A retrospective epidemiological study of type 1 diabetes mellitus in Wales, UK between 2008 and 2018

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Abstract

Introduction
Studies of prevalence and the demographic profile of type 1 diabetes are challenging because of the relative rarity of the condition, however, these outcomes can be determined using routine healthcare data repositories. Understanding the epidemiology of type 1 diabetes allows for targeted interventions and care of this life-affecting condition.

Objectives
To describe the prevalence, incidence and demographics of persons with type 1 diabetes diagnosed in Wales, UK, using the Secure Anonymised Information Linkage (SAIL) Databank.

Methods
Data derived from primary and secondary care throughout Wales available in the SAIL Databank were used to identify people with type 1 diabetes to determine the prevalence and incidence of type 1 diabetes over a 10 year period (2008–18) and describe the demographic and clinical characteristics of this population by age, socioeconomic deprivation and settlement type. The seasonal variation in incidence rates was also examined.

Results
The prevalence of type 1 diabetes in 2018 was 0.32% in the whole population, being greater in men compared to women (0.35% vs 0.28% respectively); highest in those aged 15-29 years (0.52%) and living in the most socioeconomically deprived areas (0.38%). The incidence of type 1 diabetes over 10 years was 14.0 cases/100,000 people/year for the whole population of Wales. It was highest in children aged 0-14 years (33.6 cases/100,000 people/year) and areas of high socioeconomic deprivation (16.8 cases/100,000 people/year) and least in those aged 45-60 years (6.5 cases/100,000 people/year) and in areas of low socioeconomic deprivation (11.63 cases/100,000 people/year). A seasonal trend in the diagnoses of type 1 diabetes was observed with higher incidence in winter months.

Conclusion
This nation-wide retrospective epidemiological study using routine data revealed that the incidence of type 1 diabetes in Wales was greatest in those aged 0-14 years with a higher incidence and prevalence in the most deprived areas. These findings illustrate the need for health-related policies targeted at high deprivation areas to include type 1 diabetes in their remit.

Keywords
diabetes mellitus; epidemiology; electronic health records

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Introduction

Type 1 diabetes mellitus results from an immune-mediated destruction of the insulin-producing cells in the pancreas, typically presenting with symptoms related to raised blood glucose concentrations, including weight loss, excessive thirst and urination and hunger with some cases presenting acutely with the life-threatening metabolic disorder ketoacidosis which may lead to coma and death. Type 1 diabetes requires lifelong treatment with exogenous insulin therapy accompanied by blood glucose monitoring. The International Diabetes Federation (IDF) reported in 2019 that over 1.1 million new cases of diabetes, however, due to the anonymised nature of the population of Wales who are at significant risk of short and long-term complications. Although type 1 diabetes may present at any age it is traditionally regarded as a condition occurring predominantly in childhood, which has been the main focus for the majority of studies reporting prevalence and incidence of type 1 diabetes. These studies have demonstrated that in some countries such as the United States the incidence is rising [3], although in others such as Finland [4], Western Australia [5] and Ireland [6] the incidence rate of increase has slowed or even stopped. Studies examining the prevalence, incidence and rate of complications of type 1 diabetes must reflect the fact that type 1 diabetes can present at any age [7]. In the UK the Quality and Outcomes Framework (QoF) combined with the National Paediatric Diabetes Audit (NDA) providing an estimate of prevalence in adults [11]. Published reports from the NPDA have shown that in the UK, the incidence of type 1 diabetes in children has remained approximately constant in recent years. There are also local audits available, for example the Brecon cohort, a register of people with type 1 diabetes diagnosed under the age of 16 years in Wales [12]. The availability of large-scale research databanks has made it possible to perform epidemiological research without the need for specially gathered registry data. This study builds upon previous work to develop algorithms to identify incident cases of diabetes in the Clinical Practice Research Datalink [13], the UK IMS disease analyser [14], The Health Improvement Network [15], administrative data from Ontario, Canada [16] and Luxembourg [17] and in the Scottish Care Information-Diabetes Collaboration [18]. These methods typically use coded diagnoses and/or medication prescriptions and laboratory tests to identify cases of diabetes, however, due to the anonymised nature of these data sources and the inherent issues related to routinely collected data, robust data cleaning methods are required to ensure the accuracy of the cohort being studied [19].

Previous work on incident cases of type 1 diabetes has shown that more people are diagnosed in winter months than summer months [27]. This effect appears to be due to periods of cold weather as it persists in Southern hemisphere countries [28] but its underlying cause is not well understood [29]. We will test our cohort to see if we observe a seasonal variation in incident cases.

This retrospective epidemiological study aimed to identify all persons in Wales, diagnosed in both childhood and adulthood, with type 1 diabetes using anonymised, routinely collected healthcare data held in the Secure Anonymised Information Linkage (SAIL) Databank and to compute estimates of the true prevalence and incidence of type 1 diabetes in this population along with the demographic and clinical characteristics.

Methods

Routine electronic health record data held in the SAIL Databank [20–22] from multiple sources including both primary and secondary care were used for this study. Primary care sources include the Welsh Longitudinal General Practice (WLGP) dataset which covered approximately 80% of the population of Wales over the study period and commenced in 2000, with coverage increasing over time. The data included medications prescribed, laboratory test results and coded diagnoses made by a general practitioner. Inpatient and outpatient hospital records commenced in 1995, covered 100% of Wales and included dates of hospital admissions, diagnoses made and procedures carried out. Demographic and geographical information was drawn from the Welsh Demographic Service (WDS) dataset, which contains administrative data on all persons registered with a primary care practice in Wales. Any event, admission or service received before the index date, which was June 1st 2018, was included in the study.

People commonly have multiple coded diagnoses of diabetes recorded in the routine data which may or may not specify a particular type of diabetes. Therefore the following criteria were used to identify people with type 1 diabetes: those with a majority of coded diagnoses of type 1 diabetes in both hospitals and general practice, were assigned a diagnosis of type 1 diabetes if insulin was prescribed within 12 months of the earliest recorded date of diagnosis of diabetes, if insulin was prescribed at least 6 months prior to any oral antidiabetic drug (OAD), if a hospital inpatient episode with a diagnosis of diabetic ketoacidosis (DKA) was recorded, or medical devices (blood glucose monitors, glucose and ketone test strips) were prescribed on at least 5 occasions within 6 months of diagnosis. People who did not have a majority of coded diagnoses of type 1 diabetes were only assigned a diagnosis of type 1 diabetes if insulin was prescribed within 6 months of the earliest recorded date of diagnosis of diabetes and, if concomitant OAD therapy was prescribed, at least six months after insulin initiation. The only permissible OAD therapies were metformin, sulphonylureas, glucagon-like peptide 1 (GLP-1) agonists or sodium-glucose transport protein 2 (SGLT-2) inhibitor agents. People presenting with type 1 diabetes before 2000 may not be identified by this algorithm since data on
medication prescriptions were not generally available prior to this date, although coded diagnosis data often is available. For this reason, only new diagnoses of type 1 diabetes from 2008 onwards were used for incidence calculations. However, prevalence calculations involved all people living with type 1 diabetes diagnosed at any time.

