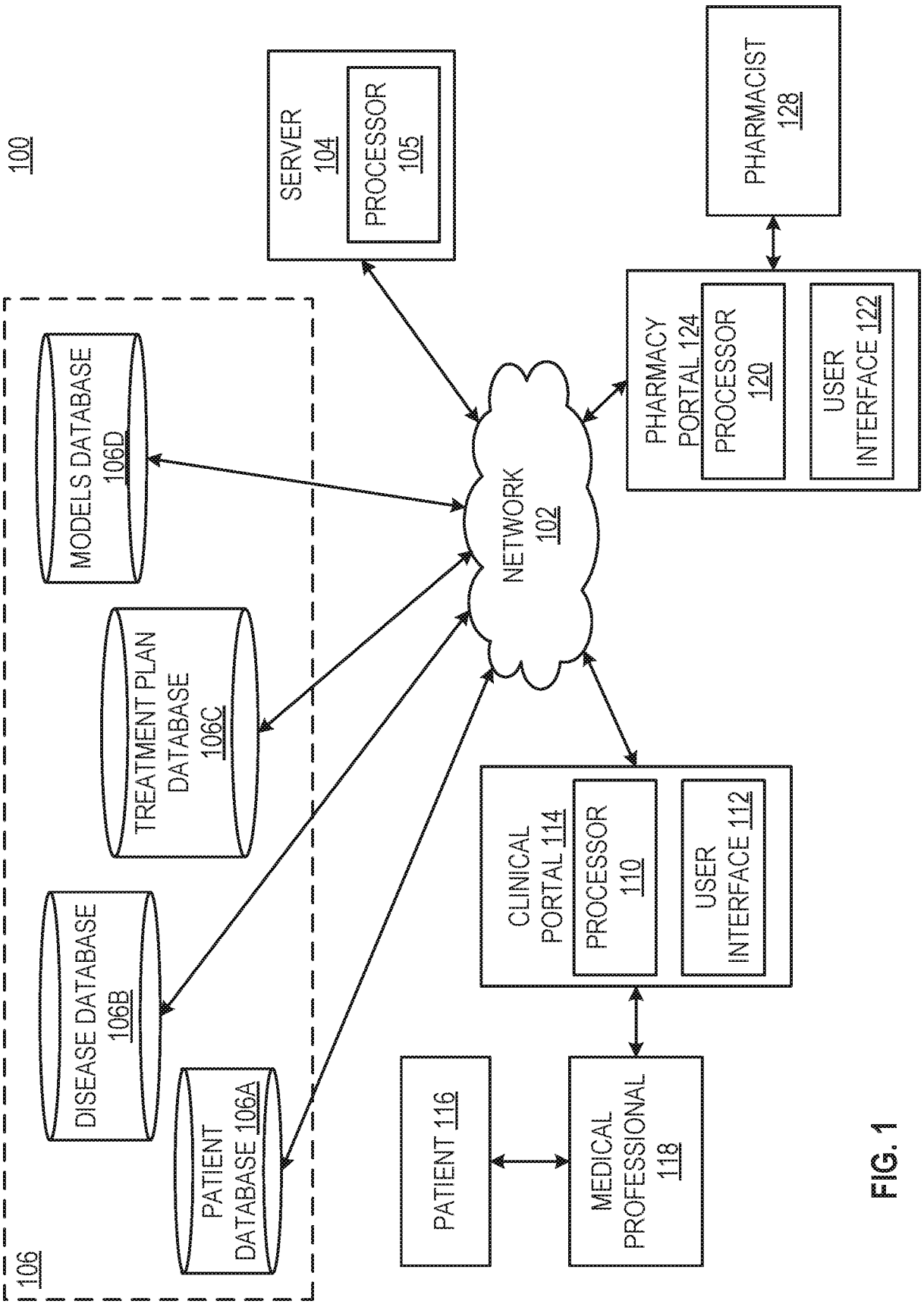
100
SERVER 104
PROCESSOR 105
PHARMACIST 128
PHARMACY PORTAL 124
PROCESSOR 120
USER INTERFACE 122
NETWORK 102
MODELS DATABASE 106D
TREATMENT PLAN DATABASE 106C
DISEASE DATABASE 106B
PATIENT DATABASE 106A
106
CLINICAL PORTAL 114
PROCESSOR 110
USER INTERFACE 112
PATIENT 116
MEDICAL PROFESSIONAL 118

