

MITRE / FLUX NOTES **CONCEPTS v15.3 - Medications & Note authoring**

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I

MEDICATION RANGES

Assumptions:

There are three types of values available for the medication range graphic:

- 1) the prescribed value (always present)
- 2) a "typical value" (sometimes present)
- 3) a minimum and maximum value (sometimes present)

Furthermore, the min and max values may be either faulty or uninteresting.

Possibilities:

The range is **unknown** if:

- the values are missing
- the values are faulty because they are equal ($X = X_{\min} = X_{\max}$), but there is also a typical value not equal to X .

The range **singular/uninteresting** if:

- the values are equal ($X = X_{\min} = X_{\max}$)
- the values are faulty because they are given as X to X , but there is also a typical value not equal to X .

The range is **maybe unknown, but maybe singular/uninteresting** if:

- the minimum is 0 and the maximum is an integer, and the units are pills or tablets or something else from a list of integer units.

Recommendation

PACLitaxel

180 mg/m² 5 cycles



route
oral route

- units are omitted from graphic
- range bar is in front of typical value hash
- drop shadow is removed from dots
- optionally, out of range dot could grow with distance from maximum.

Tamoxifen

45 mg 6 cycles



route
oral route

Lisinopril 20mg tablet

1 tablet TID as needed



route
oral route

range unknown

Aromasin

0.25 mg 1 per day



route
oral route

Letrazole

2.5 mg qdr



route
oral route

typical unknown

Ibuprofen 400 mg tablets

4 tablets



route
oral route

range singular

Trastuzumab

9 mg/kg 5 cycles



route
oral route

hydrocortisone 2.5% ointment

1 g BID as needed

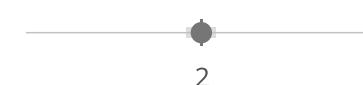


route
topical route

range unknown

Acetaminophen 325 mg tablets

2 tablets



route
oral route

range singular

alternative A

PACLitaxel

180 mg/m² 5 cyclesroute
oral route

Tamoxifen

45 mg 6 cyclesroute
oral route

Lisinopril 20mg tablet

1 tablet TID as
neededroute
oral route

Aromasin

0.25 mg 1 per dayroute
oral route

Letrazole

2.5 mg qdrroute
oral route

Ibuprofen 400 mg tablets

4 tabletsroute
oral route

Trastuzumab

9 mg/kg 5 cyclesroute
oral route

hydrocortisone 2.5% ointment

1 g BID as needed

route
topical route

Acetaminophen 325 mg tablets

2 tabletsroute
oral route

alternative B

PACLitaxel

180 mg/m² 5 cyclesroute
oral route

Tamoxifen

45 mg 6 cyclesroute
oral route

Lisinopril 20mg tablet

1 tablet TID as
neededroute
oral route

Aromasin

0.25 mg 1 per dayroute
oral route

Letrazole

2.5 mg qdrroute
oral route

Ibuprofen 400 mg tablets

4 tabletsroute
oral route

Trastuzumab

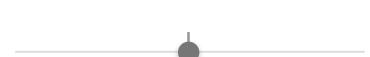
9 mg/kg 5 cyclesroute
oral route

hydrocortisone 2.5% ointment

1 g BID as needed

route
topical route

Acetaminophen 325 mg tablets

2 tabletsroute
oral route

alternative C

PACLitaxel

180 mg/m² 5 cyclesroute
oral route

Tamoxifen

45 mg 6 cyclesroute
oral route

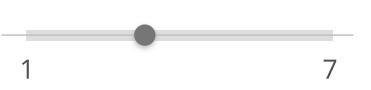
Lisinopril 20mg tablet

1 tablet TID as
neededroute
oral route

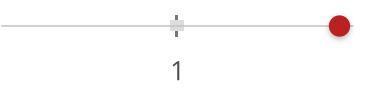
Aromasin

0.25 mg 1 per dayroute
oral route

Letrazole

2.5 mg qdrroute
oral route

Ibuprofen 400 mg tablets

4 tabletsroute
oral route

Trastuzumab

9 mg/kg 5 cyclesroute
oral route

hydrocortisone 2.5% ointment

1 g BID as needed

route
topical route

Acetaminophen 325 mg tablets

2 tabletsroute
oral route

2

POC STYLES and SITUATIONS

Intent

- flexible data capture
- cater to specific needs of elements (some are complex, some are simple)
- clean yet complete