The date of diagnosis was either the first recorded diagnosis of type 1 diabetes in any dataset, or the earliest recorded prescription of insulin in the WLGP dataset, whichever was earliest. All persons with a code for type 1 diabetes who also had some other pancreatic condition such as cystic fibrosis or pancreatic cancer prior to type 1 diabetes diagnosis were excluded from the cohort. The complete list of relevant diagnosis codes are included in Supplementary Tables 1 and 2. Deprivation was assigned using the Welsh Index of Multiple Deprivation 2011 (WIMD) score quintile. Each Lower layer Super Output Area (LSOA), small geographic areas where the minimum population is 1000 people and the mean population is 1500 people, is assigned a WIMD score quantifying the deprivation in that area [23]. Settlement type (rural, town and urban areas, based on population density [24]) was also derived from each LSOA.

The numbers of people identified with type 1 diabetes over the whole period of data coverage was used to estimate the prevalence and incidence of the condition on the index date. The prevalence was calculated by dividing the number of newly-diagnosed cases of type 1 diabetes in people under 18 years of age, we took the number of newly-diagnosed cases of type 1 diabetes in any dataset, or the earliest recorded diabetes diagnosed at any time.

The prevalence of type 1 diabetes was highest in those aged 15–29 years at 0.52% (95% CI 0.50, 0.55). The average incidence in the 10 years prior to the index date was 14.0 cases/100,000 people/year (95% CI 12.5, 15.5), whereas the age group with the highest incidence was those aged 0 to 14 years at 33.6 cases/100,000 people/year (95% CI 28.0, 39.6) (Table 2).

The prevalence of type 1 diabetes was 31.0% higher in the most socially deprived areas when compared to the least deprived areas. Furthermore, all regions that had greater deprivation than the least deprived areas had a higher prevalence of type 1 diabetes. There was also a difference in incidence rates only when comparing regions in the most deprived and least deprived quintiles (p = 0.040) (Table 3).

Demographic characteristics of the population with type 1 diabetes living in Wales during the study period are represented in Table 1. There were 7857 people with type 1 diabetes diagnosed prior to the index date that had records in the WLGP data (see Figure 1), giving an overall prevalence of 0.32% (95% CI 0.31, 0.32). More men (n = 4366) than women (n = 3491) had type 1 diabetes, with a prevalence 0.35% (95% CI 0.34, 0.36) and 0.28% (95% CI 0.27, 0.29) respectively. 47.3% of people with type 1 diabetes were diagnosed under age 18, whereas 71.5% of the population with type 1 diabetes were diagnosed under the age of 30 years. 95% of type 1 diabetes diagnoses occurred before age 53 (Table 1).

There was a seasonal trend in the rate of diagnosis of type 1 diabetes in children and young people which was highest during February (p = 0.025) and lowest during the months of July (p = 0.018) and August (p = 0.005) (Figure 2).

To illustrate the seasonal variation of newly-diagnosed cases of type 1 diabetes in people under 18 years of age, we took the number of newly-diagnosed cases of type 1 diabetes in each calendar month in the ten years prior to the index date and computed the mean for each month. To account for the differences in population sizes in the different categories. To evaluate the model fit we computed the ratio of the residual deviance to the degrees of freedom, with a value less than or greater than unity indicating under or over dispersion respectively. Lack of under or over dispersion was taken to imply standard error estimates were reasonable.

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Table 1: Demographic information

| Statistic                                      | Value               |
|------------------------------------------------|---------------------|
| N                                              | 7857                |
| Men n (%)                                      | 4366 (55.6%)        |
| Population age median (LQ, UQ)                 | 34.5 (23.2, 50.3)   |
| Diabetes duration median (LQ, UQ)              | 13.5 (6.4, 21.1)    |
| Age at diagnosis median (LQ, UQ)               | 19.2 (10.6, 32.0)   |
| Percentage diagnosed under 18                  | 47.5%               |
| Percentage diagnosed under 30                  | 71.5%               |
| Percentage diagnosed under 53                  | 95%                 |

Key: LQ - Lower quartile, UQ - Upper quartile.

Figure 1: Flow diagram detailing cohort construction

Table 2: The prevalence and incidence of type 1 diabetes by age group up to the age of 60. People with type 1 diabetes aged over 60 were included in the full cohort but not in this table as the numbers were small

| Age range | Prevalence % (95% CI) | Incidence/100,000 people/year (95% CI) |
|-----------|-----------------------|----------------------------------------|
| 0–14      | 0.18% (0.17, 0.20)    | 33.55 (28.02, 39.56)                   |
| 15–29     | 0.52% (0.50, 0.55)    | 26.87 (22.32, 31.83)                   |
| 30–44     | 0.45% (0.43, 0.47)    | 13.15 (10.02, 16.70)                   |
| 45–60     | 0.33% (0.31, 0.35)    | 6.49 (4.39, 8.98)                      |

Key: CI - Confidence interval.

Deprivation. In contrast to our findings, a study in Finland found a six fold higher incidence of type 1 diabetes in children under 15 years in a population with a lower level of socioeconomic deprivation [26]. Excessive cleanliness has been hypothesised to explain the greater prevalence of autoimmune conditions such as type 1 diabetes, due to reduced exposure
Table 3: The prevalence and incidence of type 1 diabetes by Welsh Index of Multiple Deprivation (WIMD) quintile, with p-values from a Poisson regression model. The 1st WIMD quintile represents the most deprived areas, whereas areas in the 5th quintile are the least deprived.

| WIMD quintile | Prevalence (% 95% CI) | p-value | Incidence (/100,000 95% CI) | p-value |
|---------------|-----------------------|---------|-----------------------------|---------|
| 1             | 0.38 (0.36, 0.39)     | <0.001  | 16.80 (13.40, 20.59)        | 0.040   |
| 2             | 0.36 (0.34, 0.37)     | <0.001  | 14.85 (11.55, 18.56)        | 0.196   |
| 3             | 0.34 (0.32, 0.36)     | <0.001  | 14.24 (11.04, 17.84)        | 0.344   |
| 4             | 0.32 (0.30, 0.34)     | <0.001  | 12.01 (8.91, 15.57)         | 0.753   |
| 5             | 0.29 (0.27, 0.30)     | Reference | 11.63 (8.79, 14.86)     | Reference |

Key: CI - Confidence interval.

Table 4: The prevalence and incidence of type 1 diabetes by settlement type

| Settlement type | Prevalence (% 95% CI) | p-value | Incidence (/100,000 95% CI) | p-value |
|-----------------|-----------------------|---------|-----------------------------|---------|
| Rural           | 0.28 (0.26, 0.29)     | <0.001  | 14.45 (12.66, 16.36)        | 0.403   |
| Town            | 0.32 (0.30, 0.34)     | <0.001  | 13.43 (9.99, 17.38)         | 0.589   |
| Urban           | 0.31 (0.31, 0.32)     | Reference | 12.27 (8.80, 16.30)     | Reference |

Key: CI - Confidence interval.

