

**Allergies**  
no allergies

**Medications**  
imatinib 100 mg capsule QD started 10 Aug 2017...

**Assessment**  
Patient is experiencing #toxicity |

**Plan**

Tooltips:

- Toxicity - grade**  
#grade 2  
#grade 3  
#grade 4
- Toxicity - adverse event**  
#anemia  
#diarrhea  
#nausea  
#fatigue
- Invasive ductal carcinoma**  
#staging  
#disease status  
@ONCOHIST  
#toxicity

## Open suggestion window immediately

Currently, the autocomplete menu is opened only if # or @ is typed. Without # or @, a suggestion window opens to give guidance. The next three concepts explore different types of guidance.

The window may open immediately, or perhaps after one second of inactivity, or from a special keystroke, like TAB.

**Progress note**

signed by: Dr. Bran24 Michel09A signed date: 10 April 2018  
source: Dana Farber Cancer Institute

B / U ≡ 1/3 | *Invasive ductal carcinoma of breast*

**Assessment**  
Patient is experiencing #toxicity |

**Plan**

Suggestion window:

- grade 3
- anemia
- medication
- grade 2
- diarrhea
- nausea

Tooltips:

- Toxicity - grade**  
#grade 2  
#grade 3  
#grade 4
- Toxicity - adverse event**  
#anemia  
#diarrhea  
#nausea  
#fatigue
- Invasive ductal carcinoma**  
#staging  
#disease status  
@ONCOHIST  
#toxicity

## Prioritized menu

A suggestion menu opens displaying representative shortcuts from each attribute class. The next word typed searches against this list, even without # or @.

**Nested menu**

A guiding menu opens displaying the attribute classes that have not been entered. The attribute classes open child menus. Below the attribute classes is a flat list.

Progress note

signed by: Dr. Bran24 Michel09A signed date: 10 April 2018

Invasive ductal carcinoma of breast

**Assessment**

Patient is experiencing #toxicity |

**Plan**

adverse event	grade	attribution
diarrhea		
nausea		
anemia		
grade 2		
diarrhea		
nausea		

Tooltips:

Templates  
Shortcuts  
Placeholders

Search shortcuts

- Toxicity - grade
- #grade 2
- #grade 3
- #grade 4
- Toxicity - adverse event
- #anemia
- #diarrhea
- #nausea
- #fatigue
- Invasive ductal carcinoma
- #staging
- #disease status
- @ONCOHIST
- #toxicity

**Attribute Tableau**

A guiding window opens displaying all the uncaptured attribute classes with several choices in each class. Typing filters the shortcuts.

Progress note

signed by: Dr. Bran24 Michel09A signed date: 10 April 2018

Invasive ductal carcinoma of breast

**Assessment**

Patient is experiencing #toxicity |

**Plan**

adverse event	grade	attribution
anemia	grade 1	treatment
diarrhea	grade 2	disease
nausea	grade 3	error
fatigue	grade 4	unrelated
febrile		
neutropenia		unknown

Tooltips:

Templates  
Shortcuts  
Placeholders

Search shortcuts

- Toxicity - grade
- #grade 2
- #grade 3
- #grade 4
- Toxicity - adverse event
- #anemia
- #diarrhea
- #nausea
- #fatigue
- Invasive ductal carcinoma
- #staging
- #disease status
- @ONCOHIST
- #toxicity