FIG. 1

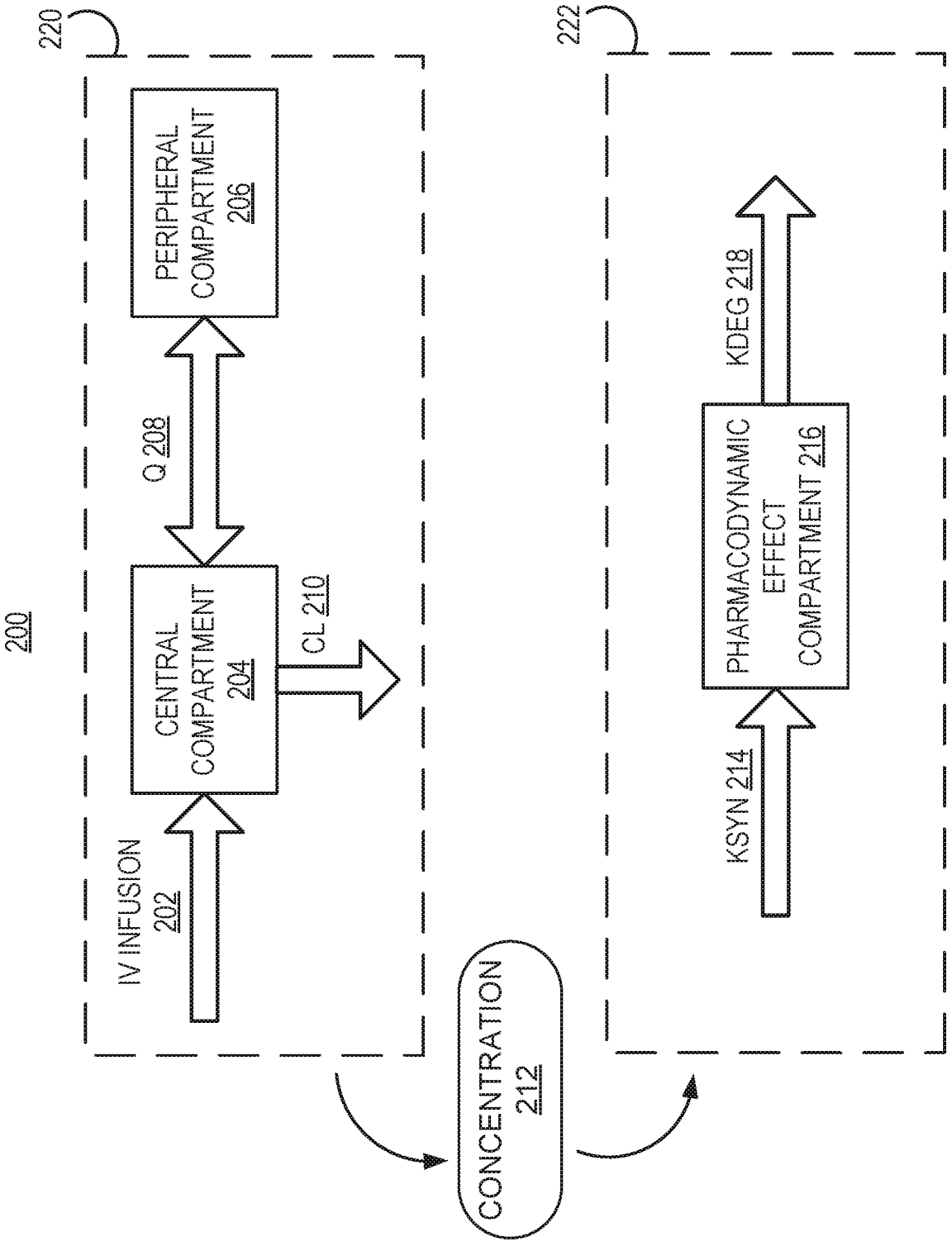
200
220
222
IV INFUSION 202
CENTRAL COMPARTMENT 204
CL 210
Q 208
PERIPHERAL COMPARTMENT 206
CONCENTRATION 212
KSYN 214
PHARMACODYNAMIC EFFECT COMPARTMENT 216
KDEG 218