Figure 2: The mean number of individuals under 18 years of age with newly-diagnosed (i.e. incident) type 1 diabetes per month in each year of the study period. We have normalised the values by the number of days in the month, so that points are comparable to infectious diseases which would otherwise enhance the immune response. Deprivation defined by the WIMD criteria which were used in this study does include quantification of housing quality, air quality, air emissions and proximity to waste and industrial sites but is not necessarily a good proxy for the cleanliness of the exposed environment [23]. However, comparing different measures of deprivation is problematic, due to the use of different indicators to quantify deprivation. The prevalence of type 1 diabetes was highest in urban areas and it is likely these two observations are related, as settlement type and deprivation quintile are highly correlated. These findings illustrate the need for programmes aimed at areas of highest deprivation to include type 1 diabetes in their remit.

There was a seasonal variation in the diagnosis of type 1 diabetes, with fewer diagnoses in July and August with a peak during February. The size of the seasonal effect...
observed in this study is in broad agreement with centres of comparable latitude as seen in a multicentre European study [27]. The pattern of increased winter diagnoses persists in both northern and southern hemispheres, but unfortunately there are only a few studies reporting results from the southern hemisphere [28]. Several causes for this seasonal variation have been proposed including seasonal variations in infectious disease, sun or average temperature exposure or patterns of diet and exercise but currently the mechanism is not fully understood [29].

There are some limitations to our study. Approximately 80% of people had their GP data available in the SAIL Databank which are not always complete. Also routine databanks only provide access to coded data so free text records are not available for error checking or adjudication and importantly, routine databanks only contain anonymised data preventing follow up to resolve any queries. However, data linkage is a growing field of study in medical research, and new datasets that provide a more detailed picture of people with type 1 diabetes are being added to the SAIL Databank and other repositories on a regular basis. The method used in this study to designate people with type 1 diabetes allowed for a twelve month period from initial diagnosis to receiving a first prescription for insulin in primary care to accommodate for the time between diagnosis (usually in secondary care) and medication prescriptions recorded in primary care. Information on medication prescriptions in secondary care was not available in the SAIL Databank for the purposes of this study. In addition, those people misdiagnosed as having type 2 diabetes and given oral medication prior to the correct diagnosis being established and commencement of insulin therapy will be excluded from the study cohort as not having type 1 diabetes by our chosen algorithm. Also, if the person has type 2 diabetes but is misdiagnosed as type 1 diabetes and the error is not rectified within 12 months, the algorithm would erroneously identify them as having type 1 diabetes. Given that our prevalence findings are broadly in agreement with previous work on the subject it is likely any misclassification error is small. Furthermore, misdiagnosing type 1 diabetes as type 2 diabetes is relatively unlikely, and our lower estimate of prevalence compared with the work of Holman et al. [9, 10] suggests more false negatives than false positives. People relocating into Wales and registering with a GP will be considered a new diagnosis, which would result in a small overestimate in the incidence of type 1 diabetes. Migration within Wales however is correctly accounted for and does not erroneously increase the incidence estimate.

This most recent epidemiological study of people with type 1 diabetes, based on defined diagnostic criteria, in a population of all ages living in Wales has employed the resources of the SAIL Databank, a repository of anonymised routine medical data. This has made it possible to calculate the prevalence and incidence of type 1 diabetes over the stated study period and provide a description of the population being surveyed. This study found that in Wales in 2018 the prevalence of type 1 diabetes was 0.32%, with a higher prevalence in men than women (0.35% vs. 0.28%), highest in people aged 15–34 years at 0.52% and higher in the most deprived areas at 0.38%. The incidence of type 1 diabetes for children and young people was higher in the winter months of January and February, and lowest in the months of July and August. This study provides important additional epidemiological and clinical information about the status of type 1 diabetes in Wales with respect to its prevalence and incidence in relationship to age, gender and socioeconomic status. The findings provide essential evidence to generate future health care policies better able to define and target the needs of this vulnerable group and also encourage the introduction of preventative strategies. This study also forms the basis for future epidemiological studies to monitor the impact of different interventions in clinical care and socioeconomic factors especially the devastating influence of deprivation in Wales. Lessons learnt from conducting this study will result in more comprehensive and improved future epidemiological studies which will be able to provide more accurate estimates of the prevalence and incidence of type 1 diabetes in Wales. Using similar methodology within and between countries/regions will also allow more meaningful comparisons to be made.

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This study makes use of anonymised data held in the SAIL Databank, which is part of the national e-health records research infrastructure for Wales. We would like to acknowledge all the data providers who make anonymised data available for research.

Statement on conflicts of interest

None of the authors expressed any conflict of interest.

Ethics statement

This study was reviewed by the independent Information Governance Review Panel (IGRP) of the SAIL Databank and approved under the ID: 0493. Ethical approval was not required since only anonymised data was used.