New formats

- in-line GUI elements
- simple GUI format for simplest elements

By section

- can control the display and capture mode of the section, similar to the targeted data panel sections.
- sections can be collapsed and expanded

Consideration

- if the note gains GUI elements, there must be a review of textual note before signing.



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

Procedures

Vitals

Labs

Disease status

Medication

Pathology

Treatment options

Progress note

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

Close

B / U ≡ 1 ≡ H |

created date: 10 April 2018

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

> Reason for Visit

Debra has requested a visit after complaints of pain that prevent her from ...

> Oncology History

Debra is a 51 year old Female diagnosed with blablabla blablba bla bla bla ...

> Review of Systems

A 15 point ROS has been performed and found this thing wrong, and this other...

Allergies

no allergies

> Medications

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

Assessment

I evaluate <disease stat>

<Disease Status>

#Complete response #imaging|

done

Status

Complete response	Complete resection	Responding	Stable
Progressing	Inevaluable		
Rationale (select multiple)			

Rationale (select multiple)

Pathology	Imaging	Markers	Symptoms	Physical exam
-----------	---------	---------	----------	---------------

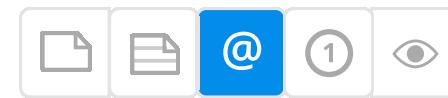
Reference Date

select a date ▾

As of Date

Nov. 28, 2018 ▾

Delete note



🔍 Search shortcuts

Templates
ShortcutsPatient
@patient
@age
@gender
@dateofbirth
@name
...



- user taps the placeholder, or selects from dropdown, to open GUI.
- the user selected “autoformat” for disease. The user can still change the text.
- the user selected “manual text” for toxicity. This cleared the autoformatted text and simply lists shortcuts.

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.

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

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Close

B / U H |

Allergies

no allergies

Medications

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

Assessment

disease status is complete response as evidenced by imaging, as of Nov. 28, 2018.

disease status [manual text](#) [autoformat](#) [close](#)

Status

complete resection	complete response	responding	stable
progressing	inevaluable		

Rationale
(select multiple)

pathology	imaging	physical exam	markers	symptoms
-----------	---------	---------------	---------	----------

Reference Date

[select a date](#)

As of Date

Nov. 28, 2018

She is exhibiting severe vomiting, likely due to the imatinib (#toxicity #grade 2 #treatment)

Plan

We discussed clinical trials. [enrollments](#)

Delete note

1 incomplete

2 Placeholder

Sign note



Search shortcuts

Templates
Shortcuts

Patient
@patient
@age
@gender
@dateofbirth
@name
...



- for enrollment, there is only one empty field, so a simplified in-line gui is presented.
- the date is also a field, but it is default to "today". The user can click on today to edit it.

Dr. Jraker299 referred ms. Debra24

Hernandez98Aj due to pain in left
breast. Dr. Jraker299 is ms. Debra24

Summary

Hernandez98Aj's primary care physician for 12 years.

Procedures

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.

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Treatment options

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created date: 10 April 2018



B / U ≡ ≡ H |

Allergies

no allergies

> Medications

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

Assessment

disease status is complete response as evidenced by imaging, as of Nov. 28, 2018.

She is exhibiting severe vomiting, likely due to the imatinib (#toxicity #grade 2 #treatment)

Plan

We discussed clinical trials:

The patient is enrolling today in

Delete note

1 incomplete

2 Placeholder

Sign note



Search shortcuts

Templates

Shortcuts

Patient

@patient

@age

@gender

@dateofbirth

@name

...

...



- each section has multiple modes

1. text/plain textual mode

2. POC mode.

3. mixed? like the following idea on the next slide....

