

CLAIMS

1. An operating method of a server that processes dosage form composition information, the operating method comprising the steps of:

receiving, by a server, first current condition information about a user at a first time point, which is any one time point in a first period;

calculating, by the server, first dosage form composition information by reflecting the first current condition information;

transmitting, by the server, the first dosage form composition information to a device dispensing a dosage form;

receiving, by the server, second current condition information about the user at a second time point, which is any one time point in a second period consecutive after the first period;

calculating, by the server, second dosage form composition information by reflecting the second current condition information; and

transmitting, by the server, the second dosage form composition information to the device.

2. The operating method according to claim 1, wherein

when the first current condition information and the second current condition information include different information, the first dosage form composition information and the second dosage form composition information are different from each other.

3. The operating method according to claim 1, wherein

each of the first and second current condition information includes

at least one of (1) information about a mental state or symptom of the user, (2) information about a physical state or symptom of the user, that are temporarily generated at the first time point or the second time point, or (3) information about a behavior of the user within the first period or the second period.

4. The operating method according to claim 1, wherein,

the server receives the first current condition information or the second current condition information from a user terminal or the device.

5. The operating method according to claim 1, wherein

in the step of calculating the first dosage form composition information,

the server calculates daily serving amount information of the first period by including a change amount according to the first current condition information in base dose information for each nutritional component for the user, and converts the daily serving amount of the first period into the number of dosage forms to be dispensed for each cartridge to calculate the first dosage form composition information, and

in the step of calculating the second dosage form composition information,

the server calculates daily serving amount information of the first period by including a change amount according to the second current condition information in the base dose information for each nutritional component for the user, and converts the daily serving amount of the second period into the number of dosage forms to be dispensed for each cartridge to calculate the second dosage form composition information.

6. The operating method according to claim 5, wherein

after the step of transmitting the first dosage form composition information, the server receives dispensing amount information about the number of dosage forms dispensed for each cartridge corresponding to the first time point from the device, and

after the step of transmitting the second dosage form composition information, the server receives dispensing amount information about the number of dosage forms dispensed for each cartridge corresponding to the second time point from the device.

7. The operating method according to claim 1, wherein

before the step of receiving the first current condition information,

the server

receives medical examination-by-interview result information obtained by performing a medical examination-by-

interview for the user from the user terminal or the device,
or

receives medical information about the user from
the user terminal or a medical institution server.

8. The operating method according to claim 7,
further comprising:

before the step of receiving the first current
condition information,

a step of calculating base dose information for each
nutritional component for the user based on personal health
information including at least one of identification
information the medical examination-by-interview result
information, or the medical information about the user.

9. The operating method according to claim 8,
wherein

the step of calculating the base dose information
further includes the steps of

setting first base dose information, which is
minimum dose information for each nutritional component,
based on initial variable value information extracted from
the personal health information, and

calculating second base dose information by
reflecting personal health variable value information
extracted from the personal health information to the first
base dose information.

10. The operating method according to claim 9,
wherein

the initial variable value information includes gender and age of the user, and selectively further includes a pregnancy status and breastfeeding status of the user.

11. The operating method according to claim 8, wherein

the personal health variable value information includes an indication variable representing a physical or mental disease, symptom, or condition that affects a health condition of the user for each nutritional component and

a factor variable that forms or varies a value of the indication variable, and

selectively further includes a limitation variable in which intake is prohibited or restricted for each nutritional component according to the health condition of the user.

12. The operating method according to claim 8, wherein

the step of calculating the base dose information further includes

a step of calculating third base dose information by cutting off a dose of a nutritional component exceeding a maximum serving amount during the first period or the second period among the second base dose information to the maximum serving amount.

13. The operating method according to claim 12, wherein

the step of calculating the base dose information

further includes

a step of allocating the second or third base dose information to each cartridge based on cartridge information for each of a plurality of cartridges provided in the device, and when a plurality of redundant cartridges having a dosage form containing the same nutritional component exists, calculating fourth base dose information by subtracting a dose of a nutritional component allocated to at least any one redundant cartridge among the plurality of redundant cartridges.