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**Abbreviations**

- **DKA**: Diabetic Ketoacidosis
- **GLP-1**: Glucagon-like Peptide 1
- **IDF**: International Diabetes Federation
- **LSOA**: Lower Layer Super Output Area
- **OAD**: Oral Antidiabetic Drug
- **QoF**: Quality and Outcomes Framework
- **SAIL**: Secure Anonymised Information Linkage
- **SGLT-2**: Sodium Glucose Transport Inhibitor
- **WIMD**: Welsh Index of Multiple Deprivation
- **WLGP**: Welsh Longitudinal General Practice
| READ_CD | Description                                                                 | TYPE_NUM |
|---------|------------------------------------------------------------------------------|----------|
| C1000   | Diabetes mellitus, juvenile type, with no mention of complication             | 1        |
| C1010   | Type 1 diabetes mellitus with ketoacidosis                                   | 1        |
| C1020   | Diabetes mellitus, juvenile type, with hyperosmolar coma                     | 1        |
| C1030   | Type 1 diabetes mellitus with ketoacidotic coma                              | 1        |
| C1040   | Diabetes mellitus, juvenile type, with renal manifestation                    | 1        |
| C1050   | Diabetes mellitus, juvenile type, with ophthalmic manifestation               | 1        |
| C1060   | Diabetes mellitus, juvenile type, with neurological manifestation             | 1        |
| C1070   | Diabetes mellitus, juvenile type, with peripheral circulatory disorder        | 1        |
| C1080   | Type 1 diabetes mellitus with renal complications                            | 1        |
| C1082   | Type 1 diabetes mellitus with neurological complications                      | 1        |
| C1085   | Type 1 diabetes mellitus with ulcer                                          | 1        |
| C1087   | Type 1 diabetes mellitus with retinopathy                                    | 1        |
| C1088   | Type 1 diabetes mellitus - poor control                                      | 1        |
| C1089   | Type 1 diabetes mellitus maturity onset                                      | 1        |
| C10E.   | Type 1 diabetes mellitus                                                    | 1        |
| C10E0   | Type 1 diabetes mellitus with renal complications                            | 1        |
| C10E1   | Type 1 diabetes mellitus with ophthalmic complications                        | 1        |
| C10E2   | Type 1 diabetes mellitus with neurological complications                      | 1        |
| C10E3   | Type 1 diabetes mellitus with multiple complications                          | 1        |
| C10E4   | Unstable type 1 diabetes mellitus                                            | 1        |
| C10E5   | Type 1 diabetes mellitus with ulcer                                          | 1        |
| C10E6   | Type 1 diabetes mellitus with gangrene                                       | 1        |
| C10E7   | Type 1 diabetes mellitus with retinopathy                                    | 1        |
| C10E8   | Type 1 diabetes mellitus - poor control                                      | 1        |
| C10E9   | Type 1 diabetes mellitus maturity onset                                      | 1        |
| C10EA   | Type 1 diabetes mellitus without complication                                | 1        |
| C10EB   | Type 1 diabetes mellitus with mononeuropathy                                 | 1        |
| C10EC   | Type 1 diabetes mellitus with polyneuropathy                                 | 1        |
| C10ED   | Type 1 diabetes mellitus with nephropathy                                    | 1        |
| C10EE   | Type 1 diabetes mellitus with hypoglycaemic coma                             | 1        |
| C10EF   | Type 1 diabetes mellitus with diabetic cataract                               | 1        |
| C10EG   | Type 1 diabetes mellitus with peripheral angiopathy                           | 1        |
| C10EH   | Type 1 diabetes mellitus with arthropathy                                    | 1        |
| C10EJ   | Type 1 diabetes mellitus with neuropathic arthropathy                        | 1        |
| C10EK   | Type 1 diabetes mellitus with persistent proteinuria                         | 1        |
| C10EL   | Type 1 diabetes mellitus with persistent microalbuminuria                    | 1        |
| C10EM   | Type 1 diabetes mellitus with ketoacidosis                                   | 1        |
| C10EN   | Type 1 diabetes mellitus with ketoacidotic coma                              | 1        |
| C10EP   | Type 1 diabetes mellitus with exudative maculopathy                           | 1        |
| C10EQ   | Type 1 diabetes mellitus with gastroparesis                                  | 1        |
| C10y0   | Diabetes mellitus, juvenile type, with other specified manifestation          | 1        |
| C10x0   | Diabetes mellitus, juvenile type, with unspecified complication               | 1        |
| L180A   | Pre-existing type 1 diabetes mellitus in pregnancy                           | 1        |
| C108.   | Insulin dependent diabetes mellitus                                          | 1        |
| C1081   | Insulin-dependent diabetes mellitus with ophthalmic complications             | 1        |
| C1083   | Insulin-dependent diabetes mellitus with multiple complications               | 1        |
| C1084   | Unstable insulin dependent diabetes mellitus                                 | 1        |
| C1086   | Insulin-dependent diabetes mellitus with gangrene                            | 1        |
| C108A   | Insulin-dependent diabetes mellitus without complication                     | 1        |
| C108B   | Insulin dependent diabetes mellitus with mononeuropathy                      | 1        |
| C108C   | Insulin dependent diabetes mellitus with polyneuropathy                      | 1        |
| C108D   | Insulin dependent diabetes mellitus with nephropathy                         | 1        |
| C108E   | Insulin dependent diabetes mellitus with hypoglycaemic coma                  | 1        |
| C108F   | Insulin dependent diabetes mellitus with diabetic cataract                    | 1        |
| C108G   | Insulin dependent diabetes mellitus with peripheral angiopathy                | 1        |
| C108H   | Insulin dependent diabetes mellitus with arthropathy                          | 1        |

