

MITRE / FLUX NOTES **SELECTED CONCEPTS v14.3**

EDWIN CHOI, DANIEL REEVES, JUHAN SONIN, 8.JUN.2018



The following concepts explore the note assistant, template initiation, toxicity, labs, clinical trials, and context tray interactions.

I PRINCIPLES OF THE NOTE ASSISTANT

INTRODUCTION

The note assistant is a feature within Flux Notes that will help guide the provider through the patient encounter, as well as help complete any data that's needed for note and encounter completion. The designs that are explored today should be in the context of the future self-documenting clinical encounter. These ideas should be part of building the infrastructure from which to expand to voice/conversational interactions.

NOTE ASSISTANT GUIDING PRINCIPLES

- The assistant is for encounter completion, not just note completion
- The assistant should not be limited to UI only (voice, chatbot, etc)
- The assistant is present, yet unobtrusive
- Provides assistance based on the providers workflow and mental model
- The assistant is not one specific and particular area of the application. It is a suite of interactions that provides completion guidance to the provider, pointing them to assistive content
- There is always the option for the user to ignore the assistant
- User can *request* more help from the assistant, rather than having it *imposed* upon them (opposite of clippy)
- The assistant should never *interrupt*; avoid the addition of alert fatigue
- Navigation is bite sized and does not overwhelm the user (think turbo-tax)
- Prioritize highest value assistant suggestions
- Whenever possible, show don't tell (visuals for tricky procedures, videos/visualizations for patient education, etc)
- Allow the assistant to be a tool for the clinician (calculator to find BMI, etc)
- Use of text NLP and voice NLP to predict the most useful content for the user
- Note assistant should take into account patient values/preferences based on analysis of the patient record

TYPES OF ASSISTANCE

Assist with data capture

- Missing elements
 - Missing data required for proper billing
 - Missing data required for CQMs
 - Minimum elements required to complete note as specified by template
 - Missing data needed for inclusion/exclusion criteria for clinical trials (typically ~8 elements for determining eligibility)
- Missing attributes within data elements

Assist with errors

- Clinical errors
 - Impossible values
 - Contraindications to prescribed treatments (to devices, Rx, patient preferences)
- Misspellings

Assist with next steps

- Clinician references
 - Clinical calculators/tools
 - Medical information references (UpToDate, MedlinePlus, AJCC staging, etc)
- Plan of care
 - Diagnostics (labs, imaging, etc)
 - Referrals
 - Medication regimens
- Clinical trial enrollment
 - Informed consent forms
 - Resources/education about trials
- Resources
 - Patient education related media
 - Patient resources (communities, groups, etc)

② CONTRAINDICATION NOTE ASSISTANT



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

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

Follow-up

10 April 2018

Dr. Free2 Will

Dana Farber Cancer Institute

B I U ≡ ≡

Tamoxifen

Contraindication

1 Plan

Prescribe Tamoxifen 40 mg tablet, once daily,



Search shortcuts

Templates

Snippets

Suggested

Context

Dosage

#min

#average

#max

#...

Frequency

#qd

#tid

#qid

#...

Remove unfilled elements and sign

Remove note

Debra24
Hernandez98AjDate of birth
5 Apr 1966 (51)Admin. sex
Female

Location

Boston, MA

Workflow
Pre-encounterCondition
Ductal carcinoma of the breastView

Debra24 search...

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.

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10 April 2018Dr. Free2 Will
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B I U ≡ | Tamoxifen

Contraindication

1 Plan

Prescribe Tamoxifen 40 mg tablet, once daily,

Prescribe Tamoxifen 40 mg tablet

Patient has very low white blood cell count.
Contraindication with Tamoxifen.

 Remove tamoxifen Keep and add reason Remove unfilled elements and sign Remove note

Debra24
Hernandez98AjDate of birth
5 Apr 1966 (51)Admin. sex
FemaleLocation
Boston, MAWorkflow
Pre-encounterCondition
Ductal carcinoma of the breastView

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Close

B I U ≡ ≡ | Tamoxifen

Contraindication

1 Plan

Prescribe Tamoxifen 40 mg tablet, once daily,

Prescribe Tamoxifen 40 mg tablet

Save reason

Remove unfilled elements and sign

Remove note

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Female

Location

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Workflow
Pre-encounterCondition
Ductal carcinoma of the breastView

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Timeline

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Medication

Allergies

Labs

Social

Disease status

Follow-up

10 April 2018

Dr. Free2 Will

Dana Farber Cancer Institute

 Close | Tamoxifen*Contraindication*

1 corrections

Prescribe Tamoxifen 40 mg tablet

The reason I am prescribing Tamoxifen despite contraindication... etc etc... |

Save reason

1 Plan

Prescribe Tamoxifen 40 mg tablet, once daily,



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.

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Timeline

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Close

Tamoxifen



0 corrections

1 Plan

Prescribe Tamoxifen 40 mg tablet, once daily, The reason I am prescribing Tamoxifen despite contraindication... etc etc...

3

TEMPLATE INITIALIZATION

Debra24
Hernandez98AjDate of birth
5 Apr 1966 (51)Admin. sex
FemaleLocation
Boston, MAWorkflow
Pre-encounterCondition
Ductal carcinoma of the breastView

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Follow-up

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Close

B I U ≡ ≡



Search shortcuts

Summary

Timeline

Medication

Allergies

Labs

Social

Disease status

Summary



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Follow-up
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REASON FOR VISIT

Follow-up consultation regarding a procedure related to @condition

HISTORY OF PRESENT ILLNESS

@HPI

PROCEDURE

The patient recently underwent @procedure on @dateof with @attending.

Condition:

Invasive ductal carcinoma of breast

Fracture

 Cancel Remove unfilled elements and sign Remove note

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Hernandez98AjDate of birth
5 Apr 1966 (51)Admin. sex
Female

Location

Boston, MA

Workflow
Pre-encounterCondition
Ductal carcinoma of the breastView

Debra24 search...



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Medication

Allergies

Labs

Social

Disease status

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10 April 2018

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 Close

Invasive ductal carcinoma of the breast



← Rechoose condition

Condition:
Invasive ductal carc...

Procedure:

Mammography

Core needle biopsy of breast

Another procedure that happened

yet another procedure

 Cancel Remove unfilled elements and sign Remove note



Debra24

Date of birth

Admin. sex Location

Hernandez98Aj

5 Apr 1966 (51) Female Boston, MA

Workflow

Pre-encounter

Condition

Ductal carcinoma of the breast

View



Debra24 search...



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Timeline

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Close

Invasive ductal carcinoma of the breast



← Rechoose procedure

Condition:
Invasive ductal carc...Procedure:
Mammography

REASON FOR VISIT

Follow-up consultation regarding a procedure related to Invasive ductal carcinoma of the breast.

HISTORY OF PRESENT ILLNESS

Here is the full history of present illness for invasive ductal carcinoma of the breast, with all the structured data.

PROCEDURE

The patient recently underwent mammography on Feb 12, 2018 with Dr. Needlebrow.

Cancel Confirm

Remove unfilled elements and sign

Remove note

Debra24
Hernandez98AjDate of birth
5 Apr 1966 (51)Admin. sex
FemaleLocation
Boston, MAWorkflow
Pre-encounterCondition
Ductal carcinoma of the breastView

Debra24 search...



Summary

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Timeline

Summary



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Medication

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Labs

Social

Disease status

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

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 Close

mammography

REASON FOR VISIT

Follow-up consultation regarding a procedure related to Invasive ductal carcinoma of the breast.

HISTORY OF PRESENT ILLNESS

Here is the full history of present illness for invasive ductal carcinoma of the breast, with all the structured data.

PROCEDURE

The patient recently underwent mammography on Feb 12, 2018 with Dr. Needlebrow.



Search shortcuts

Templates

Snippets

Suggested

Context

mammography

#result

@dateof

@attending

Invasive ductal car...