14. The operating method according to claim 1, further comprising:

before the first period,

by the server, a step of receiving divided taking-a-dose setting information about a dispensing time point of the dosage form from the user terminal and reflecting the divided taking-a-dose setting information to calculate a division ratio for each divided round based on the daily serving amount for each dosage form provided in the device.

15. The operating method according to claim 14, wherein

the division ratio is set differently according to characteristics of the nutritional component contained in each dosage form.

16. The operating method according to claim 1, wherein

any one time point of the first and second time points includes a first divided time point belonging to any one period of the first and second periods and a second divided time point after the first divided time point,

at least one receiving step among the steps of receiving the first and second current condition information includes a step of receiving, by the server, current condition information at the first divided time point for the user at the first divided time point during the any one period,

at least one calculating step among the steps of calculating the first and second dosage form composition information includes a step of calculating, by the server, dosage form composition information at the first divided time point by reflecting the current condition information at the first divided time point,

at least one transmitting step among the steps of transmitting the first and second dosage form composition information includes a step of transmitting, by the server, the dosage form composition information at the first divided time point to the device,

the at least one receiving step further includes a step of receiving, by the server, current condition information at the second divided time point for the user at the second divided time point during the any one period,

the at least one calculating step further includes a step of calculating, by the server, dosage form composition information at the second divided time point by reflecting the current condition information at the second divided time point, and

the at least one transmitting step further includes a step of transmitting, by the server, the dosage form composition information at the second divided time point to the device.

17. The operating method according to claim 16, wherein

each of the dosage form composition information at the first and second divided time points has a value assigned according to the division ratio for the daily serving amount for each dosage form to be dispensed during the any one period.

18. The operating method according to claim 17, wherein

the daily serving amount has a value calculated by reflecting a change amount according to the current condition information at the first divided time point or the current condition information at the second divided time point in the base dose information for each nutritional component.

19. The operating method according to claim 18, wherein

in the step of calculating the dosage form composition information at the first divided time point,

after calculating the daily serving amount at the first divided time point by including the change amount according to the current condition information at the first divided time point in the base dose for each nutritional component, the number of dosage forms for each nutritional

component according to the daily serving amount at the first divided time point is divided according to the division ratio at the first divided time point to calculate the dosage form composition information at the first divided time point, and

in the step of calculating the dosage form composition information at the second divided time point,

after calculating the daily serving amount at the second divided time point by including the change amount according to the current condition information at the second divided time point in the base dose for each nutritional component, the number of dosage forms for each nutritional component according to the daily serving amount at the second divided time point is divided according to the division ratio at the second divided time point to calculate the dosage form composition information at the second divided time point.

20. The operating method according to claim 16, further comprising:

after the step of transmitting the dosage form composition information at the first divided time point,

a step of receiving, by the server, dispensing amount information about the type and number of dosage forms dispensed corresponding to the first divided time point from the device; and

after the step of transmitting the dosage form composition information at the second divided time point,

a step of receiving, by the server, dispensing amount information about the type and number of dosage forms dispensed corresponding to the second divided time point from the device.

21. The operating method according to claim 20, further comprising:

after receiving the dispensing amount information corresponding to the second divided time point,

by the server, a step of calculating cumulative dispensing amount information by summing the dispensing amount information at each of the first and second divided time points and transmitting the cumulative dispensing amount information to the user terminal.

22. The operating method according to claim 16, wherein

the device includes a first device and a second device,
in the step of receiving the current condition information at the first divided time point, the server receives the current condition information at the first divided time point from the first device,

in the step of transmitting the dosage form composition information at the first divided time point, the server transmits the dosage form composition information at the first divided time point to the first device,

in the step of receiving the current condition information at the second divided time point, the server receives the current condition information at the second divided time point from the second device, and

in the step of transmitting the dosage form composition information at the second divided time point, the server transmits the dosage form composition information at the second divided time point to the second device.

23. The operating method according to claim 22, further comprising:

a step of receiving, by the server, first cartridge information from the first device before the first period and receiving, by the server, second cartridge information from the second device, wherein

as a result of referring to the first and second cartridge information, when it is identified that only one of the first and second devices includes the dosage form of a first nutritional component, the server adjusts the dosage form composition information at the first divided time point or the second divided time point so that all of the daily serving amount of the dosage form of the first nutritional component is dispensed from only one of the devices.