Continued
| READ_CD | Description | TYPE_NUM |
|---------|-------------|----------|
| C108J   | Insulin dependent diabetes mellitus with neuropathic arthropathy | 1 |
| L1805   | Pre-existing diabetes mellitus, insulin-dependent | 1 |
| X40J4   | IDDM - Insulin-dependent diabetes mellitus | 1 |
| C1011   | Diabetes mellitus, adult onset, with ketoacidosis | 2 |
| C1021   | Diabetes mellitus, adult onset, with hyperosmolar coma | 2 |
| C1031   | Diabetes mellitus, adult onset, with ketoacidotic coma | 2 |
| C1041   | Diabetes mellitus, adult onset, with renal manifestation | 2 |
| C1051   | Diabetes mellitus, adult onset, with ophthalmic manifestation | 2 |
| C1061   | Diabetes mellitus, adult onset, with neurological manifestation | 2 |
| C1071   | Diabetes mellitus, adult onset, with peripheral circulatory disorder | 2 |
| C109.   | Non-insulin dependent diabetes mellitus | 2 |
| C1090   | Type 2 diabetes mellitus with renal complications | 2 |
| C1091   | Non-insulin-dependent diabetes mellitus with ophthalmic complications | 2 |
| C1092   | Type 2 diabetes mellitus with neurological complications | 2 |
| C1093   | Type 2 diabetes mellitus with multiple complications | 2 |
| C1094   | Non-insulin-dependent diabetes mellitus with ulcer | 2 |
| C1095   | Type 2 diabetes mellitus with gangrene | 2 |
| C1096   | Non-insulin-dependent diabetes mellitus with retinopathy | 2 |
| C1097   | Type 2 diabetes mellitus - poor control | 2 |
| C1099   | Non-insulin-dependent diabetes mellitus without complication | 2 |
| C109A   | Non-insulin dependent diabetes mellitus with mononeuropathy | 2 |
| C109B   | Non-insulin dependent diabetes mellitus with polyneuropathy | 2 |
| C109C   | Non-insulin dependent diabetes mellitus with nephropathy | 2 |
| C109D   | Non-insulin dependent diabetes mellitus with hypoglycaemic coma | 2 |
| C109E   | Non-insulin dependent diabetes mellitus with diabetic cataract | 2 |
| C109F   | Non-insulin-dependent diabetes mellitus with peripheral angiopathy | 2 |
| C109G   | Non-insulin-dependent diabetes mellitus with arthropathy | 2 |
| C109H   | Non-insulin dependent diabetes mellitus with neuropathic arthropathy | 2 |
| C109J   | Insulin treated Type 2 diabetes mellitus | 2 |
| C109K   | Hyperosmolar non-ketotic state in type 2 diabetes mellitus | 2 |
| C10D.   | Diabetes mellitus autosomal dominant type 2 | 2 |
| C10F.   | Type 2 diabetes mellitus | 2 |
| C10F0   | Type 2 diabetes mellitus with renal complications | 2 |
| C10F1   | Type 2 diabetes mellitus with ophthalmic complications | 2 |
| C10F2   | Type 2 diabetes mellitus with neurological complications | 2 |
| C10F3   | Type 2 diabetes mellitus with multiple complications | 2 |
| C10F4   | Type 2 diabetes mellitus with ulcer | 2 |
| C10F5   | Type 2 diabetes mellitus with gangrene | 2 |
| C10F6   | Type 2 diabetes mellitus with retinopathy | 2 |
| C10F7   | Type 2 diabetes mellitus - poor control | 2 |
| C10F9   | Type 2 diabetes mellitus without complication | 2 |
| C10FA   | Type 2 diabetes mellitus with mononeuropathy | 2 |
| C10FB   | Type 2 diabetes mellitus with polyneuropathy | 2 |
| C10FC   | Type 2 diabetes mellitus with nephropathy | 2 |
| C10FD   | Type 2 diabetes mellitus with hypoglycaemic coma | 2 |
| C10FE   | Type 2 diabetes mellitus with diabetic cataract | 2 |
| C10FF   | Type 2 diabetes mellitus with peripheral angiopathy | 2 |
| C10FG   | Type 2 diabetes mellitus with arthropathy | 2 |
| C10FH   | Type 2 diabetes mellitus with neuropathic arthropathy | 2 |
| C10FJ   | Insulin treated Type 2 diabetes mellitus | 2 |
| C10FK   | Hyperosmolar non-ketotic state in type 2 diabetes mellitus | 2 |
| C10FL   | Type 2 diabetes mellitus with persistent proteinuria | 2 |
| C10FM   | Type 2 diabetes mellitus with persistent microalbuminuria | 2 |
| C10FN   | Type 2 diabetes mellitus with ketoacidosis | 2 |
| C10FP   | Type 2 diabetes mellitus with ketoacidotic coma | 2 |
| C10FQ   | Type 2 diabetes mellitus with exudative maculopathy | 2 |
| C10FR   | Type 2 diabetes mellitus with gastroparesis | 2 |
| READ_CD | Description                                                                 | TYPE_NUM |
|---------|------------------------------------------------------------------------------|----------|
| C10y1   | Diabetes mellitus, adult onset, with other specified manifestation            | 2        |
| C10z1   | Diabetes mellitus, adult onset, with unspecified complication                | 2        |
| L1806   | Pre-existing diabetes mellitus, non-insulin-dependent                        | 2        |
| L180B   | Pre-existing type 2 diabetes mellitus in pregnancy                           | 2        |
| X40J5   | Diabetes mellitus - adult onset                                              | 2        |
| X40J6   | Insulin treated non-insulin dependent diabetes mellitus                      | 2        |
| C1001   | Maturity onset diabetes                                                     |          |
| L1800   | Diabetes mellitus - unspecified whether during pregnancy or the puerperium  |          |
| L1802   | Diabetes mellitus in the puerperium - baby delivered during current episode of care |          |
| L1804   | Diabetes mellitus in the puerperium - baby delivered during previous episode of care |          |
| L1808   | GDM - Gestational diabetes mellitus                                          |          |
| L1809   | Gestational diabetes mellitus                                                |          |
| L180z   | Diabetes mellitus during pregnancy, childbirth and the puerperium NOS        |          |
| Q44B    | Syndrome of infant of mother with gestational diabetes                       |          |
| C10A    | Malnutrition-related diabetes mellitus                                        |          |
| C10A0   | Malnutrition-related diabetes mellitus with coma                            |          |
| C10A1   | Malnutrition-related diabetes mellitus with ketoacidosis                     |          |
| C10A2   | Malnutrition-related diabetes mellitus with renal complications              |          |
| C10A3   | Malnutrition-related diabetes mellitus with ophthalmic complications         |          |
| C10A4   | Malnutrition-related diabetes mellitus with neurological complications       |          |
| C10A5   | Malnutrition-related diabetes mellitus with peripheral circulatory complications |          |
| C10A6   | Malnutrition-related diabetes mellitus with multiple complications           |          |
| C10A7   | Malnutrition-related diabetes mellitus without complications                |          |
| C10AW   | Malnutrition-related diabetes mellitus with unspecified complications        |          |
| C10AX   | Malnutrition-related diabetes mellitus with other specified complications    |          |
| Cyu21   | [X] Malnutrition-related diabetes mellitus with other specified complications |          |
| Cyu22   | [X] Malnutrition-related diabetes mellitus with unspecified complications    |          |
| L1807   | Pre-existing malnutrition-related diabetes mellitus                          |          |
| X40J8   | Malnutrition-related diabetes mellitus - fibrocalculous                      |          |
| X40J9   | Malnutrition-related diabetes mellitus - protein-deficient                  |          |
| C10ER   | Latent autoimmune diabetes mellitus in adult                                |          |
| C10Q    | Maturity onset diabetes of the young type 5                                  |          |
| X5ETH   | Maturity onset diabetes mellitus in young                                    |          |
| XacoB   | Maturity onset diabetes of the young type 5                                  |          |
| 66A3    | Diabetic on diet only                                                        |          |
| 66A4    | Diabetic on oral treatment                                                   |          |
| 66A5    | Diabetic on insulin                                                         |          |
| 66AJ1   | [Brittle] and/or [labile diabetes]                                           |          |
| 66o2    | Diabetic on non-insulin injectable medication                                |          |
| 66o5    | Diabetic on oral treatment and glucagon-like peptide 1 receptor agonist      |          |
| 66o6    | Diabetic on insulin and glucagon-like peptide 1 receptor agonist            |          |
| C10.    | Diabetes mellitus                                                           |          |
| C100    | Diabetes mellitus with no mention of complication                           |          |
| C100z   | Diabetes mellitus NOS with no mention of complication                        |          |
| C101    | Diabetes mellitus with ketoacidosis                                          |          |
| C101y   | Other specified diabetes mellitus with ketoacidosis                          |          |
| C101z   | Diabetes mellitus NOS with ketoacidosis                                      |          |
| C102    | Diabetes mellitus with hyperosmolar coma                                     |          |
| C102z   | Diabetes mellitus NOS with hyperosmolar coma                                 |          |
| C103    | Diabetes mellitus with ketoacidotic coma                                      |          |
| C103y   | Other specified diabetes mellitus with coma                                 |          |
| C103z   | Diabetes mellitus NOS with ketoacidotic coma                                 |          |
| C104    | Diabetic nephropathy                                                        |          |
| C104y   | Other specified diabetes mellitus with renal complications                   |          |
| C104z   | Diabetes mellitus with nephropathy NOS                                       |          |
| C105    | Diabetes mellitus with ophthalmic manifestation                              |          |
### Supplementary table 1: Continued