#disease status

#toxicity

#ER

#PR

#HER2

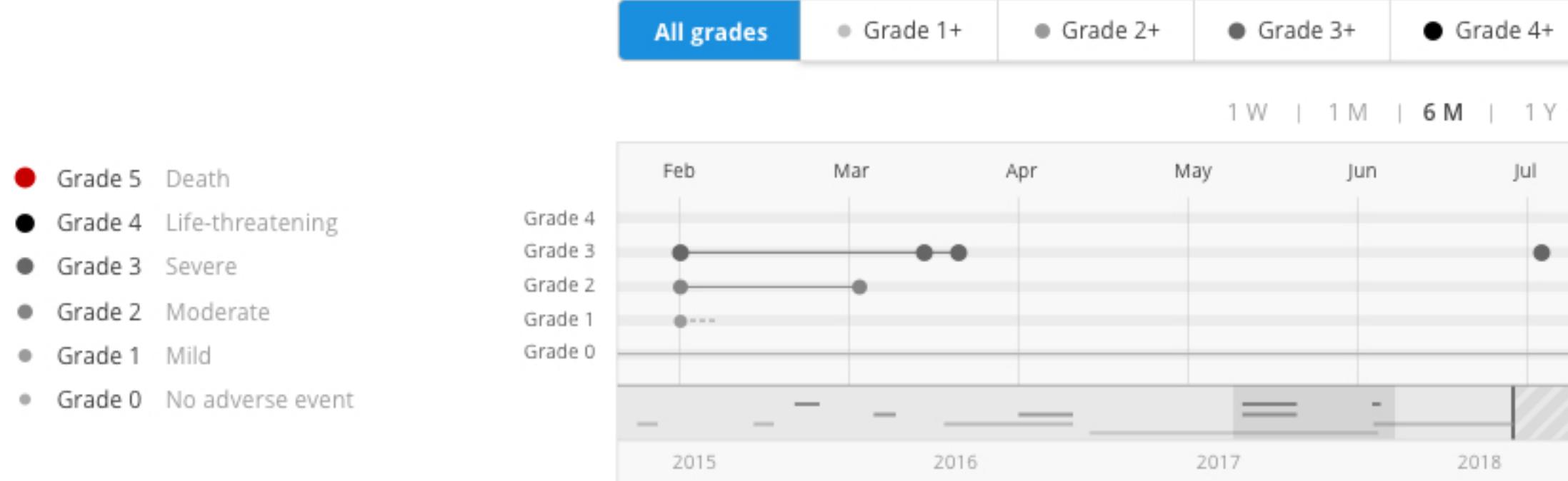
@HPI

 Remove unfilled elements and sign Remove note



4 TOXICITY TIMELINE

Toxicities Ductal carcinoma of the breast

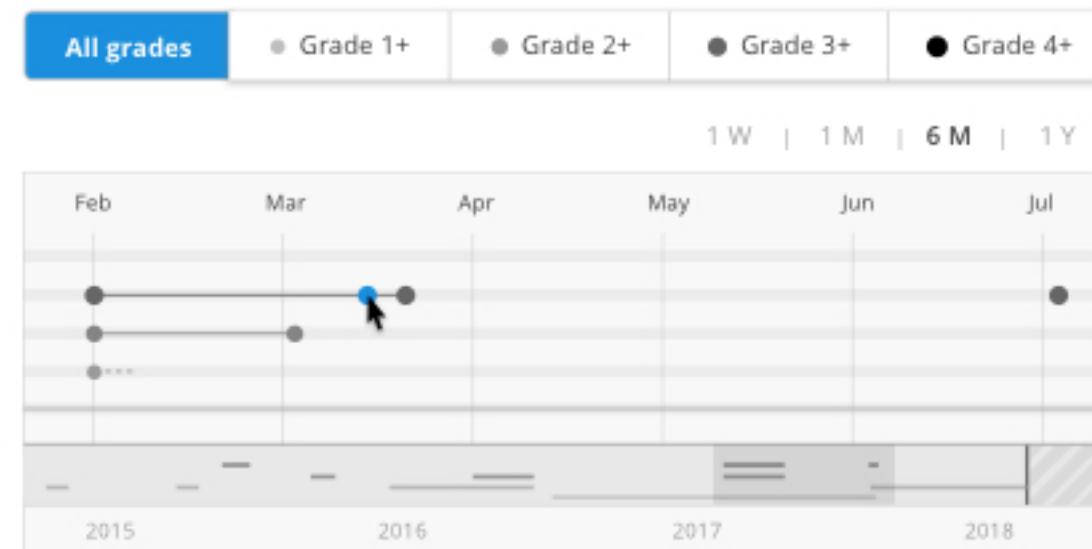


In the timeline row area, the entries are organized by time, latest to oldest. If the time overlaps, it is organized by highest grade to lowest grade.

Always track the state of the ~5 most common toxicities specific to the condition, even if no adverse reactions were observed, and even if no data was recorded.

2017		
• 1 month ago	Neutropenia	Grade 0 Treatment Dr. Will253 Anne3 Boston hospital
• 1 month ago	Breast cancer toxicity 2	Grade 0 Treatment Dr. Will253 Anne3 Boston hospital
• 1 month ago	Breast cancer toxicity 3	Grade 0 Treatment Dr. Will253 Anne3 Boston hospital
• 1 month ago	Breast cancer toxicity 4	Grade 0 Treatment Dr. Will253 Anne3 Boston hospital
• 1 month ago	Breast cancer toxicity 5	Unrecorded grade Treatment Dr. Will253 Anne3 Boston hospital
• 1 month ago	Constipation	Grade 3 Treatment Dr. Will253 Anne3 Boston hospital

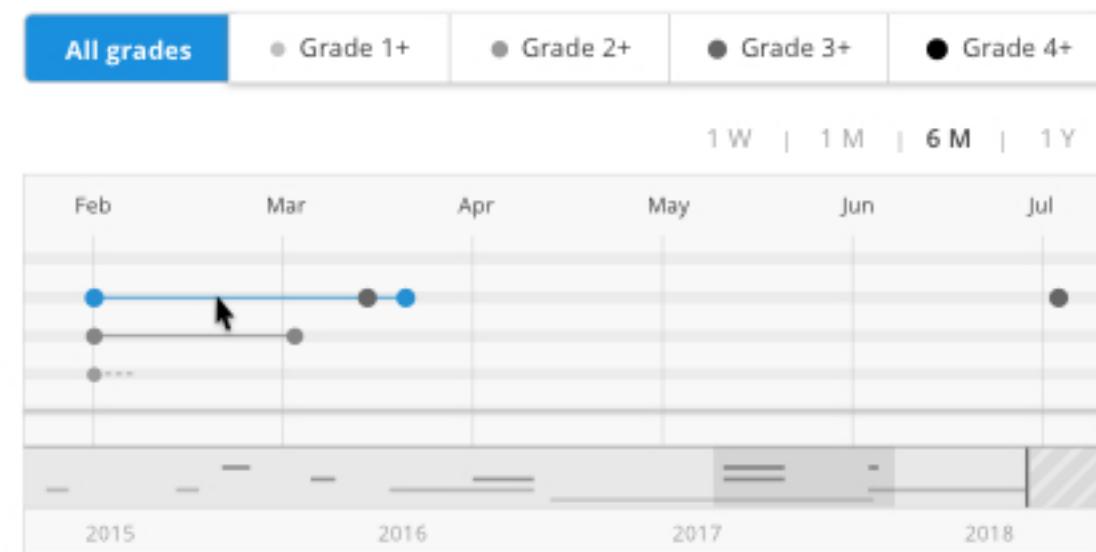
Toxicities Ductal carcinoma of the breast



2017

- 1 month ago **Neutropenia** Grade 0
1 Jun 16 - 4 Oct 17 Treatment | Dr. Will253 Anne3 | Boston hospital
- 1 month ago **Breast cancer toxicity 2** Grade 0
1 Jun 16 - 4 Oct 17 Treatment | Dr. Will253 Anne3 | Boston hospital
- 1 month ago **Breast cancer toxicity 3** Grade 0
1 Jun 16 - 4 Oct 17 Treatment | Dr. Will253 Anne3 | Boston hospital
- 1 month ago **Breast cancer toxicity 4** Grade 0
1 Jun 16 - 4 Oct 17 Treatment | Dr. Will253 Anne3 | Boston hospital
- 1 month ago **Breast cancer toxicity 5** Unrecorded grade
1 Jun 16 - 4 Oct 17 Treatment | Dr. Will253 Anne3 | Boston hospital
- 1 month ago **Constipation** Grade 3
2 Jul Treatment | Dr. Will253 Anne3 | Boston hospital
- 6 months ago **Constipation** Grade 3
1 Feb - 20 Mar Treatment | Dr. Will253 Anne3 | Boston hospital
- 6 months ago **Nausea** Grade 3
12 Mar Treatment | Dr. Will253 Anne3 | Boston hospital
- 10 months ago **Cough** Grade 2
15 Jul - 20 Nov Treatment | Dr. Will253 Anne3 | Boston hospital

