1. **Prepositions**

* Let patientArrived denote “a patient has arrived at the clinic”
* Let atRisk denote “a patient is at risk”
* Let hasMedicalCondition denote “a patient has a medical condition”
* Let hasAllergy denote “a patient has an allergy”
* Let appointmentBooked denote “an appointment has been booked with a clinician”
* Let requestForPatientReport denote “patient data is requested”
* Let requestForManagementReport denote “management data is requested”
* Let replyWithManagementReport denote “management data is replied”
* Let recordCreated denote “a record exists”
* Let canCreateRecord denote “a record can be created”
* Let canEditRecord denote “a record can be edited”
* Let canViewRecord denote “a record can be viewed
* Let isWorking denote “subject is working”
* Let displayWarning denote “error on screen”
* Let isClinician denote “a clinician staff member at the clinic”

**Sets**

* Let Patient denote the set of patients
* Let Clinician denote the clinicians
* Let WalkIn denote the set of walk-ins
* Let Username denote the set of clinic staff usernames
* Let Password denote the set of clinic staff passwords

**Predicates**

* Let Available: Clinician be a predicate such that Available(c) denotes that “Clinician c is available”
* Let Allocated: Clinician X Appointment be a predicate such that Allocated (c, a) denotes that “clinician c is allocated to appointment a”
* Let isBeingseen: Patient X Clinician be a predicate such isBeingSeen(p, c) denotes that “patient p is being seen by clinician c”
* Let Valid: Username X Password be a predicate such that Valid (u, p) denotes that “the username and password pair (u, p) is valid”
* Let AccessPatientInfo: Clinician be a predicate such that AccessPatientInfo(c) denotes that “clinician c has access to patient information”

1. A) atRisk 🡨🡪 (hasMedicalCondition V hasAllergy)

B) ¬requestForPatientReport 🡪 displayWarning

C) recordCreated 🡪 (canViewRecord ∧ canEditRecord)

D) (isClinician ∧ isWorking) 🡪 (canCreateRecord V canEditRecord V canViewRecord)

1. E) ∀p∈ Patient: ∃c∈ Clinician

F) ¬∀p∈ Patient: atRisk ∧ (¬hasMedicalCondition V ¬hasAllergy)

G) ∀c∈ Clinician: ∃a1∈ Appointment: Allocated (c; a1) ∧ ∀a2∈ Appointment: Allocated (c, a2) 🡪

r1 = r2

H) ∀w∈ WalkIn: ∃c∈ Clinician: Available(c)

1. **NOTE**: using ʯ as “until” symbol

I) atRisk ʯ (hasMedicalCondition V hasAllergy)

J) **□** (patientArrived ∧ appointmentBooked 🡪⬦isBeingSeen)

K) ∀c∈ Clinician: ∃u∈ Username, p∈ Password: hasUsername(c, u) ∧ Valid(u, p) 🡪

○ AccessPatientInfo(c)

L) **□**⬦ requestForManagementReport 🡪 **□**⬦ replyWithManagementReport



|  |  |  |
| --- | --- | --- |
| **Mode** | **Conditions** | |
| Created | NOT HasAllergy AND NOT HasCondition | HasAllergy OR HasCondition |
| NotCreated | true | false |
| **PatientState** | **Regular** | **AtRisk** |