FIG. 2

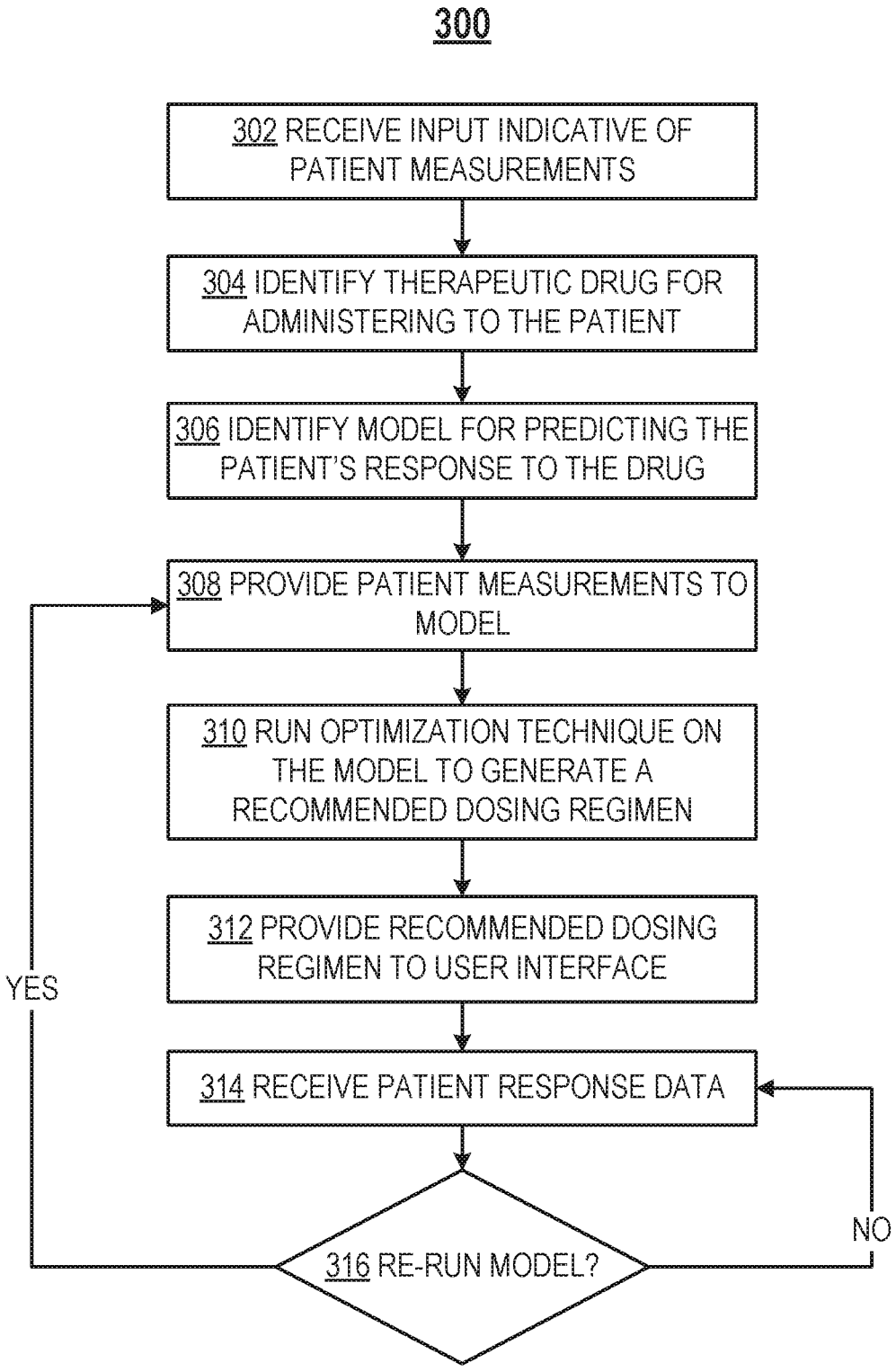
300
302 RECEIVE INPUT INDICATIVE OF PATIENT MEASUREMENTS
304 IDENTIFY THERAPEUTIC DRUG FOR ADMINISTERING TO THE PATIENT
306 IDENTIFY MODEL FOR PREDICTING THE PATIENT'S RESPONSE TO THE DRUG
308 PROVIDE PATIENT MEASUREMENTS TO MODEL
310 RUN OPTIMIZATION TECHNIQUE ON THE MODEL TO GENERATE A RECOMMENDED DOSING REGIMEN
312 PROVIDE RECOMMENDED DOSING REGIMEN TO USER INTERFACE
314 RECEIVE PATIENT RESPONSE DATA
316 RE-RUN MODEL?
YES
NO