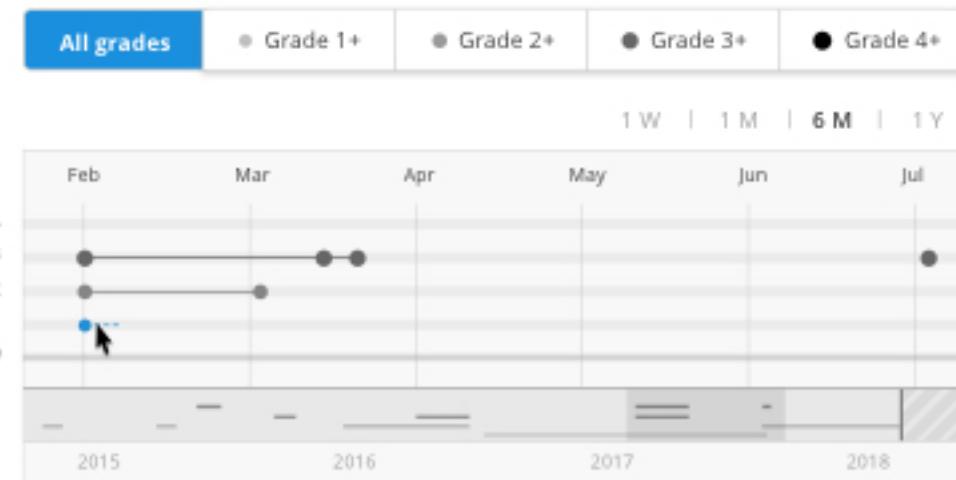
Toxicities Ductal carcinoma of the breast



2017

- 1 month ago **Neutropenia Grade 0**
1 Jun 16 - 4 Oct 17 Treatment | Dr. Will253 Anne3 | Boston hospital
- 1 month ago **Breast cancer toxicity 2 Grade 0**
1 Jun 16 - 4 Oct 17 Treatment | Dr. Will253 Anne3 | Boston hospital
- 1 month ago **Breast cancer toxicity 3 Grade 0**
1 Jun 16 - 4 Oct 17 Treatment | Dr. Will253 Anne3 | Boston hospital
- 1 month ago **Breast cancer toxicity 4 Grade 0**
1 Jun 16 - 4 Oct 17 Treatment | Dr. Will253 Anne3 | Boston hospital
- 1 month ago **Breast cancer toxicity 5 Unrecorded grade**
1 Jun 16 - 4 Oct 17 Treatment | Dr. Will253 Anne3 | Boston hospital
- 1 month ago **Constipation Grade 3**
2 Jul Treatment | Dr. Will253 Anne3 | Boston hospital
- 6 months ago **Constipation Grade 3**
1 Feb - 20 Mar Treatment | Dr. Will253 Anne3 | Boston hospital
- 6 months ago **Nausea Grade 3**
12 Mar Treatment | Dr. Will253 Anne3 | Boston hospital
- 10 months ago **Cough Grade 2**
1 Feb - 20 Mar Unknown | Dr. Will253 Anne2 | Boston hospital

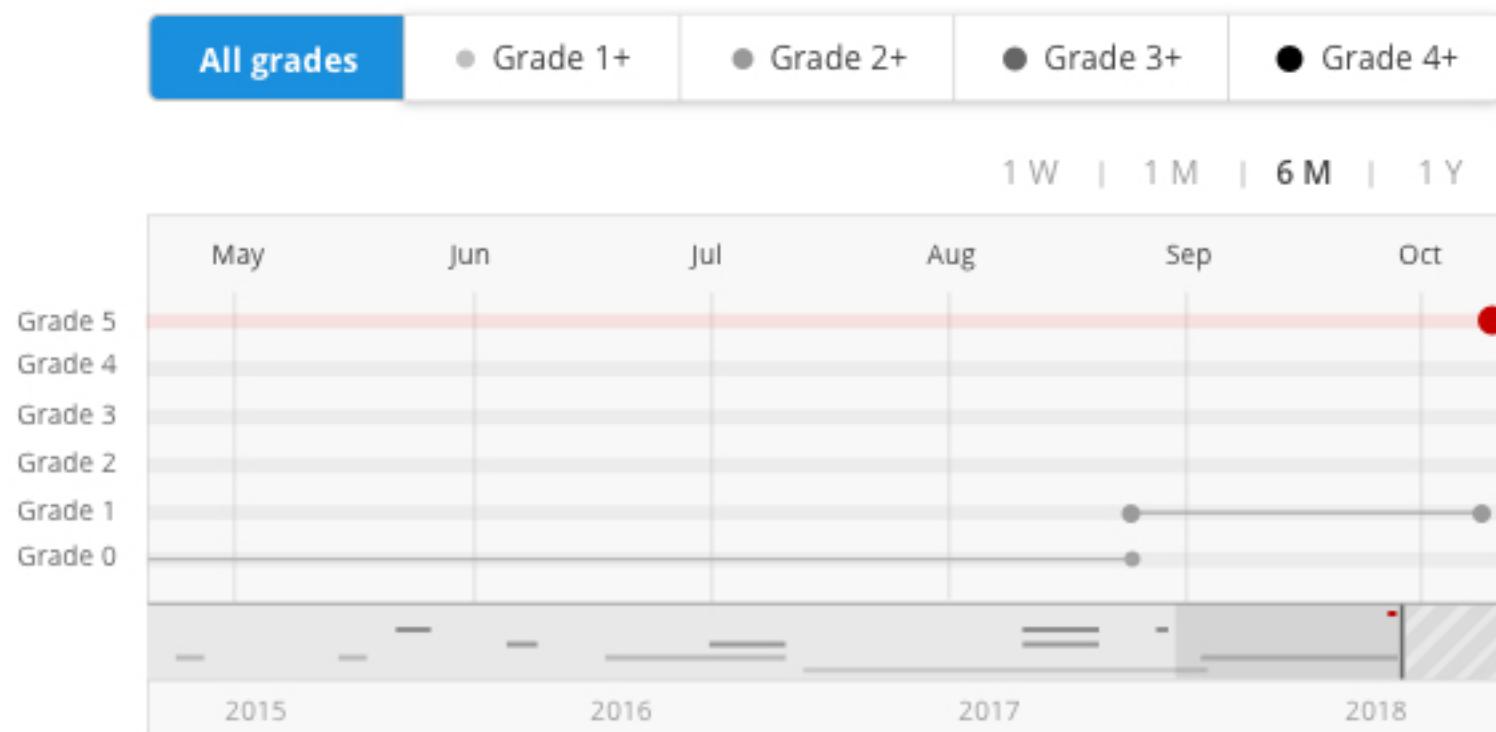
Toxicities Ductal carcinoma of the breast



2017

- 1 month ago **Neutropenia Grade 0**
1 Jun 16 - 22 Aug 17 Treatment | Dr. Will253 Anne3 | Boston hospital
- 1 month ago **Breast cancer toxicity 2 Grade 0**
1 Jun 16 - 22 Aug 17 Treatment | Dr. Will253 Anne3 | Boston hospital
- 1 month ago **Breast cancer toxicity 3 Grade 0**
1 Jun 16 - 22 Aug 17 Treatment | Dr. Will253 Anne3 | Boston hospital
- 1 month ago **Breast cancer toxicity 4 Grade 0**
1 Jun 16 - 22 Aug 17 Treatment | Dr. Will253 Anne3 | Boston hospital
- 1 month ago **Breast cancer toxicity 5 Unrecorded grade**
1 Jun 16 - 4 Oct 17 Treatment | Dr. Will253 Anne3 | Boston hospital
- 1 month ago **Constipation Grade 3**
2 Jul Treatment | Dr. Will253 Anne3 | Boston hospital
- 6 months ago **Constipation Grade 3**
1 Feb - 20 Mar Treatment | Dr. Will253 Anne3 | Boston hospital
- 6 months ago **Nausea Grade 3**
12 Mar Treatment | Dr. Will253 Anne3 | Boston hospital
- 10 months ago **Cough Grade 2**
1 Feb - 20 Mar Unknown | Dr. Will253 Anne3 | Boston hospital
- 11 months ago **Constipation Grade 1**
1 Feb - Unknown | Dr. Will253 Anne3 | Boston hospital

Toxicities Ductal carcinoma of the breast



If a grade 5 adverse event occurs, it is the last recorded event in the timeline. This is the only time the grade 5 row appears within the timeline visual.

