The Petri net is manually created, denoted by *N*d. The clinical process model is shown in Figure A.1. Choice, Sequential, and parallel structures are all included in the net. 49 transitions, 52 places, and 116 arcs in the Petri net. Each transition is associated with an activity within the medical process. Table A.1 displays activities and the mapping of transitions. The initial place of the model is *p*1, which means the start of the clinical process; the final place of the model is *p*13, which means the end of the clinical process. All the places and transitions are on the paths from *p*1 to *p*13. Meanwhile, the model meets such properties as option to complete, safety, no dead transitions, proper completion. Hence, it's a reliable workflow net.

****

**Figure A.1.** A standard clinical process of diabetic foot ulcer during the COVID-19 epidemic.

**Table A.1.** The mapping of activities and transitions in Figure A.1.

|  |  |  |  |
| --- | --- | --- | --- |
| Transition | Activity | Transition | Activity |
| *t*1 | primary diagnosis | *t*26 | special examination(SE) |
| *t*2 | superficial foot ulcer(wagner 1) | *t*27 | throat swab specimen |
| *t*3 | foot ulcer(wagner 2-5) | *t*28 | stool specimen |
| *t*4 | a medical examination nearby | *t*29 | check for the result of SE |
| *t*5 | online guidance from medical specialists | *t*30 | treatment for positive result for SE |
| *t*6 | home care | *t*31 | treatment for negative result of SE |
| *t*7 | dressing change | *t*32 | confirmation of COVID-19 |
| *t*8 | foot decompression | *t*33 | exclusion of COVID-19 |
| *t*9 | glucose control | *t*34 | admission to isolation ward |
| *t*10 | blood pressure control | *t*35 | multidisciplinary collaboration |
| *t*11 | recovery | *t*36 | treatment of local wound surface by foot disease professionals |
| *t*12 | epidemiological history | *t*37 | out of quarantine |
| *t*13 | body temperature measurement | *t*38 | transfer to non-polluted specialist ward |
| *t*14 | COVID-19 examination | *t*39 | diagnosis for infection |
| *t*15 | non-suspect COVID-19 | *t*40 | conservative treatment |
| *t*16 | suspect COVID-19 | *t*41 | surgical treatment |
| *t*17 | admission to relative-polluted specialist ward | *t*42 | diagnosis for limb necrosis |
| *t*18 | admission to fever clinic | *t*43 | medication |
| *t*19 | routine examination(RE) | *t*44 | antibiotic therapy |
| *t*20 | routine blood test | *t*45 | debridement |
| *t*21 | inflammation marker | *t*46 | amputation |
| *t*22 | chest CT | *t*47 | dressing the wound |
| *t*23 | check for the result of RE | *t*48 | sutures out |
| *t*24 | treatment for positive result of RE | *t*49 | improvement and discharge |
| *t*25 | treatment for negative result of RE |  |  |

In this experiment, the selection of milestone sets is shown in Table A.2. The milestone relation matrix is shown in (A.1), denoted by *M*d. According to the specific number of the milestone activity, a part of the matrix is selected. The milestone relation matrix is used to omit the ineffective traces with noise from the logs.

**Table A.2.** The selection of milestone sets.

|  |  |  |
| --- | --- | --- |
| Serial number | The number of milestones | Milestone set |
| 1 | 0 | {} |
| 2 | 2 | {*α*(*t*1), *α*(*t*6)} |
| 3 | 4 | {*α*(*t*1), *α*(*t*6), *α*(*t*7), *α*(*t*8)} |
| 4 | 6 | {*α*(*t*1), *α*(*t*6), *α*(*t*7), *α*(*t*8), *α*(*t*9), *α*(*t*10)} |
| 5 | 8 | {*α*(*t*1), *α*(*t*3), *α*(*t*6), *α*(*t*7), *α*(*t*8), *α*(*t*9), *α*(*t*10), *α*(*t*11)} |
| 6 | 10 | {*α*(*t*1), *α*(*t*3), *α*(*t*12), *α*(*t*13),*α*(*t*6), *α*(*t*7), *α*(*t*8), *α*(*t*9), *α*(*t*10), *α*(*t*11)} |
| 7 | 12 | {*α*(*t*1), *α*(*t*3), *α*(*t*12), *α*(*t*13), *α*(*t*14), *α*(*t*19), *α*(*t*6), *α*(*t*7), *α*(*t*8), *α*(*t*9), *α*(*t*10), *α*(*t*11)} |
| 8 | 14 | {*α*(*t*1), *α*(*t*3), *α*(*t*12), *α*(*t*13), *α*(*t*14), *α*(*t*19), *α*(*t*20), *α*(*t*21), *α*(*t*6), *α*(*t*7), *α*(*t*8), *α*(*t*9), *α*(*t*10), *α*(*t*11)} |
| 9 | 16 | {*α*(*t*1), *α*(*t*3), *α*(*t*12), *α*(*t*13), *α*(*t*14), *α*(*t*19), *α*(*t*20), *α*(*t*21), *α*(*t*22), *α*(*t*23), *α*(*t*6), *α*(*t*7), *α*(*t*8), *α*(*t*9), *α*(*t*10), *α*(*t*11)} |
| 10 | 18 | {*α*(*t*1), *α*(*t*3), *α*(*t*12), *α*(*t*13), *α*(*t*14), *α*(*t*19), *α*(*t*20), *α*(*t*21), *α*(*t*22), *α*(*t*23), *α*(*t*38), *α*(*t*39), *α*(*t*6), *α*(*t*7), *α*(*t*8), *α*(*t*9), *α*(*t*10), *α*(*t*11)} |