FIG. 3

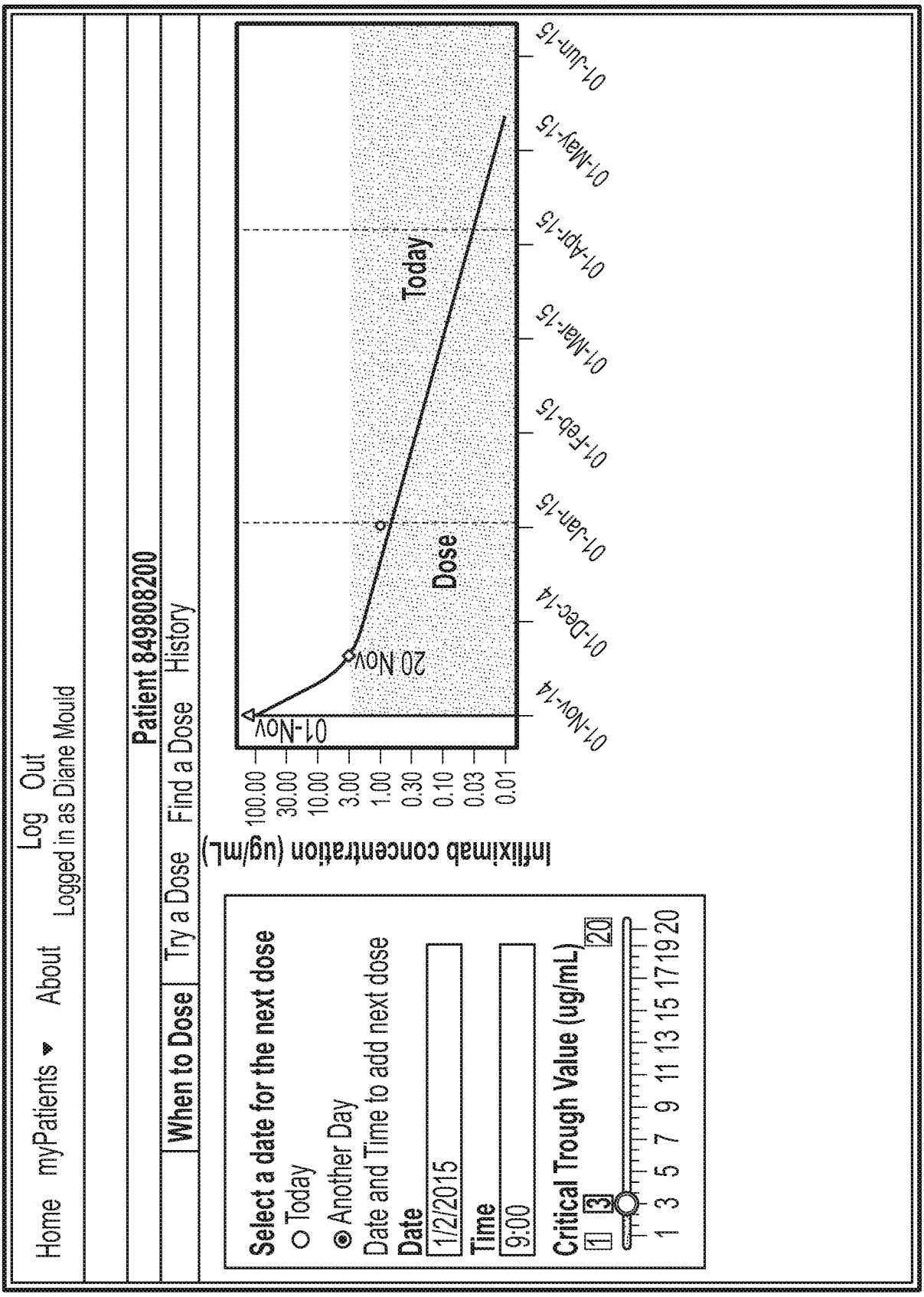
Home myPatients About
Log Out
Logged in as Diane Mould
Patient 849808200
When to Dose
Try a Dose
Find a Dose
History
Select a date for the next dose
Today
Another Day
Date and Time to add next dose
Date
1/2/2015
Time
9:00
Critical Trough Value (ug/mL)
1
3
20
1 3 5 7 9 11 13 15 17 19 20
Infliximab concentration (ug/mL)
100.00
30.00
10.00
3.00
1.00
0.30
0.10
0.03
0.01
01-Nov
20 Nov
Dose
Today
01-Nov-14
01-Dec-14
01-Jan-15
01-Feb-15
01-Mar-15
01-Apr-15
01-May-15
01-Jun-15