2017

- 1 month ago **Neutropenia Grade 5**
10 Oct 17 Treatment | Dr. Will253 Anne3 | Boston hospital

- 1 month ago **Neutropenia Grade 1**
22 Aug 17 - 8 Oct 17 Treatment | Dr. Will253 Anne3 | Boston hospital

- 1 month ago **Breast cancer toxicity 2 Grade 1**
22 Aug 17 - 8 Oct 17 Treatment | Dr. Will253 Anne3 | Boston hospital

- 1 month ago **Breast cancer toxicity 3 Grade 1**
22 Aug 17 - 8 Oct 17 Treatment | Dr. Will253 Anne3 | Boston hospital

- 1 month ago **Breast cancer toxicity 4 Grade 1**
22 Aug 17 - 8 Oct 17 Treatment | Dr. Will253 Anne3 | Boston hospital

- 1 month ago **Neutropenia Grade 0**

5 CLINICAL TRIALS

Clinical Trials



Enrolled (2)

Trial	Start date	End date	Description
PATINA	10 Nov 2017	10 Nov 2019	Metastatic breast cancer
PALLAS	10 Nov 2017	10 Nov 2019	Early breast cancer

Potential to enroll (4)

Trial	Criteria fit	Start date	Description
Trial3	5 of 10	10 Nov 2019	Metastatic breast cancer
Trial4	4 of 10	10 Nov 2019	Metastatic breast cancer
Trial5	3 of 8	10 Nov 2019	Metastatic breast cancer
Trial6	1 of 10	10 Nov 2019	Metastatic breast cancer

Determine eligibility

Biopsy confirming breast carcinoma

[Choose a date](#)

BRCA 1 mutation

[Choose a date](#)

Pregnant

Smoking

Etc...

Clinical Trials



Enrolled (2)

Trial	Start date	End date	Description
PATINA	10 Nov 2017	10 Nov 2019	Metastatic breast cancer
PALLAS	10 Nov 2017	10 Nov 2019	+ Insert PATINA description

Potential to enroll (4)

Trial	Criteria fit	Start date
Trial3	5 of 10	10 Nov 2019
Trial #4	4 of 10	10 Nov 2019
Trial #5	3 of 8	10 Nov 2019
Trial #6	1 of 10	10 Nov 2019

Determine eligibility

Biopsy confirming breast carcinoma

BRCA 1 mutation

Pregnant

Smoking

Etc...

A Randomized, Open Label, Phase III Trial to Evaluate the Efficacy and Safety of Palbociclib + Anti-HER2 Therapy + Endocrine Therapy vs. Anti-HER2 Therapy + Endocrine Therapy after Induction Treatment for Hormone Receptor Positive (HR+)/HER2-Positive Metastatic Breast Cancer

Clinical Trials



Enrolled (2)

Trial	Start date	End date	Description
PATINA	10 Nov 2017	10 Nov 2019	Metastatic breast cancer
PALLAS	10 Nov 2017	10 Nov 2019	Early breast cancer

Potential to enroll (4)

Trial	Criteria fit	Start date	Description
Trial3	5 of 10	10 Nov 2019	Metastatic breast cancer
+ Insert trial3 enrollment		019	Metastatic breast cancer
		019	Metastatic breast cancer
		019	Metastatic breast cancer

Inclusion

Biopsy confirming breast carcinoma

...

Exclusion

BRCA 1 or 2 mutation

Cowden's disease

pregnant

...

Etc...

▼ Enrolled (2) —

Trial	Start date	End date	Description
PATINA	10 Nov 2017	10 Nov 2019	Metastatic breast cancer
PALLAS	10 Nov 2017	10 Nov 2019	Early breast cancer

▼ Potential to enroll (4) —

Trial	Criteria fit	Start date	Description
Trial3	5 of 10	10 Nov 2019	Metastatic breast cancer
Trial #4	4 of 10	10 Nov 2019	Metastatic breast cancer
Trial #5	3 of 8	10 Nov 2019	Metastatic breast cancer
Trial #6	1 of 10	10 Nov 2019	Metastatic breast cancer

Determine eligibility

Biopsy confirming breast carcinoma	<input type="button" value="Choose a date"/>
BRCA 1 mutation	<input type="button" value="Choose a date"/>
Pregnant	<input type="checkbox"/> <input checked="" type="checkbox"/>
Smoking	<input type="checkbox"/> <input checked="" type="checkbox"/>
Etc...	<input type="checkbox"/> <input checked="" type="checkbox"/>

Hovering over criteria fit allows user to view what data needs to be captured to determine eligibility for that particular trial.

Clinical Trials



Enrolled (2)

Trial	Start date	End date	Description
PATINA	10 Nov 2017	10 Nov 2019	Metastatic breast cancer
PALLAS	10 Nov 2017	10 Nov 2019	Early breast cancer

Potential to enroll (4)

Trial	Criteria fit	Start date	Description
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Trial #4	4 of 10	10 Nov 2019	Metastatic breast cancer
Trial #5	3 of 8	10 Nov 2019	Metastatic breast cancer
Trial #6	1 of 10	10 Nov 2019	Metastatic breast cancer

Determine eligibility

Biopsy confirming breast carcinoma

Choose a date

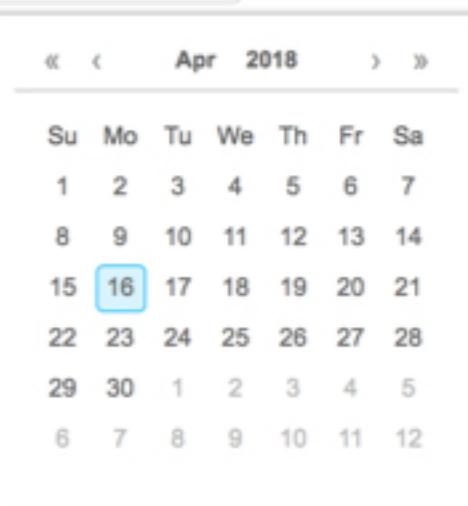
BRCA 1 mutation

4/16/18

Pregnant

Smoking

Etc...



Clinical Trials



Enrolled (2)

Trial	Start date	End date	Description
PATINA	10 Nov 2017	10 Nov 2019	Metastatic breast cancer
PALLAS	10 Nov 2017	10 Nov 2019	Early breast cancer

Potential to enroll (4)

Trial	Criteria fit	Start date	Description
Trial3	6 of 10	10 Nov 2019	Metastatic breast cancer
Trial #5	4 of 8	10 Nov 2019	Metastatic breast cancer
Trial #4	4 of 10	10 Nov 2019	Metastatic breast cancer
Trial #6	1 of 10	10 Nov 2019	Metastatic breast cancer

Determine eligibility

Biopsy confirming breast carcinoma

[Choose a date](#)

BRCA 1 mutation

4/16/18

Pregnant

Smoking

Etc...

Clinical Trials



Enrolled (2)

Trial	Start date	End date	Description
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PALLAS	10 Nov 2017	10 Nov 2019	Early breast cancer

Potential to enroll (4)

Trial	Criteria fit	Start date	Description
Trial3	5 of 10	10 Nov 2019	Metastatic breast cancer
	+ Insert trial3 enrollment	019	Metastatic breast cancer
		019	Metastatic breast cancer
	> Missing eligibility data	019	Metastatic breast cancer

Determine eligibility

Biopsy confirming breast carcinoma

BRCA 1 mutation

Pregnant

Smoking

Etc...

Clinical Trials



Enrolled (2)

Trial	Start date	End date	Description
PATINA	10 Nov 2017	10 Nov 2019	Metastatic breast cancer
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Potential to enroll (4)

Trial	Criteria fit	Start date	Description
Trial3	5 of 10	10 Nov 2019	Metastatic breast cancer
	+ Insert trial3 enrollment	2019	Metastatic breast cancer
		2019	Metastatic breast cancer
		2019	Metastatic breast cancer

Determine eligibility

Biopsy confirming breast carcinoma

BRCA 1 mutation

Pregnant

Smoking

Etc...