24. The operating method according to claim 23, wherein

when the number of dosage forms containing a second nutritional component according to the dispensing amount information received from the first device at the first divided time point is insufficient compared to the number of dosage forms containing the second nutritional component according to the dosage form composition information at the first divided time point,

the server adjusts the dosage form composition information at the second divided time point so that an insufficient amount of the dosage form containing the second nutritional component is supplemented.

25. A server that processes dosage form composition information, comprising:

a memory;

a processor that is connected to the memory and executes instructions included in the memory; and

a server communication unit that transmits information calculated by the execution of the processor to a user terminal or a device that dispenses a dosage form, and receives information transmitted from the user terminal or the device, wherein

the processor

controls the communication unit to receive first current condition information about a user at a first time point, which is any time point in a first period,

calculates first dosage form composition information by reflecting the first current condition information,

controls the communication unit to transmit the first dosage form composition information to the device,

controls the communication unit to receive second current condition information about the user at a second time point, which is any time point in a second period consecutive after the first period,

calculates second dosage form composition information by reflecting the second current condition information, and

controls the communication unit to transmit the second formulation composition information to the device.

26. An operating method of a device that provides a

combination of dosage forms, the operating method comprising the steps of:

obtaining, by a device, first current condition information from a user at a first time point, which is any one time point in a first period;

dispensing, by the device, a combination of dosage forms corresponding to the first time point based on first dosage form composition information in which the first current condition information is reflected;

obtaining, by the device, second current condition information from the user at a second time point, which is any one time point in a second period consecutive after the first period; and

dispensing, by the device, a combination of dosage forms corresponding to the second time point based on second dosage form composition information in which the second current condition information is reflected.

27. The operating method according to claim 26, wherein

when the first and second current condition information are different from each other, combinations of dosage forms dispensed corresponding to the first and second time points, respectively, are different from each other.

28. The operating method according to claim 26, wherein

the device

displays a plurality of icon images including an icon image for each of the first and second current condition

information,

in the step of obtaining the first current condition information, receives selection of an icon image for the first current condition information, and

in the step of obtaining the second current condition information, receives selection of an icon image for the second current condition information.

29. The operating method according to claim 26, further comprising the steps of:

transmitting, by the device, the first current condition information to a server between the step of obtaining the first current condition information and the step of dispensing the combination of dosage forms corresponding to the first time point; and

transmitting, by the device, the second current condition information to the server between the step of obtaining the second current condition information and the step of dispensing the combination of dosage forms corresponding to the second time point.

30. The operating method according to claim 29, further comprising the steps of:

receiving, by the device, the first dosage form composition information from the server between the step of transmitting the first current condition information and the step of dispensing the combination of dosage forms corresponding to the first time point; and

receiving, by the device, the second dosage form composition information from the server between the step of

transmitting the second current condition information and the step of dispensing the combination of dosage forms corresponding to the second time point.

31. The operating method according to claim 26, further comprising the steps of:

by the device, generating dispensing amount information by detecting the number of dosage forms dispensed for each cartridge corresponding to the first time point and transmitting the dispensing amount information to a server; and

by the device, generating dispensing amount information by detecting the number of dosage forms dispensed for each cartridge corresponding to the second time point and transmitting the dispensing amount information to the server.

32. The operating method according to claim 26, further comprising:

before the step of obtaining the first current condition information,

a step of receiving, by the device, base dose information for each nutritional component for the user from a server.

33. The operating method according to claim 32, wherein

after the step of obtaining the first current condition information,

the device calculates the first dosage form composition information, the first dosage form composition

information being calculated by calculating daily serving amount information of the first period by including a change amount according to the first current condition information in the base dose information for each nutritional component and by converting the daily serving amount of the first period into the number of dosage forms to be dispensed for each cartridge, and

after the step of obtaining the second current condition information,

the device calculates the second dosage form composition information, the second dosage form composition information being calculated by calculating daily serving amount information of the second period by including a change amount according to the second current condition information in the base dose information for each nutritional component and by converting the daily serving amount of the second period into the number of dosage forms to be dispensed for each cartridge.