FIG. 4A

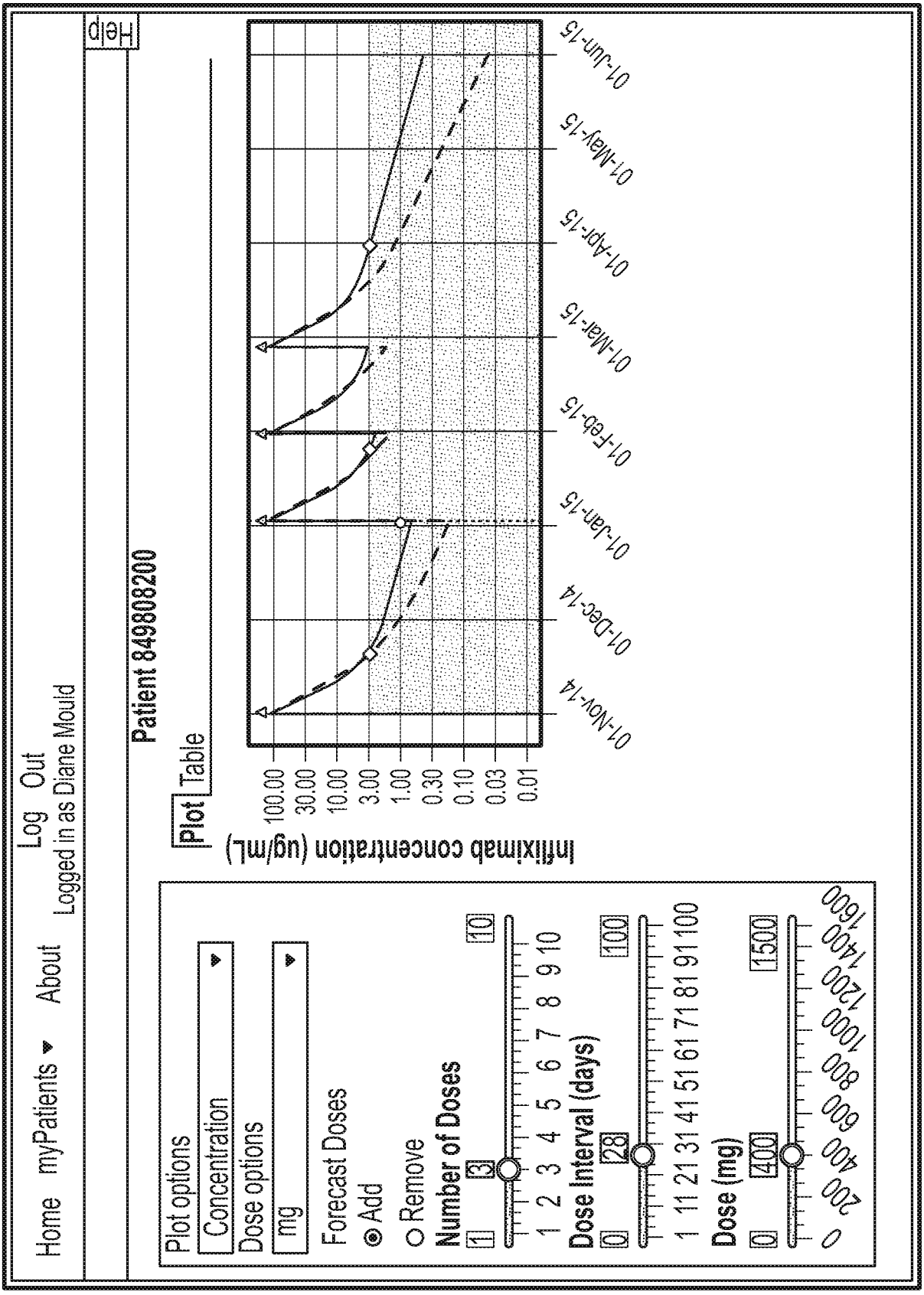
Help
Log Out
Logged in as Diane Mould
Home myPatients About
Patient 849808200
Plot Table
Infliximab concentration (ug/mL)
100.00
30.00
10.00
3.00
1.00
0.30
0.10
0.03
0.01
01-Nov-14
01-Dec-14
01-Jan-15
01-Feb-15
01-Mar-15
01-Apr-15
01-May-15
01-Jun-15
Plot options
Concentration
Dose options
mg
Forecast Doses
Add
Remove
Number of Doses
1
3
10
1 2 3 4 5 6 7 8 9 10
Dose Interval (days)
0
28
100
1 11 21 31 41 51 61 71 81 91 100
Dose (mg)
0
400
1500
0 200 400 600 800 1000 1200 1400 1600