Follow-up
10 April 2018

Dr. Free2 Will
Dana Farber Cancer Institute

 Close



B I U ≡ ≡ | Patient > Trial 3

Missing criteria

1 Plan

Ella #enrollment in #trial3 |

Ella #enrollment in #trial3

Exclusion criteria:
Pregnancy



Ignore

Additional information on
trial3 exists online.

[View trial3 website](#)

Ignore

6

LABS INTERACTION

Labs Invasive ductal carcinoma of breast

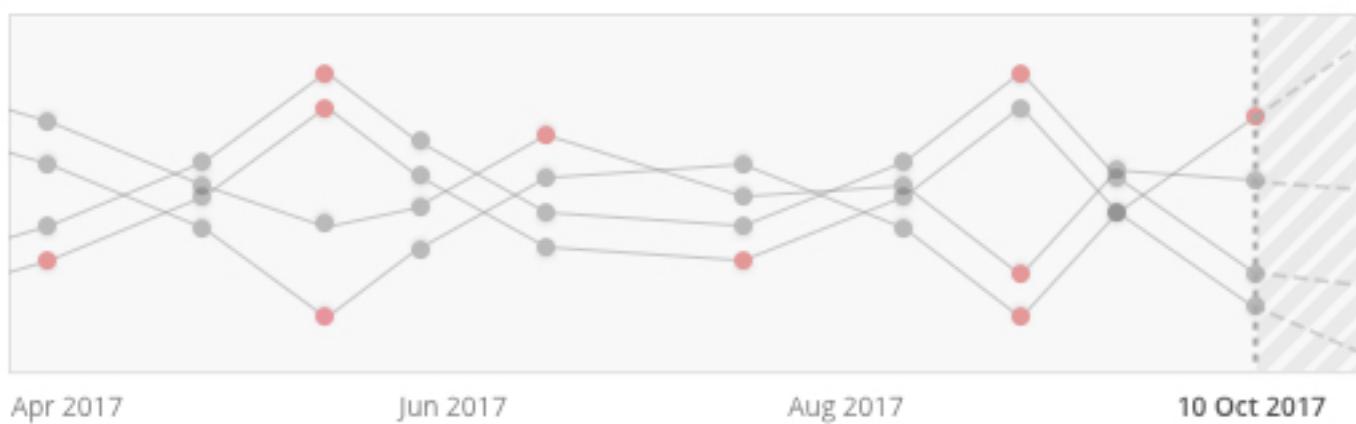
✓ Panels (15) —

> Filter panels

Results as of:

Add date

Lipid panel	8 Oct 2017	9 Oct 2017	10 Oct 2017
Total cholesterol	180 mg/dl	150 mg/dl	150 mg/dl
HDL cholesterol	35 mg/dl	35 mg/dl	35 mg/dl
LDL cholesterol	46 mg/dl	46 mg/dl	46 mg/dl
HDL cholesterol	35 mg/dl	35 mg/dl	35 mg/dl
LDL cholesterol	46 mg/dl	46 mg/dl	46 mg/dl



Labs Invasive ductal carcinoma of breast

▼ Panels (15) —

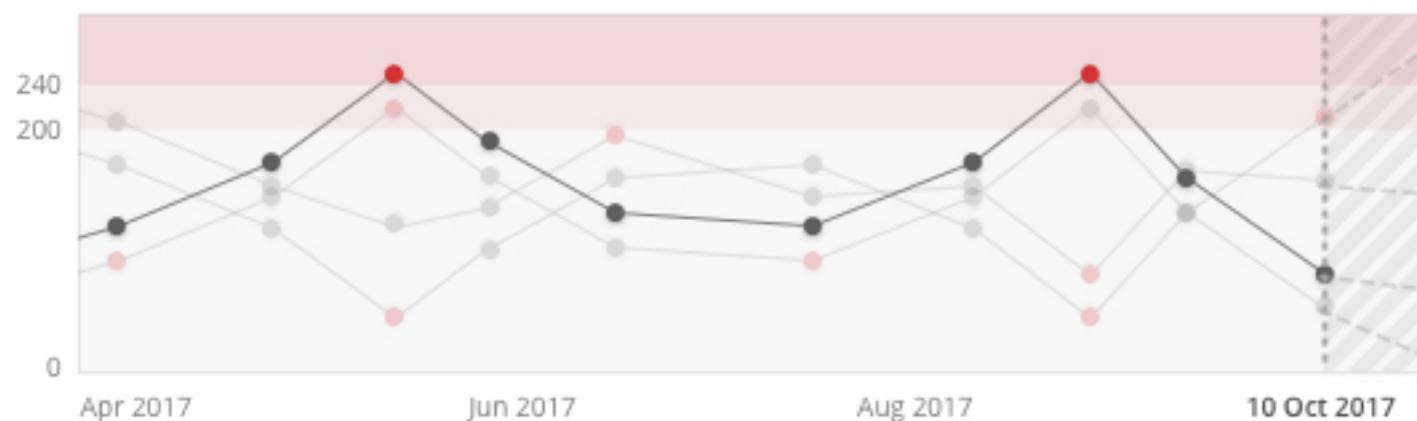
> Filter panels

Results as of:

Add date

Lipid panel	8 Oct 2017	9 Oct 2017	10 Oct 2017
Total cholesterol	180 mg/dl	150 mg/dl	150 mg/dl
HDL cholesterol	35 mg/dl	35 mg/dl	35 mg/dl
LDL cholesterol	46 mg/dl	46 mg/dl	46 mg/dl
HDL cholesterol	35 mg/dl	35 mg/dl	35 mg/dl
LDL cholesterol	46 mg/dl	46 mg/dl	46 mg/dl

Total cholesterol (mg/dl)



Labs Invasive ductal carcinoma of breast

▼ Panels (15)

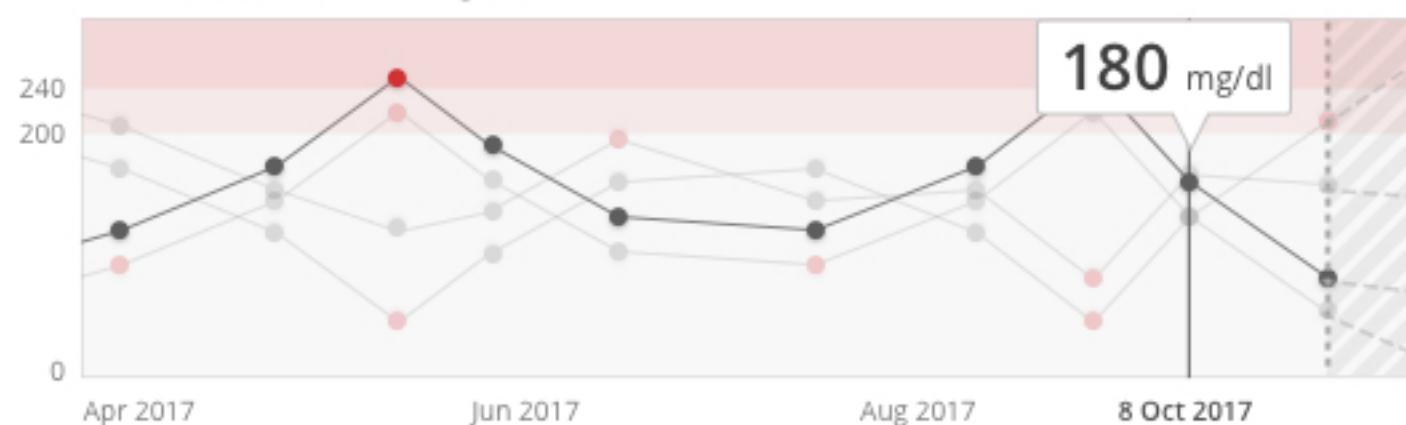
> Filter panels

Results as of:

Add date

Lipid panel	8 Oct 2017	9 Oct 2017	10 Oct 2017
Total cholesterol	180 mg/dl	150 mg/dl	150 mg/dl
HDL cholesterol	35 mg/dl	35 mg/dl	35 mg/dl
LDL cholesterol	46 mg/dl	46 mg/dl	46 mg/dl
HDL cholesterol	35 mg/dl	35 mg/dl	35 mg/dl
LDL cholesterol	46 mg/dl	46 mg/dl	46 mg/dl