34. The operating method according to claim 26, further comprising:

before the first period,

a step of receiving, by the device, selection of information about the user and performing a medical examination-by-interview for the user.

35. The operating method according to claim 1, wherein

any one time point of the first and second time points includes a first divided time point belonging to any one

period of the first and second periods and a second divided time point after the first divided time point,

at least one obtaining step among the steps of obtaining the first and second current condition information steps includes a step of obtaining, by the device, current condition information at the first divided time point from the user at the first divided time point,

at least one dispensing step among the steps of dispensing a combination of dosage forms corresponding to the first and second time points includes a step of dispensing, by the device, a combination of dosage forms based on dosage form composition information at the first divided time point in which the current condition information at the first divided time point is reflected,

the at least one obtaining step further includes a step of receiving, by the device, current condition information at a second divided time point after the first divided time point from the user at the second divided time point during the any one period, and

the at least one dispensing step includes a step of dispensing, by the device, a combination of dosage forms based on dosage form composition information at the second divided time point in which the current condition information at the second divided time point is reflected.

36. The operating method according to claim 35, wherein

the device receives the dosage form composition information at the first and second divided time points divided according to the division ratio from the server.

37. The operating method according to claim 36, wherein

the device

after calculating the daily serving amount at the first divided time point by including a change amount according to the current condition information at the first divided time point in a base dose for each nutritional component, calculates dosage form composition information at the first divided time point by dividing the daily serving amount at the first divided time point according to a division ratio at the first division time, and

after calculating the daily serving amount at the second divided time point by including a change amount according to the current condition information at the second divided time point in the base dose for each nutritional component, calculates dosage form composition information at the second divided time point by dividing the daily serving amount at the second divided time point according to a division ratio at the second divided time point.

38. The operating method according to claim 35, wherein

the device includes a first device and a second device,

the first device performs a step of receiving current condition information at the first divided time point and a step of dispensing a combination of dosage forms corresponding to the first divided time point, and

the second device performs a step of receiving current condition information at the second divided time point at the

second divided time point and a step of dispensing a combination of dosage forms corresponding to the second divided time point.

39. A device that provides a combination of dosage forms, comprising:

a memory;

a processor that is connected to the memory and executes instructions included in the memory;

an input unit that receives information from the outside under the control of the processor; and

a dosage form dispensing unit that combines and dispenses a plurality of dosage forms under the control of the processor, wherein

the processor

controls the input unit to obtain first current condition information from a user at a first time point,

controls the dosage form dispensing unit to dispense a combination of dosage forms corresponding to the first time point based on first dosage form composition information in which the first current condition information is reflected,

controls the input unit to obtain second current condition information from the user at a second time point, and

controls the dosage form dispensing unit to dispense a combination of dosage forms corresponding to the second time point based on second dosage form composition information in which the second current condition information is reflected.

40. An operating method of a server, the operating method comprising the steps of:

obtaining first base dose information set based on initial variable value information of a user, the first base dose information including a plurality of nutritional components and a taking-a-dose amount for each of the plurality of nutritional components and a taking-a-dose amount for each of the plurality of nutritional components being set according to the initial variable value information;

extracting indication variable value information for the user from personal health information of the user;

obtaining at least one important factor variable for the user among a plurality of factor variables according to the indication variable value information;

calculating a detailed variation rate value according to the important factor variable;

calculating a variation rate value for the indication variable value information by reflecting the detailed variation rate value; and

calculating second base dose information by reflecting the variation rate value in the first base dose information.

41. The operating method according to claim 40, further comprising:

a step of reducing the calculated rate of change value to a maximum variation rate value when the calculated variation rate value is greater than the maximum variation rate value, wherein

in the step of calculating the second base dose information, the second base dose information is calculated by reflecting the reduced variation rate value in the first base dose information.

42. The operating method according to claim 41, further comprising:

a step of extracting limitation variable value information for the user from the personal health information of the user, the limitation variable value information including information on a prohibited nutritional component that the user is prohibited from taking a dose, wherein

in the step of calculating the second base dose information, the second base dose information about the prohibited nutritional component is calculated so that the dose decreases or 0 (zero) is indicated.