FIG. 4B

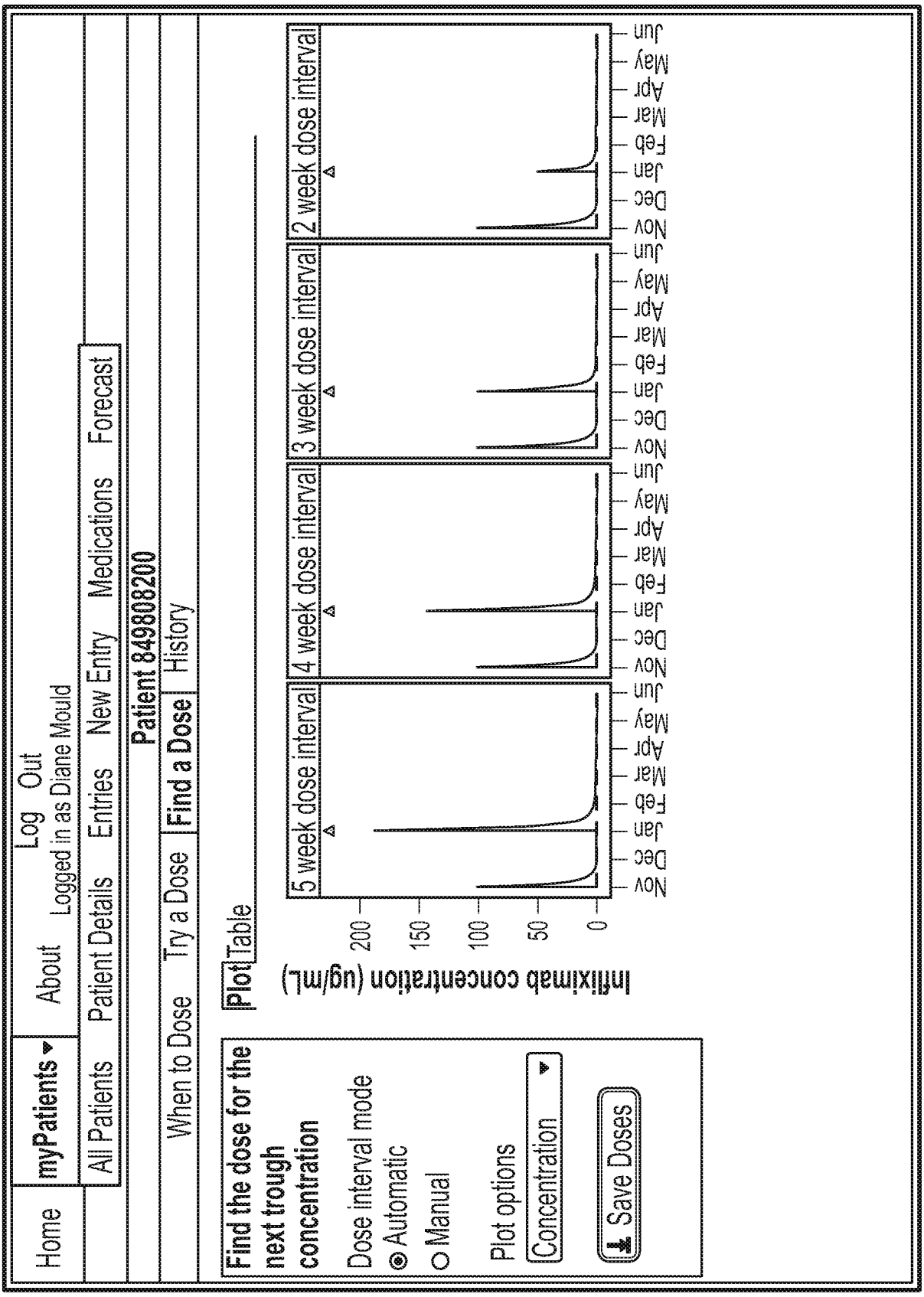
Home
myPatients
About
Log Out
Logged in as Diane Mould
All Patients
Patient Details
Entries
New Entry
Medications
Forecast
Patient 849808200
When to Dose
Try a Dose
Find a Dose
History
Find the dose for the next trough concentration
Dose interval mode
Automatic
Manual
Plot options
Concentration
Save Doses
Plot
Table
infliximab concentration (ug/mL)
200
150
100
50
0
5 week dose interval
4 week dose interval
3 week dose interval
2 week dose interval
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun

FIG. 5A

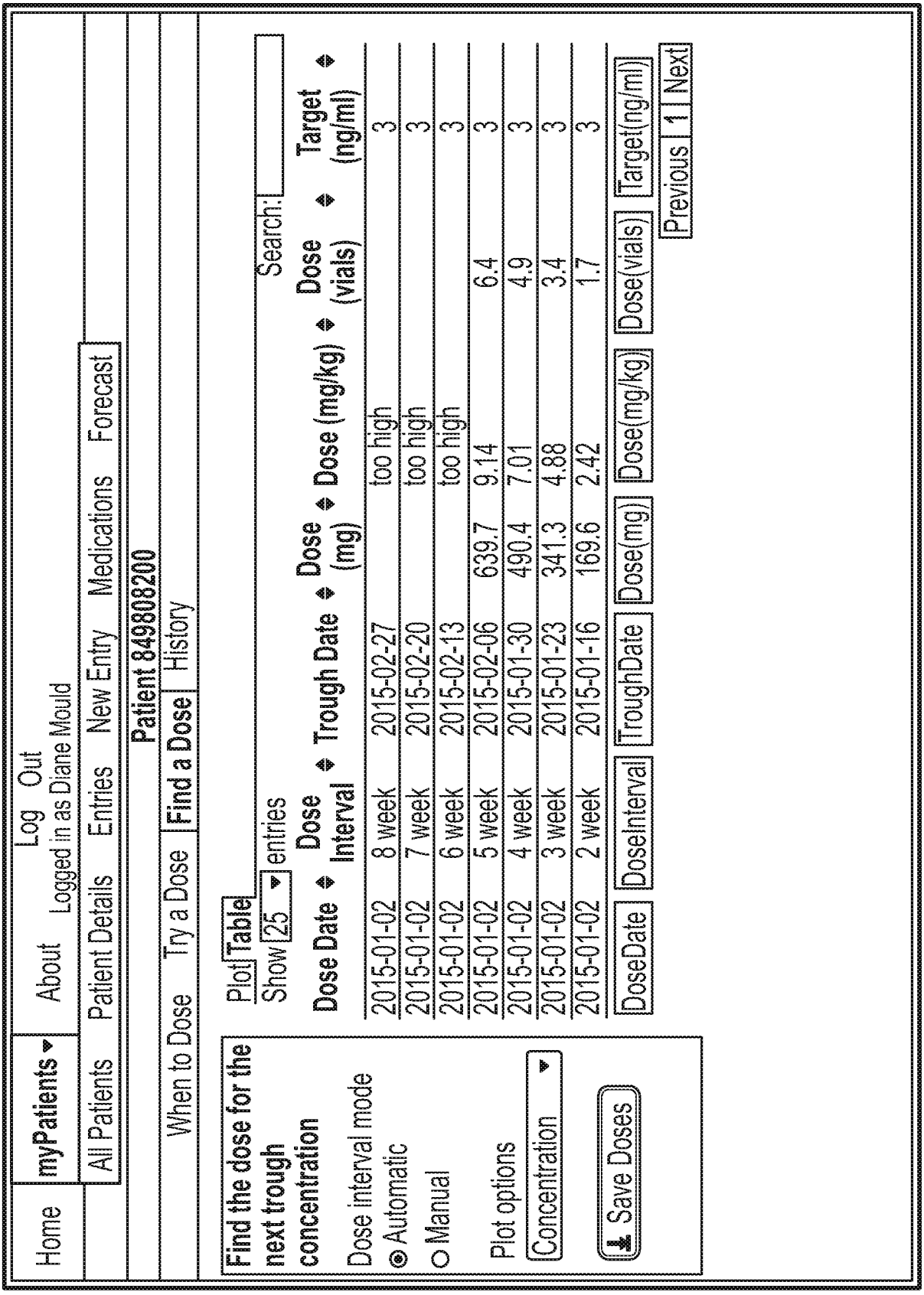
Home
myPatients
About
Log Out
Logged in as Diane Mould
All Patients
Patient Details
Entries
New Entry
Medications
Forecast
Patient 849808200
When to Dose
Try a Dose
Find a Dose
History
Find the dose for the next trough concentration
Dose interval mode
Automatic
Manual
Plot options
Concentration
Save Doses
Plot
Table
Show 25 entries
Search:
Dose Date
Dose Interval
Trough Date
Dose (mg)
Dose (mg/kg)
Dose (vials)
Target (ng/ml)
2015-01-02 8 week 2015-02-27 too high 3
2015-01-02 7 week 2015-02-20 too high 3
2015-01-02 6 week 2015-02-13 too high 3
2015-01-02 5 week 2015-02-06 639.7 9.14 6.4 3
2015-01-02 4 week 2015-01-30 490.4 7.01 4.9 3
2015-01-02 3 week 2015-01-23 341.3 4.88 3.4 3
2015-01-02 2 week 2015-01-16 169.6 2.42 1.7 3
DoseDate
DoseInterval
TroughDate
Dose(mg)
Dose(mg/kg)
Dose(vials)
Target(ng/ml)
Previous
1
Next