Total cholesterol (mg/dl)



Labs Invasive ductal carcinoma of breast

▼ Panels (15) —

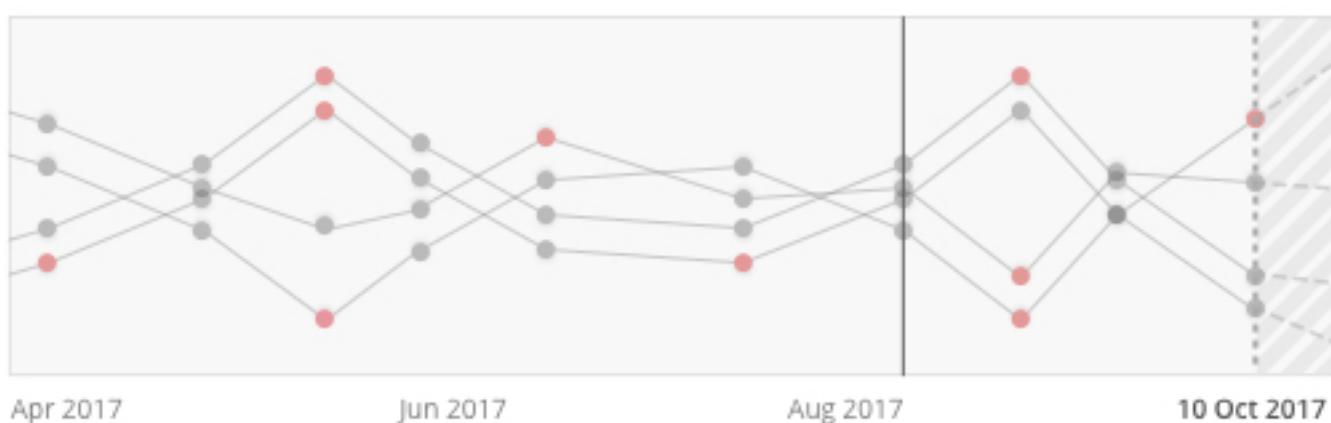
> Filter panels

Results as of:

10 Aug 2017

Add date

Lipid panel	10 Aug 2017
Total cholesterol	150 mg/dl
HDL cholesterol	35 mg/dl
LDL cholesterol	46 mg/dl
HDL cholesterol	35 mg/dl
LDL cholesterol	46 mg/dl



Labs Invasive ductal carcinoma of breast

✓ Panels (15) —

> Filter panels

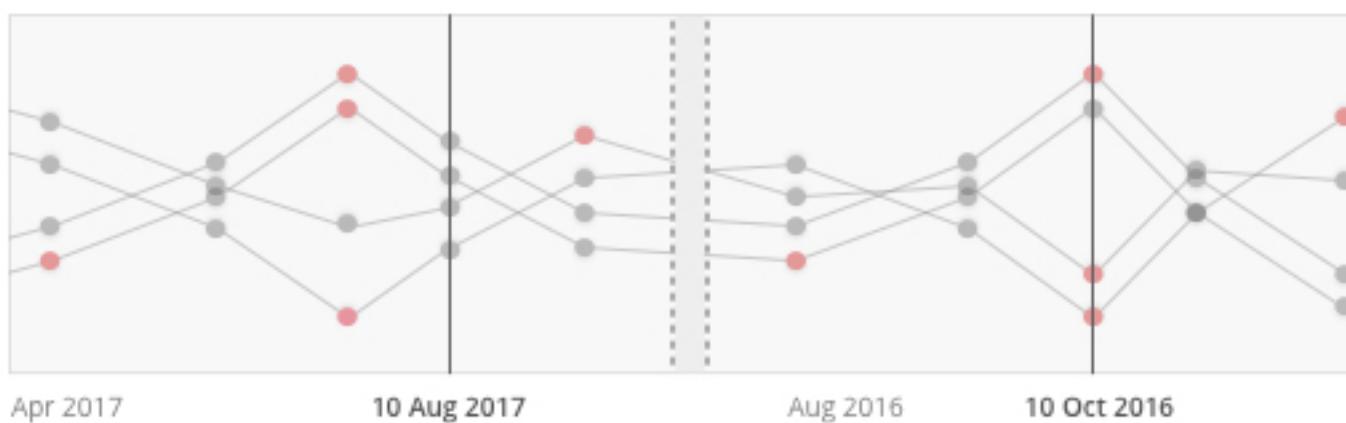
Results as of:

10 Aug 2017

10 Oct 2016

Add date

Lipid panel	10 Aug 2017	10 Oct 2016
Total cholesterol	150 mg/dl	150 mg/dl
HDL cholesterol	35 mg/dl	35 mg/dl
LDL cholesterol	46 mg/dl	46 mg/dl
HDL cholesterol	35 mg/dl	35 mg/dl
LDL cholesterol	46 mg/dl	46 mg/dl



Labs Invasive ductal carcinoma of breast

✓ Panels (15) —

> Filter panels

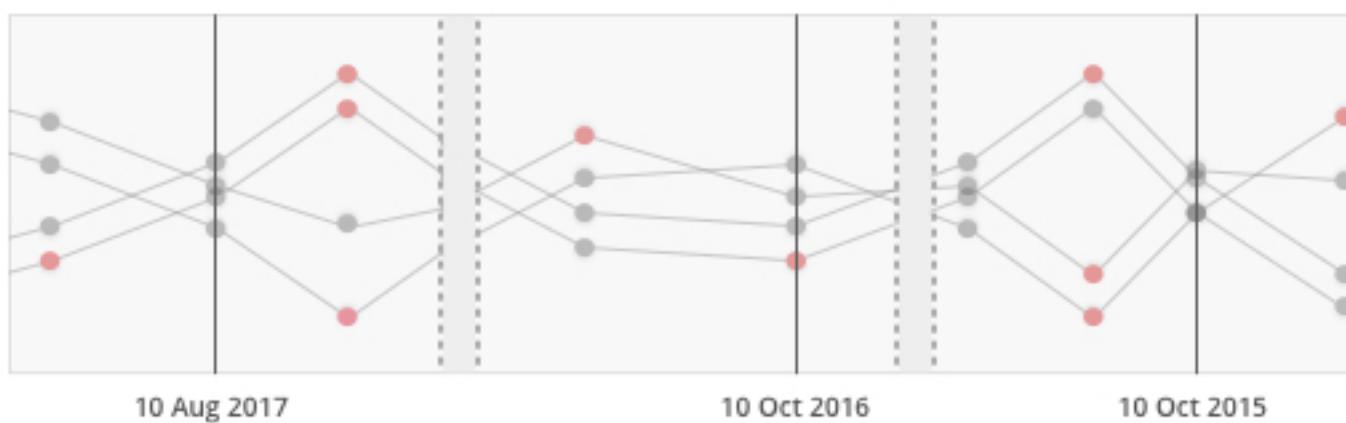
Results as of:

10 Aug 2017

10 Oct 2016

10 Oct 2015

Lipid panel	10 Aug 2017	10 Oct 2016	10 Oct 2015
Total cholesterol	150 mg/dl	150 mg/dl	150 mg/dl
HDL cholesterol	35 mg/dl	35 mg/dl	35 mg/dl
LDL cholesterol	46 mg/dl	46 mg/dl	46 mg/dl
HDL cholesterol	35 mg/dl	35 mg/dl	35 mg/dl
LDL cholesterol	46 mg/dl	46 mg/dl	46 mg/dl



Labs Invasive ductal carcinoma of breast

▼ Panels (15) —

> Filter panels

Results as of:

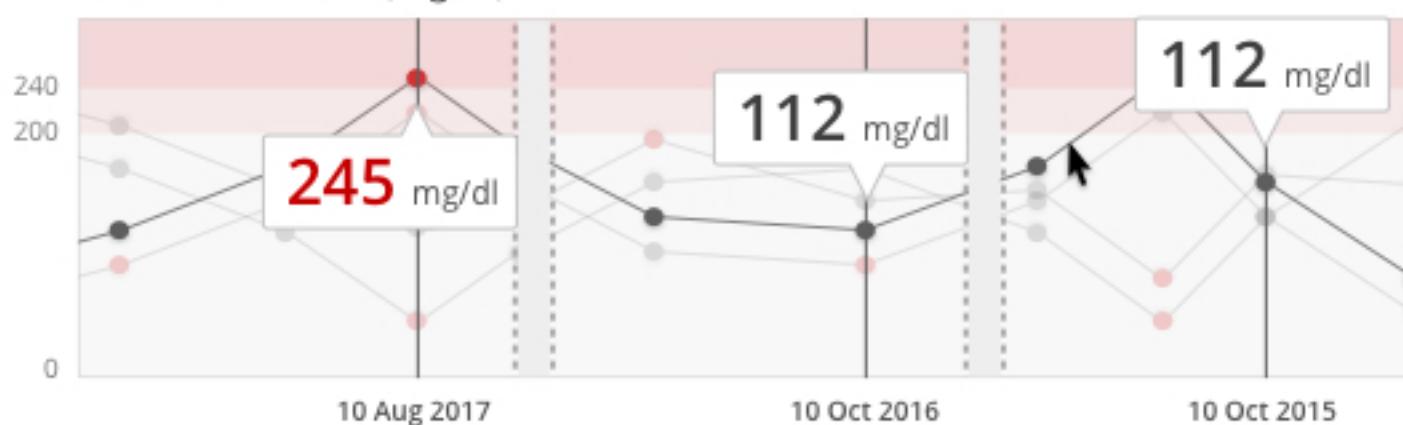
10 Aug 2017

10 Oct 2016

10 Oct 2015

Lipid panel	10 Aug 2017	10 Oct 2016	10 Oct 2015
Total cholesterol	245 mg/dl	120 mg/dl	180 mg/dl
HDL cholesterol	35 mg/dl	35 mg/dl	35 mg/dl
LDL cholesterol	46 mg/dl	46 mg/dl	46 mg/dl
HDL cholesterol	35 mg/dl	35 mg/dl	35 mg/dl
LDL cholesterol	46 mg/dl	46 mg/dl	46 mg/dl

Total cholesterol (mg/dl)



Labs Invasive ductal carcinoma of breast

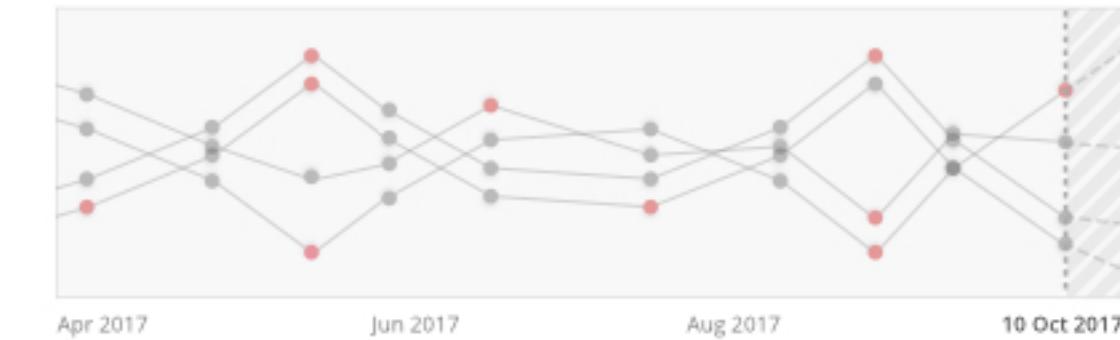
▼ Panels (15)

> Filter panels

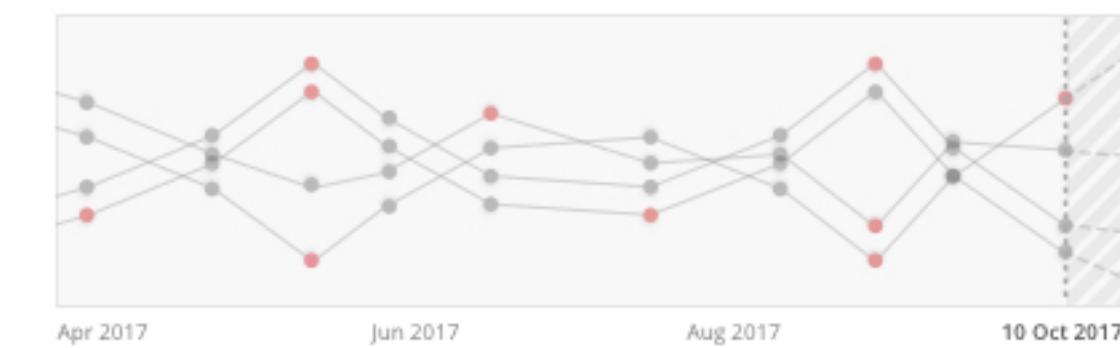
Results as of:

Add date

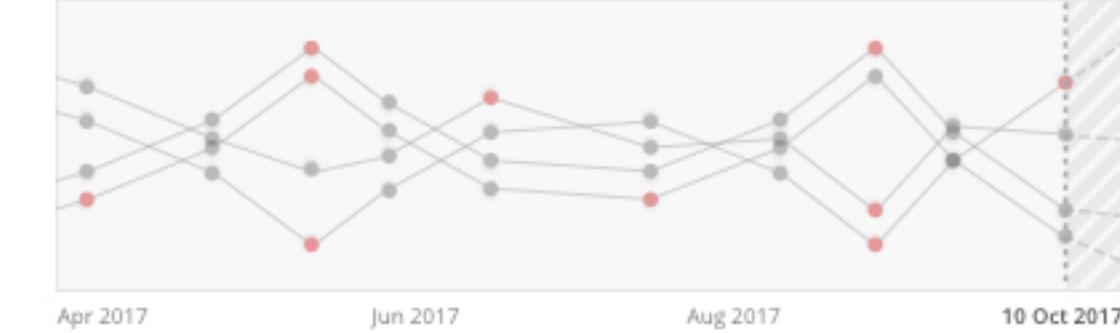
Lipid panel	8 Oct 2017	9 Oct 2017	10 Oct 2017
Total cholesterol	180 mg/dl	150 mg/dl	150 mg/dl
HDL cholesterol	35 mg/dl	35 mg/dl	35 mg/dl
LDL cholesterol	46 mg/dl	46 mg/dl	46 mg/dl
HDL cholesterol	35 mg/dl	35 mg/dl	35 mg/dl
LDL cholesterol	46 mg/dl	46 mg/dl	46 mg/dl



Metabolic panel	10 Oct 2017	9 Oct 2017	10 Oct 2017
Blood urea nitrogen	112 mg/dl	150 mg/dl	150 mg/dl
Calcium	150 mg/dl	35 mg/dl	35 mg/dl
Carbon dioxide	35 mg/dl	46 mg/dl	46 mg/dl
Chloride	150 mg/dl	35 mg/dl	35 mg/dl
Creatinine	35 mg/dl	46 mg/dl	46 mg/dl



Complete blood count	10 Oct 2017	9 Oct 2017	10 Oct 2017
Blood urea nitrogen	112 mg/dl	150 mg/dl	150 mg/dl
Calcium	150 mg/dl	35 mg/dl	35 mg/dl
Carbon dioxide	35 mg/dl	46 mg/dl	46 mg/dl
Chloride	150 mg/dl	35 mg/dl	35 mg/dl
Creatinine	35 mg/dl	46 mg/dl	46 mg/dl



Prev 1 2 Next

1-3 panel test entries of 6

> Labs (84)

7 CONTEXT TRAY (NOW)

The user begins with a blank note.

“Patient” is the default set of shortcuts
that are always available.

Templates

Shortcuts

Q Search shortcuts

▼ Patient

- @patient
- @age
- @gender
- @dateofbirth
- @name
- #enrollment
- #unenrolled
- #deceased
- @condition
- @procedure
- @medication
- @allergies
- @all medications
- @active medications
- @reason for next visit
- @reason for previous visit
- @ROS

The user types or taps "@condition" and selects "Invasive Ductal Carcinoma." This opens the context and automatically expands that menu.

Templates
Shortcuts

Search shortcuts

- > Patient
- ▼ Invasive Ductal Carcinoma
 - #staging
 - #disease status
 - #toxicity
 - #ER
 - #PR
 - #HER2
 - @HPI
 - @date of diagnosis

Invasive ductal carcinoma of breast |

The user selects or taps “#staging”, opening that subcontext and expanding that submenu. Note that the other shortcuts for the condition are still available.