| READ_CD | Description | TYPE_NUM |
|---------|-------------|----------|
| C105y   | Other specified diabetes mellitus with ophthalmic complications |          |
| C105z   | Diabetes mellitus NOS with ophthalmic manifestation |          |
| C106    | Diabetes mellitus with neuropathy |          |
| C106y   | Other specified diabetes mellitus with neurological complications |          |
| C106z   | Diabetes mellitus NOS with neurological manifestation |          |
| C107    | Diabetes mellitus with gangrene |          |
| C1072   | Diabetes mellitus, adult with gangrene |          |
| C107y   | Other specified diabetes mellitus with peripheral circulatory complications |          |
| C107z   | Diabetes mellitus NOS with peripheral circulatory disorder |          |
| C108    | Other specified diabetes mellitus with multiple complications |          |
| C108z   | Diabetes mellitus induction with other complications |          |
| C10B    | Diabetes mellitus induced by steroids |          |
| C10B0   | Steroid-induced diabetes mellitus without complication |          |
| C10C    | Diabetes mellitus autosomal dominant |          |
| C10FS   | Maternally inherited diabetes mellitus |          |
| C10H    | Diabetes mellitus induced by non-steroid drugs |          |
| C10H0   | Diabetes mellitus induced by non-steroid drugs without complication |          |
| C10M    | Lipoatrophic diabetes mellitus |          |
| C10M0   | Lipoatrophic diabetes mellitus without complication |          |
| C10y    | Diabetes mellitus with other specified manifestation |          |
| C10yy   | Other specified diabetes mellitus with other specified complications |          |
| C10yz   | Diabetes mellitus NOS with other specified manifestation |          |
| C10z    | Diabetes mellitus with unspecified complication |          |
| C10zy   | Other specified diabetes mellitus with unspecified complications |          |
| C10zz   | Diabetes mellitus NOS with unspecified complication |          |
| C11y0   | Steroid-induced diabetes |          |
| Cyu2    | [X]Diabetes mellitus |          |
| Cyu20   | [X]Other specified diabetes mellitus |          |
| Cyu23   | [X]Unspecified diabetes mellitus with renal complications |          |
| L1801   | Diabetes mellitus during pregnancy - baby delivered |          |
| L1803   | Diabetes mellitus during pregnancy - baby not yet delivered |          |
| L180X   | Pre-existing diabetes mellitus, unspecified |          |
| Lyu29   | [X]Pre-existing diabetes mellitus, unspecified |          |
| Q440    | Maternal diabetes syndrome |          |
| Q441    | Neonatal diabetes mellitus |          |
| X40J7   | Jamaica type diabetes |          |
| XE10G   | Diabetes mellitus with renal manifestation |          |
| XE10H   | Diabetes mellitus with neurological manifestation |          |
| XE10I   | Diabetes mellitus with peripheral circulatory disorder |          |
| XE12M   | Diabetes with other complications |          |

### ICD10_CODE Table

| ICD10_CODE | Description                  | Modifier | TYPE_NUM |
|------------|------------------------------|----------|----------|
| E10        | Type 1 diabetes mellitus     |          | 1        |
| E100       | Type 1 diabetes mellitus     | with coma| 1        |
| E101       | Type 1 diabetes mellitus     | with ketoacidosis | 1        |
| E102       | Type 1 diabetes mellitus     | with renal complications | 1        |
| E103       | Type 1 diabetes mellitus     | with ophthalmic complications | 1        |
| E104       | Type 1 diabetes mellitus     | with neurological complications | 1        |
| E105       | Type 1 diabetes mellitus     | with peripheral circulatory complications | 1        |
| E106       | Type 1 diabetes mellitus     | with other specified complications | 1        |
| E107       | Type 1 diabetes mellitus     | with multiple complications | 1        |
| E108       | Type 1 diabetes mellitus     | with unspecified complications | 1        |
| E109       | Type 1 diabetes mellitus     | without complications | 1        |
| E11        | Type 2 diabetes mellitus     |          | 2        |
| E110       | Type 2 diabetes mellitus     | with coma | 2        |
| E111       | Type 2 diabetes mellitus     | with ketoacidosis | 2        |
| E112       | Type 2 diabetes mellitus     | with renal complications | 2        |
| ICD10_CODE | Description                                      | Modifier                                | TYPE_NUM |
|------------|--------------------------------------------------|-----------------------------------------|----------|
| E113       | Type 2 diabetes mellitus                         | with ophthalmic complications           | 2        |
| E114       | Type 2 diabetes mellitus                         | with neurological complications         | 2        |
| E115       | Type 2 diabetes mellitus                         | with peripheral circulatory complications | 2        |
| E116       | Type 2 diabetes mellitus                         | with other specified complications      | 2        |
| E117       | Type 2 diabetes mellitus                         | with multiple complications             | 2        |
| E118       | Type 2 diabetes mellitus                         | with unspecified complications          | 2        |
| E119       | Type 2 diabetes mellitus                         | without complications                   | 2        |
| E12        | Malnutrition related diabetes mellitus           |                                         |          |
| E120       | Malnutrition related diabetes mellitus           | with coma                               |          |
| E121       | Malnutrition related diabetes mellitus           | with ketoacidosis                       |          |
| E122       | Malnutrition related diabetes mellitus           | with renal complications                |          |
| E123       | Malnutrition related diabetes mellitus           | with ophthalmic complications           |          |
| E124       | Malnutrition related diabetes mellitus           | with neurological complications         |          |
| E125       | Malnutrition related diabetes mellitus           | with peripheral circulatory complications|          |
| E126       | Malnutrition related diabetes mellitus           | with other specified complications      |          |
| E127       | Malnutrition related diabetes mellitus           | with multiple complications             |          |
| E128       | Malnutrition related diabetes mellitus           | with unspecified complications          |          |
| E129       | Malnutrition related diabetes mellitus           | without complications                   |          |
| E13        | Other specified diabetes mellitus                |                                         |          |
| E130       | Other specified diabetes mellitus                | with coma                               |          |