FIG. 5B

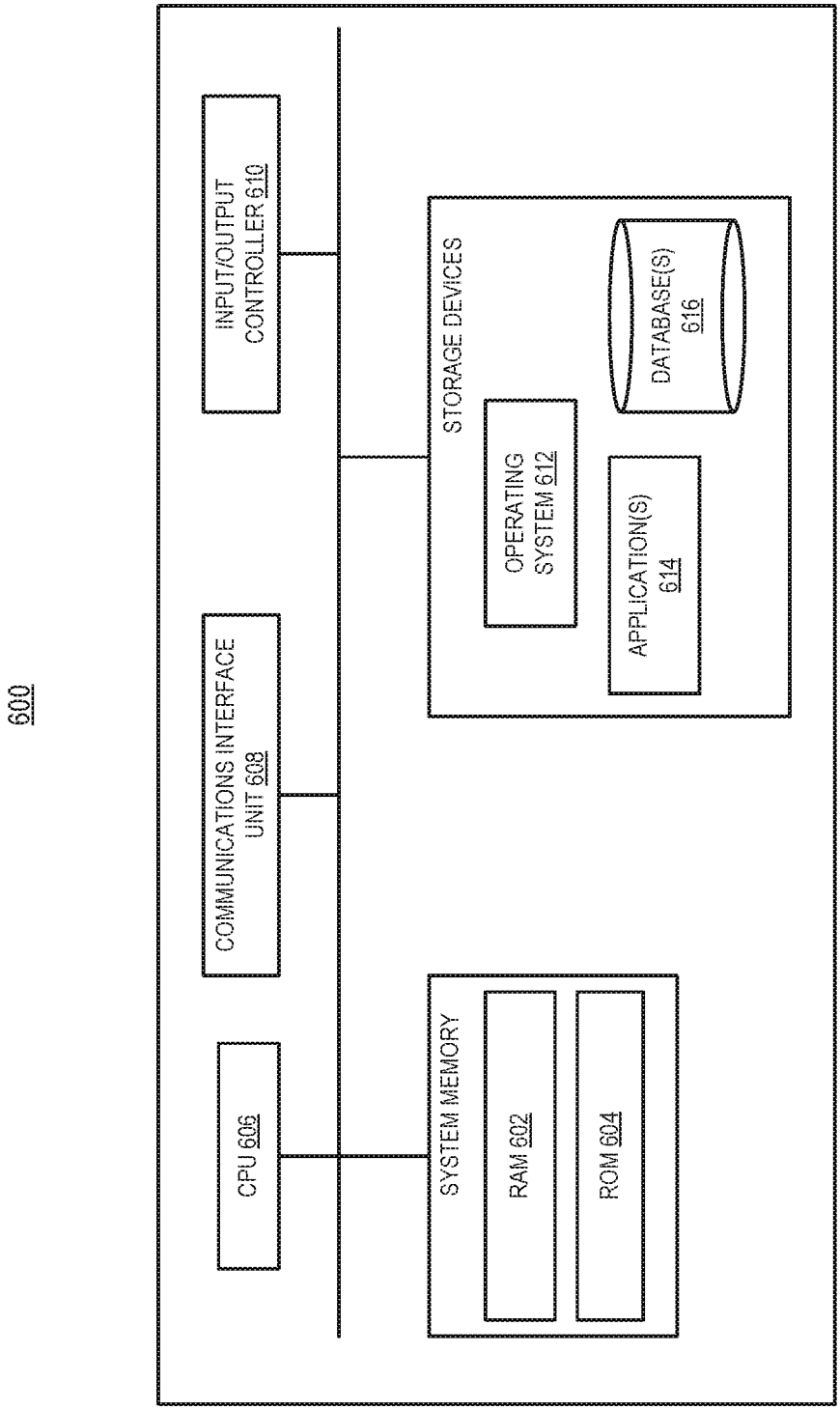
600
CPU 606
COMMUNICATIONS INTERFACE UNIT 608
INPUT/OUTPUT CONTROLLER 610
SYSTEM MEMORY
RAM 602
ROM 604
STORAGE DEVICES
OPERATING SYSTEM 612
APPLICATION(S) 614
DATABASE(S) 616

FIG. 6