- we can add additional content along each element title line such as selected hashtags and formatting selections.

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note

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source: Dana Farber Cancer Institute

Close

Assessment

Abc

disease status

Status

complete resection	complete response	responding	stable
progressing	inevaluable		

Rationale
(select multiple)

pathology	imaging	physical exam	markers	symptoms
-----------	---------	---------------	---------	----------

Reference Date

select a date

As of Date

Nov. 28, 2018

toxicity

Adverse event

fatigue	Febrile Neutrophilia	anemia	nausea
platelet count	hot flashes		

Grade
(see details)

grade 1	grade 2	grade 3	grade 4	grade 5
---------	---------	---------	---------	---------

Attribution

treatment	error	disease	unrelated	unknown
-----------	-------	---------	-----------	---------

Plan

We discussed clinical trials: <enrollment>.

Delete note

1 incomplete

2 Placeholder

Sign note



Search shortcuts

Templates

Shortcuts

Patient

@patient

@age

@gender

@dateofbirth

@name

...

3

GROUPING DATA CAPTURE

Arbitrary grouping

- snippets can define data groupings
- data groupings can reflect SHR, or be formed as observations with .hasMember fields

Challenges

- support placeholders for groups of data, like a clickable ROS.



Debra24
Hernandez98Aj

Date of birth
5 Apr 1966 (51)

Admin. sex
Female

Location
Boston, MA

Ductal carcinoma of the breast ▾

 Debra24 search...



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B / U ⏪ ⏴ H |

Reason for Visit

Debra has requested a visit after

Oncology History

Debra Hernandez is a 51 year old of the breast on 13 January 2012.

.earExam

Name
ear exam

Data grouping

type observation

name earExam

Requirements

patient Juan232 Fol...
[add requirement](#)

Filters
no available filters

Topic Tags

patient
[new tag](#)
admin
condition
exam
labs
medications
patient
[trials](#)

Folder

None

[cancel](#) [Save](#)

Definition

Ear exam reveals:
<earproblemA>
<earThingB>
<somethingwithEarsC>
<anotherEarThingD>

is there a way to customize output at this stage to somehow stress the affirmative findings????

Edit Snippets

show [All](#) [In context](#)

[new folder](#)

General

.exam
.patient
.patientWithDiagnosis
.patientAndMeds

[.earExam](#)

[new subfolder](#)

Cancer

.cancerMeds
.mammogramResults

[new subfolder](#)

Fracture

.status
.orderXrays

[new subfolder](#)

Done

Sign note

Delete note

4

Improving placeholders

INPUT

- The user selects affirmative or unusual observations from a list. This is similar to toxicities, except these observations are likely not the same kind of element (toxicity, clinical impression, observation...) so it is a heterogeneous group. This is how ROS and exam are done in Cerner.
- Can the user customize the functionality and grouping within these placeholders? Like a snippet-placeholder?
- Consider changing the toxicity POC to this style (see next slide).

OUTPUT

- Customizable formatting of placeholder text



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Disease status

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Progress note

created by: Dr. Bran24 Michel09A

created date 10 April 2018

✖ Close



#Disease status Status No data Reason No data Reference date No data As of date No data

skip

> Status	Complete response	Complete resection	Responding	Stable	Progressing	Inevaluable
----------	-------------------	--------------------	------------	--------	-------------	-------------

#Staging

Tumor size T1 Node size N2 Metastasis No data

done

> Metastasis	M0	M1
--------------	----	----

#toxicity

febrile neutrophilia	fatigue	generalized muscle weakness	nausea	anemia
blood clots	enter symptom			

done

Grade No data Attribution No data

Nausea	> Grade	Grade 1	Grade 2	Grade 3	Grade 4
--------	---------	---------	---------	---------	---------

remove toxicity

Grade No data Attribution No data

Blood Clots	> Grade	Grade 1	Grade 2	Grade 3	Grade 4
-------------	---------	---------	---------	---------	---------

remove toxicity

Delete note

1 incomplete

3 Placeholder

Sign note