43. An operating method of a server for controlling a dispensing amount of a dispensing device, the operating method comprising the steps of:

obtaining first dose information for a user, the first dose information including first single-component dose information about a single-component cartridge containing a single-component dosage form including a first nutritional component and first multi-component dose information for a multi-component cartridge containing a multi-component dosage form including the first nutritional component and a second nutritional component;

obtaining cartridge information about the dispensing device, the cartridge information including information about

a cartridge mounted on the dispensing device;

calculating second dose information based on the first dose information and the cartridge information; and

providing a nutrient through the dispensing device using the calculated second dose information, wherein

when the single-component cartridge and the multi-component cartridge are mounted on the dispensing device, the step of calculating of the second dose information includes the steps of

calculating second multi-component dose information about the multi-component cartridge among the second dose information by using the first dose information; and

calculating second single-component dose information about the single-component cartridge among the second dose information by using the first dose information and the second multi-component dose information.

44. The operating method according to claim 43, wherein

in the step of calculating the second multi-component dose information, the first multi-component dose information of the first dose information is calculated as the second multi-component dose information,

in the step of calculating the second single-component dose information, dose information corresponding to the first nutritional component among the second multi-component dose information is calculated, and

the second single component dose information is calculated by subtracting dose information corresponding to

the first nutritional component from the first single component dose information of the first dose information.

45. The operating method according to claim 43, wherein

the multi-component dosage form includes the first nutritional component in a first content ratio, and

calculating dose information corresponding to the first nutritional component among the second multi-component dose information is to calculate the first content ratio among the second multi-component dose information as the dose information corresponding to the first nutritional component.

46. The operating method according to claim 43, wherein

in the step of calculating the second single-component dose information, when the second single-component dose information calculated by the subtraction is a negative value, the second single-component dose information is calculated so that the dose decreases or 0 (zero) is indicated.

47. An operating method of a server for controlling a dispensing amount of a dispensing device, the operating method comprising the steps of:

obtaining first dose information for a user, the first dose information including first single-component dose information about a single-component cartridge containing a single-component dosage form including a first nutritional component and first multi-component dose information for a multi-component cartridge containing a multi-component dosage

form including the first nutritional component and a second nutritional component;

obtaining cartridge information about the dispensing device, the cartridge information including information about a cartridge being mounted on the dispensing device;

calculating second dose information based on the first dose information and the cartridge information; and

providing a nutrient through the dispensing device using the calculated second dose information, wherein

when the single-component cartridge and the multi-component cartridge are mounted on the dispensing device, in the step of calculating the second dose information,

after calculating second multi-component dose information about the multi-component cartridge among the second dose information, second single-component dose information about the single-component cartridge among the second dose information is calculated.

48. An operating method of a server, the operating method comprising the steps of:

storing base dose information for a user;

receiving first current condition information for the user;

determining whether the first current condition information is a first predetermined number of times or more during a predetermined period;

providing a first body condition medical examination-by-interview corresponding to the first current condition information;

receiving first medical examination-by interview result

information, which is a result of the user performing the first body condition body condition medical examination-by-interview; and

updating the base dose information based on the first medical examination-by-interview result information.

49. The operating method according to claim 48, further comprising the steps of:

providing a second body condition medical examination-by-interview corresponding to the first current condition information again when a predetermined update period elapses after the base dose information is updated or when the first current condition information is received the first number of times or more or a second number of times, which is less than the first number of times, or less during the predetermined update period after the base dose information is updated;

receiving second medical examination-by-interview result information, which is a result of the user performing the second body condition medical examination-by-interview; and

updating the base dose information again based on the second medical examination-by-interview result information.

50. The operating method according to claim 49, wherein

the first body condition medical examination-by-interview and the second body condition medical examination-by-interview are the same or different.

51. The operating method of the server according to

claim 2, wherein

in the step of updating the base dose information based on the second medical examination-by-interview result information, the base dose information is updated by returning the base dose information to the base dose information before updating based on the first medical examination-by-interview result information.

52. The operating method according to claim 1, further comprising the steps of:

receiving second current condition information for the user after the base dose information is updated; and

calculating dosage form composition information using the updated base dose information and the second current condition information.