| E131       | Other specified diabetes mellitus                | with ketoacidosis                       |          |
| E132       | Other specified diabetes mellitus                | with renal complications                |          |
| E133       | Other specified diabetes mellitus                | with ophthalmic complications           |          |
| E134       | Other specified diabetes mellitus                | with neurological complications         |          |
| E135       | Other specified diabetes mellitus                | with peripheral circulatory complications|          |
| E136       | Other specified diabetes mellitus                | with other specified complications      |          |
| E137       | Other specified diabetes mellitus                | with multiple complications             |          |
| E138       | Other specified diabetes mellitus                | with unspecified complications          |          |
| E139       | Other specified diabetes mellitus                | without complications                   |          |
| E14        | Unspecified diabetes mellitus                    |                                         |          |
| E140       | Unspecified diabetes mellitus                    | with coma                               |          |
| E141       | Unspecified diabetes mellitus                    | with ketoacidosis                       |          |
| E142       | Unspecified diabetes mellitus                    | with renal complications                |          |
| E143       | Unspecified diabetes mellitus                    | with ophthalmic complications           |          |
| E144       | Unspecified diabetes mellitus                    | with neurological complications         |          |
| E145       | Unspecified diabetes mellitus                    | with peripheral circulatory complications|          |
| E146       | Unspecified diabetes mellitus                    | with other specified complications      |          |
| E147       | Unspecified diabetes mellitus                    | with multiple complications             |          |
| E148       | Unspecified diabetes mellitus                    | with unspecified complications          |          |
| E149       | Unspecified diabetes mellitus                    | without complications                   |          |
| O24        | Diabetes mellitus in pregnancy                   |                                         |          |
| O240       | Diabetes mellitus in pregnancy: pre-existing     |                                         |          |
|            | diabetes mellitus, type 1                         |                                         |          |
| O241       | Diabetes mellitus in pregnancy: pre-existing     |                                         |          |
|            | diabetes mellitus, type 2                         |                                         |          |
| O242       | Diabetes mellitus in pregnancy: pre-existing     |                                         |          |
|            | malnutrition-related diabetes mellitus           |                                         |          |
| O243       | Diabetes mellitus in pregnancy: pre-existing     |                                         |          |
|            | diabetes mellitus, unspecified                   |                                         |          |
| O244       | Diabetes mellitus arising in pregnancy           |                                         |          |
| O249       | Diabetes mellitus in pregnancy, unspecified      |                                         |          |
| P700       | Syndrome of infant of mother with gestational    |                                         |          |
|            | diabetes                                        |                                         |          |
| P702       | Neonatal diabetes mellitus                       |                                         |          |
| READ_CD | Description |
|---------|-------------|
| f1...  | Short-acting insulin |
| f11.   | *SOLUBLE INSULIN |
| f111.  | INSULIN 100 iu/mL injection 10 mL |
| f112.  | *HYPURIN injection 10 mL |
| f12.   | Soluble neutral insulin |
| f121.  | NEUTRAL INSULIN 100 iu/mL injection 10 mL |
| f122.  | HYPURIN NEUTRAL 100 iu/mL injection 10 mL |
| f123.  | Neusulin 100 iu/mL injection vial |
| f124.  | Quicksol 100 iu/mL injection vial |
| f125.  | Velosulin 100 iu/mL injection 10 mL |
| f126.  | VELOSULIN CARTRIDGE 100 iu/mL injection 5.7 mL |
| f127.  | HUMAN ACTRAPID 100 iu/mL injection 10 mL |
| f128.  | HUMAN ACTRAPID 100 iu/mL penfill cartridges |
| f129.  | Human Velosulin 100 iu/mL injection 10 mL |
| f12A.  | HUMAN ACTRAPID 100 iu/mL penfill cartridges 1.5 mL |
| f12B.  | HUMAN ACTRAPID 100 iu/mL preloaded injection pen 3 mL |
| f12C.  | Humaject S 100 iu/mL prefilled pen |
| f12D.  | Pork Actrapid 100 iu/mL injection 10 mL |
| f12E.  | Neutral insulin 100 iu/mL injection cartridge |
| f12F.  | HYPURIN BOVINE NEUTRAL 100 iu/mL injection cartridge 1.5 mL |
| f12G.  | HYPURIN PORCINE NEUTRAL 100 iu/mL injection cartridge 1.5 mL |
| f12H.  | Hypurin Bovine Neutral 100 iu/mL injection 10 mL |
| f12I.  | Hypurin Porcine Neutral 100 iu/mL injection 10 mL |
| f12J.  | Actrapid (human) Penfill 100 iu/mL cartridge 3 mL |
| f12K.  | PORK ACTRAPID 100 iu/mL injection 10 mL |
| f12L.  | INSUMAN RAPID 100 iu/mL injection vials 5 mL |
| f12M.  | Insuman Rapid 100 iu/mL injection cartridge 3 mL |
| f12N.  | BD ULTRA PEN 3.0 mL 1 unit device |
| f12P.  | BD ULTRA PEN 1.5 mL 1 unit device |
| f12Q.  | Insuman Rapid OptiSet 100 iu/mL prefilled pen 3 mL |
| f12R.  | Human Velosulin (pyr) 100 iu/mL injection 10 mL |
| f12S.  | Hypurin Bovine Neutral 100 iu/mL injection cartridge 3 mL |
| f12T.  | Hypurin Porcine Neutral 100 iu/mL injection cartridge 3 mL |
| f12U.  | EXUBERA 1 mg powder for inhalation |
| f12V.  | EXUBERA 3 mg powder for inhalation |
| f12W.  | HUMAN INSULIN 1 mg powder for inhalation |
| f12X.  | HUMAN INSULIN 3 mg powder for inhalation |
| f12Y.  | INSUMAN INFUSAT 100 iu/mL soln for inj cartridges 3.15 mL |
| f12Z.  | INSUMAN INFUSAT 100 iu/mL solution for injection vials 10 mL |
| f12a.  | Humulin S 100 iu/mL injection 10 mL |
| f12b.  | *NOVOPEN |
| f12c.  | *PENJECT |
| f12d.  | PUR-IN NEUTRAL 100 iu/mL vials 10 mL |
| f12e.  | PUR-IN NEUTRAL 100 iu/mL cartridges 3 mL |
| f12f.  | *AUTOPEN |
| f12g.  | HUMULIN S 100 iu/mL cartridges 1.5 mL |
| f12h.  | NovoPen II device |
| f12i.  | *BD PEN device |
| f12j.  | *PUR-IN PEN device |
| f12k.  | *PUR-IN PEN 1 device |
| f12m.  | *PUR-IN PEN 2 device |
| f12n.  | *PUR-IN PEN 4 device |
| f12p.  | Diapen 1 device |
| f12q.  | Diapen 2 device |
| f12r.  | NovoPen 1 device |
| f12s.  | Humulin S 100 iu/mL cartridges 3 mL |
| f12t.  | *AUTOPEN 1.5 mL one unit device |