Invasive ductal carcinoma of breast #staging |

Templates
Shortcuts

Q Search shortcuts

- > Patient
- ▼ Invasive Ductal Carcinoma
 - ▼ staging

tumor size
#Tis
#T0
#T1
#T2
#T3
#T4

node size
#N0
#N1
#N2
#N3

metastasis
#M0
#M1

#staging
#disease status
#toxicity
#ER
#PR
#HER2
@HPI
@date of diagnosis

After finishing with “staging”, the user types or taps “#toxicity” starting the toxicitiy context and opening the submenu. Note that the “staging” context is still available, but the menu has closed. Only one branch of the menu tree is open at a time.

The screenshot shows a mobile application interface. On the left, there is a search bar containing the text "Invasive ductal carcinoma of breast #staging #T0 #toxicity |". To the right of the search bar is a vertical sidebar menu titled "Shortcuts". The menu includes a search bar labeled "Search shortcuts" and a list of categories and sub-categories:

- > Patient
- ✓ Invasive Ductal Carcinoma
 - ✓ toxicity
 - grade*
 - #Grade 0
 - #Grade 1
 - #Grade 2
 - #Grade 3
 - #Grade 4
 - adverse event*
 - #Febrile neutropenia
 - #Fatigue
 - #Anemica
 - #Muscle Fatigue
 - Search (in 800)*
 - attribution*
 - #treatment
 - #disease
 - #error
 - #nrelated
 - #unknown
 - > staging
 - #disease status
 - #toxicity
 - #ER

The user opens the “Patient” menu by tapping on the collapse/expand arrow. The subcontexts “staging” and “toxicity” are still in scope (unless the paragraph has ended), but the menus are hidden within the collapsed menu.

A screenshot of a mobile application interface. At the top, there is a search bar with the placeholder "Search shortcuts". Below the search bar is a list of items under the heading "Shortcuts". The first item in the list is "Patient", which is expanded, showing a list of sub-options: "@patient", "@age", "@gender", "@dateofbirth", "@name", "#enrollment", "#unenrolled", "#deceased", "@condition", "@procedure", "@medication", "@allergies", "@all medications", "@active medications", "@reason for next visit", "@reason for previous visit", and "@ROS". Below the "Patient" section is another section titled "Invasive Ductal Carcinoma" indicated by a blue arrow icon and the text "Invasive Ductal Carcinoma".

Invasive ductal carcinoma of breast #staging
#T0 #N2 IIIA #toxicity |

Templates
Shortcuts

Q Search shortcuts

▼ Patient

- @patient
- @age
- @gender
- @dateofbirth
- @name
- #enrollment
- #unenrolled
- #deceased
- @condition
- @procedure
- @medication
- @allergies
- @all medications
- @active medications
- @reason for next visit
- @reason for previous visit
- @ROS

➤ Invasive Ductal Carcinoma

The user types or taps "@condition" and selects the other condition, "Fracture". Because the cancer condition is the default condition for the note (it is selected at the top of the interface), it remains available. The Fracture menu expands upon starting the context.

A screenshot of a medical software interface. On the left, there is a text input field containing the text: "Invasive ductal carcinoma of breast #staging #T0 #N2 IIIA #toxicity Fracture |". To the right of the input field is a sidebar with the following sections:

- Templates
- Shortcuts

Search shortcuts

- > Patient
- > Invasive Ductal Carcinoma
- ▼ Fracture
 - @HPI
 - @date of diagnosis

The user *finishes the paragraph with "Fracture"*. The second condition goes out of scope. The user then opens "Bone Scan" by selecting it after typing or hitting "@procedure".

Additional notes:

If a menu or context is visible in the tray, it must be accessible and expandable. If a context is out of scope because of the two paragraph rule, it should disappear from the tray.

Templates
Shortcuts

Search shortcuts

- > Patient
- > Invasive Ductal Carcinoma
- ▼ Bone Scan
 - #result
 - @date
 - @attending

Invasive ductal carcinoma of breast #staging
#T0 #N2 IIIA #toxicity Fracture

Patient received Bone scan |

8

CONTEXT TRAY (FUTURE)

The user begins with a blank note.
“Patient” is the default set of shortcuts
that are always available.

Q Search shortcuts

Templates

Snippets

Suggested

Shortcuts

▼ Patient

- @patient
- @age
- @gender
- @dateofbirth
- @name
- #enrollment
- #unenrolled
- #deceased
- @condition
- @procedure
- @medication
- @allergies
- @all medications
- @active medications
- @reason for next visit
- @reason for previous visit
- @ROS

The user types or taps "@condition" and selects "Invasive Ductal Carcinoma." This opens the Suggested list of shortcuts.

Invasive ductal carcinoma of breast |

Q Search shortcuts

Templates
Snippets
Suggested
Shortcuts

Grade
#Grade 1
#Grade 2
#Grade 3
#Grade 4
#Grade 5

Adverse event
#Febrile neutropen...
#Fatigue
#Anemia
#Diarrhea

Search (in 800)

Attribution
#Treatment
#Disease
#Error
#Unrelated
#Unknown

Invasive ductal car...
#disease status
#toxicity
#ER
#PR
#HER2

User is able to return to the list of all available shortcuts based on current contexts.

Invasive ductal carcinoma of breast |

Search shortcuts

Templates

Snippets

Suggested

Shortcuts

> Patient

▼ Invasive Ductal Carcinoma

▼ staging

tumor size

#Tis

#T0

#T1

#T2

#T3

#T4

node size

#N0

#N1

#N2

#N3

metastasis

#M0

#M1

#staging

#disease status

#toxicity

#ER

#PR

#HER2

@HPI

@date of diagnosis

When the user starts typing again, or clicks within the note, #staging this time, the context tray returns to the Suggested shortcuts list.

The screenshot shows a software interface with a search bar at the top labeled "Search shortcuts". Below the search bar is a horizontal menu with four items: "Templates", "Snippets", "Suggested", and "Shortcuts". The "Suggested" item is highlighted. A list of suggestions follows, starting with "Invasive ductal carcinoma of breast #staging |". This entry is partially cut off. To the right of the suggestion, there are three sections of text: "tumor size", "node size", and "metastasis", each followed by a list of related terms. The "tumor size" section includes "#Tis", "#T0", "#T1", "#T2", "#T3", and "#T4". The "node size" section includes "#N0", "#N1", "#N2", and "#N3". The "metastasis" section includes "#M0" and "#M1". At the bottom of the list, there are three more entries: "Invasive ductal car...", "#disease status", and "#toxicity".

Invasive ductal carcinoma of breast #staging |

tumor size

#Tis
#T0
#T1
#T2
#T3
#T4

node size

#N0
#N1
#N2
#N3

metastasis

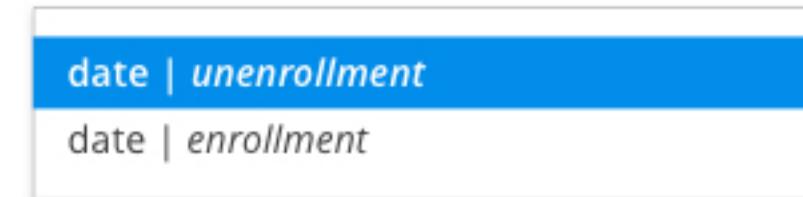
#M0
#M1

Invasive ductal car...
#disease status
#toxicity
#ER
#PR
#HER2

9 CONTEXT TRAY (OVERLAPPING CONTEXTS)

The following are different ideas to approach the “overlapping contexts” issue.

#enrollment #unenrollment #da



🔍 Search shortcuts

Templates
Snippets
Suggested
Shortcuts

Date
#date unenrollment
#date enrollment
Clinical trial
#PATINA unenrollment
#PALLAS unenrollment
#title unenrollment
#PATINA enrollment
#PALLAS enrollment
#title enrollment

🔍 Search shortcuts

Templates
Snippets
Suggested
Shortcuts

Date unenrollment
#date
Clinical trial unenrollment
#PATINA
#PALLAS
#title
Date enrollment
#date
Clinical trial enrollment
#PATINA
#PALLAS
#title