53. An operating method of a user terminal, the operating method comprising the steps of:

receiving, by a user terminal, first taking-a-dose information of a user at a first time point;

determining, by the user terminal, whether or not the user takes a dose at a first taking-a-dose time point based on the first taking-a-dose information;

if it is determined that the user has taken the dose at the first taking-a-dose time point, displaying, by the user terminal, a screen indicating taking-a-dose of the user;

receiving, by the user terminal, second taking-a-dose information of the user at a second time point after the first time point;

determining, by the user terminal, whether the user has

taken or not taken a dose at a second taking-a-dose time point after the first taking-a-dose time point based on the second taking-a-dose information; and

if it is determined that the user has not taken the dose at the second taking-a-dose time point, outputting, by the user terminal, an alarm for encouraging the user to take the dose.

54. An operating method of a user terminal, the operating method comprising the steps of:

obtaining, by the user terminal, alarm setting information from a user;

transmitting, by the user terminal, the alarm setting information to a server;

receiving, by the user terminal, alarm information according to the alarm setting information from the server; and

outputting, by the user terminal, an alarm for encouraging the user to take a dose according to the alarm information.

55. The operating method according to claim 54, wherein

the step of obtaining the alarm setting information includes the steps of

receiving taking-a-dose alarm time information from the user, and

generating the alarm setting information according to the received taking-a-dose alarm time information.

56. The operating method according to claim 54, wherein

the step of obtaining the alarm setting information includes the steps of

providing recommended alarm time information,
obtaining a user input for approving the recommended alarm time information, and
generating the alarm setting information according to the recommended alarm time information.

57. The operating method according to claim 56, wherein

the recommended alarm time information is calculated by reflecting a past taking-a-dose history of the user.

58. The operating method according to claim 54, further comprising:

a step of receiving, by the user terminal, taking-a-dose information of the user from the server, wherein

in the step of outputting the alarm, if it is determined that the user has not taken the dose based on the received taking-a-dose information, the alarm is output, and if it is determined that the user has taken the dose, the alarm is not output.

59. An operating method of a user terminal, the operating method comprising the steps of:

obtaining, by the user terminal, alarm setting information including a taking-a-dose alarm time, the alarm

setting information including first alarm setting information about a first taking-a-dose time point within a first period and second alarm setting information about a second taking-a-dose time point within the first period;

transmitting, by the user terminal, the alarm setting information to a server;

receiving, by the user terminal, first alarm information according to the first alarm setting information from the server;

outputting, by the user terminal, a first alarm for encouraging the user to take a dose according to the first alarm information;

receiving, by the user terminal, second alarm information according to the second alarm setting information from the server; and

outputting, by the user terminal, a second alarm for encouraging the user to take the dose according to the second alarm information.

60. The operating method of the user terminal according to claim 59, further comprising the steps of:

receiving, by the user terminal, first taking-a-dose information about the first taking-a-dose time point of the user from the server after outputting the first alarm; and

outputting, by the user terminal, the first taking-a-dose information.

61. An operating method of a server, the operating method comprising the steps of:

obtaining, by the server, daily serving amount

information for a user, the daily serving amount information including first serving amount information about a first cartridge and second serving amount information about a second cartridge, and a first nutrient and a second nutrient being stored in the first cartridge and second cartridge, respectively;

receiving, by the server, alarm setting information including a taking-a-dose alarm time, the alarm setting information including first alarm setting information about a first divided time point within a first period and second alarm setting information about a second divided time point within the first period;

calculating, by the server, a first division ratio for the first cartridge and a second division ratio for the second cartridge based on the alarm setting information; and

providing, by the server, the nutrient to the user through a dispensing device according to the first division ratio and the second division ratio.

62. The operating method according to claim 61, wherein

in the step of calculating the first and second division ratios, the first and second division ratios are calculated in consideration of absorption rates of the first and second nutrients at the first divided time point and absorption rates of the first and second nutrients at the second divided time point.

63. The operating method according to claim 61, wherein

the daily serving amount information includes daily serving amount information about the first divided time point and daily serving amount information about the second divided time point,

in the step of providing the nutrient,

the nutrient is provided at the first divided time point according to the first division ratio and daily serving amount information about the first divided time point, and

the nutrient is provided at the second divided time point according to the second division ratio and daily serving amount information about the second divided time point.