Continued
| READ_CD | Description |
|---------|-------------|
| f12u.  | *AUTOPEN 1.5 mL two unit device |
| f12v.  | *AUTOPEN 3 mL two unit device |
| f12y.  | HUMAN INSULIN 100 units/mL injection cartridge |
| f12.   | Human insulin 100 iu/mL injection vial |
| f13.   | Insulin lispro |
| f131.  | INSULIN LISPRO 100 iu/mL vials |
| f132.  | HUMALOG 100 iu/mL injection 10 mL |
| f133.  | INSULIN LISPRO 100 iu/mL cartridges |
| f134.  | Humalog 100 iu/mL cartridges 1.5 mL |
| f135.  | Humalog 100 iu/mL cartridge 3 mL |
| f136.  | Insulin lispro 100 iu/mL prefilled pen |
| f137.  | Humalog Pen 100 iu/mL prefilled pen 3 mL |
| f138.  | HUMALOG KWIKPEN 100 iu/mL prefilled pen 3 mL |
| f139.  | HUMALOG KWIKPEN 200 iu/mL prefilled pen 3 mL |
| f13A.  | INSULIN LISPRO 200 iu/mL prefilled pen |
| f14.   | Insulin aspart |
| f141.  | NOVORAPID 100 units/mL injection vial |
| f142.  | NovoRapid NovoLet 100 units/mL prefilled syringe 3 mL |
| f143.  | NovoRapid Penfill 100 units/mL cartridge 3 mL |
| f144.  | NOVORAPID FLEXPEN 100 units/mL prefilled pen 3 mL |
| f145.  | NOVORAPID FLEXTOUCH 100 units/mL soln for injection pen 3 mL |
| f146.  | NOVORAPID PUMPCART 100 units/mL soln for inj cartridges 1.6 mL |
| f14w.  | INSULIN ASPART 100 units/mL prefilled pen |
| f14x.  | Insulin aspart 100 units/mL injection vial |
| f14y.  | INSULIN ASPART 100 units/mL cartridges |
| f15.   | INSULIN GLULISINE |
| f151.  | Apidra 100 iu/mL injection vials 10 mL |
| f152.  | APIDRA 100 iu/mL injection cartridges 3 mL |
| f153.  | Apidra 100 iu/mL OptiSet prefilled pen 3 mL |
| f154.  | APIDRA 100 iu/mL OptiClick cartridges 3 mL |
| f155.  | APIDRA 100 iu/mL SoloStar prefilled pen 3 mL |
| f15x.  | Insulin glulisine 100 iu/mL injection prefilled pen |
| f15y.  | INSULIN GLULISINE 100 iu/mL injection cartridges |
| f15z.  | INSULIN GLULISINE 100 iu/mL injection vials |
| f2...  | MEDIUM/LONG-ACTING INSULINS |
| f21.   | BIPHASIC INSULIN |
| f211.  | Rapitard MC 100 iu/mL injection 10 mL |
| f212.  | *PENMIX cartridges 1.5 mL |
| f21z.  | Biphasic insulin 100 units/mL injection vial |
| f22.   | IZS - insulin zinc suspension |
| f221.  | Insulin zinc lente 100 iu/mL injection 10 mL |
| f222.  | HYPURIN LENTE 100 iu/mL injection 10 mL |
| f223.  | LENTARD MC 100 iu/mL injection 10 mL |
| f224.  | *NEULENTE 100 iu/mL injection |
| f225.  | Tempulin 100 iu/mL injection |
| f226.  | Human Monotard 100 iu/mL injection 10 mL |
| f227.  | Humulin Lente 100 iu/mL injection 10 mL |
| f228.  | HYPURIN BOVINE LENTE 100 iu/mL injection 10 mL |
| f22y.  | Human insulin zinc suspension 100 units/mL injection vial |
| f222.  | Insulin zinc suspension 100 units/mL injection vial |
| f23.   | INSULIN ZINC SUSPENSION - AMORPHOUS |
| f231.  | SEMITARD MC 100 iu/mL injection 10 mL |
| f232.  | Insulin zinc amorphous suspension 100 units/mL injection vial |
| f24.   | Insulin zinc suspension (crystalline) |
| f241.  | Human Ultratard 100 iu/mL injection 10 mL |
| f242.  | HUMULIN ZN 100 iu/mL injection 10 mL |
|READ_CD | Description |
|--- | --- |
|f24z. | Insulin zinc crystalline human suspension 100 units/mL injection vial |
|f25. | Isophane insulin |
|f251. | ISOPHANE INSULIN 100 iu/mL injection 10 mL |
|f252. | HYPURIN ISOPHANE 100 iu/mL injection 10 mL |
|f253. | Insulatard 100 iu/mL injection 10 mL |
|f254. | *MONOPHANE 100 iu/mL injection |
|f255. | Neuphane 100 iu/mL injection |
|f256. | *INITARD 50/50 injection 10 mL |
|f257. | *MIXTARD injection 10 mL |
|f258. | Human Insulatard 100 iu/mL injection 10 mL |
|f259. | HUMAN PROTAPHANE 100 iu/mL injection 10 mL |
|f25A. | HUMULIN I 100 iu/mL prefilled pen 3 mL |
|f25B. | Insuman Basal Optiset 100 iu/mL prefilled pen 3 mL |
|f25C. | Insulatard InnoLet 100 units/mL prefilled syringe 3 mL |
|f25D. | INSULATARD FLEXPEN 100 iu/mL prefilled pen 3 mL |
|f25E. | HYPURIN BOVINE ISOPHANE 100 iu/mL injection cartridge 3 mL |
|f25F. | Hypurin Porcine Isophane 100 iu/mL injection cartridge 3 mL |
|f25G. | HUMULIN I KWIKPEN 100 iu/mL prefilled pen 3 mL |
|f25H. | INSUMAN BASAL SOLOSTAR 100 iu/mL prefilled pen 3 mL |
|f25W. | Human isophane insulin 100 units/mL prefilled syringe |
|f25X. | HUMAN ISOPHANE INSULIN 100 units/mL injection cartridge |
|f25Y. | HUMAN ISOPHANE INSULIN 100 units/mL injection vials |
|f25Z. | Isophane insulin 100 iu/mL injection vial |
|f25a. | Humulin I 100 iu/mL injection 10 mL |
|f25b. | HUMAN ACTRAPHANE injection 10 mL |
|f25c. | *HUMAN INITARD injection 10 mL |
|f25d. | Human Mixtard injection 10 mL |
|f25e. | *HUMULIN M1 injection 10 mL |
|f25f. | Humulin M2 injection 10 mL |
|f25g. | Humulin M3 injection 10 mL |
|f25h. | *HUMULIN M4 injection 10 mL |
|f25i. | HUMAN PROTAPHANE penfill 1.5 mL |
|f25j. | Pur-In Isophane 100 iu/mL vials 10 mL |
|f25k. | PUR-IN ISOPHANE 100 iu/mL cartridges 3 mL |
|f25l. | HUMULIN I 100 iu/mL cartridges 1.5 mL |
|f25m. | Human Insulatard 100 iu/mL preloaded injection pen 3 mL |
|f25n. | HUMAJEC T I 100 iu/mL prefilled pen |
|f25o. | HUMULIN I 100 iu/mL cartridges 3 mL |
|f25p. | Human Insulatard ge 100 iu/mL injection 10 mL |
|f25q. | Human Insulatard Penfill 1.5 mL |
|f25r. | PORK INSULATARD 100 units/mL injection 10 mL |
|f25s. | ISOPHANE INSULIN 100 iu/mL injection cartridge |
|f25t. | Hypurin Bovine Isophane 100 iu/mL injection cartridge 1.5 mL |
|f25u. | Hypurin Porcine Isophane 100 iu/mL injection cartridge 1.5 mL |
|f25v. | Hypurin Bovine Isophane 100 iu/mL injection 10 mL |
|f25w. | Hypurin Porcine Isophane 100 iu/mL injection 10 mL |
|f25x. | Insulatard Penfill cartridge 3 mL |
|f25y. | Insuman Basal 100 iu/mL injection vial 5 mL |
|f25z. | INSUMAN BASAL 100 iu/mL injection cartridge 3 mL |
|f26. | PROTAMINE ZINC INSULIN |
|f261. | HYPURIN PROTAMINE ZINC injection 10 mL |
|f262. | HYPURIN BOVINE PROTAMINE ZINC 100 iu/mL injection 10 mL |
|f26A. | Protamine zinc insulin 100 units/mL injection vial |
|f27. | BIPHASIC ISOPHANE INSULIN |
|f271. | Mixtard 30/70 injection 10 mL |
|f272. | *PENMIX 30/70 cartridges 1.5 mL |
|f273. | Pur-In Mix 15/85 vials 10 mL |

Continued
| READ_CD | Description |
|---------|-------------|
| f274.  | Pur-In Mix 15/85 cartridges 3 mL |
| f275.  | Pur-In Mix 25/75 vials 10 mL |
| f276.  | PUR-IN MIX 25/75 cartridges 3 mL |
| f277.  | *PUR-IN MIX 50/50 vials 10 mL |
| f278.  | Pur-In Mix 50/50 cartridges 3 mL |
| f279.  | *HUMULIN M1 10/90 vials 10 mL |
| f27A.  | HUMAJECT M1 100 iu/mL prefilled pen |
| f27B.  | Humaject M2 100 iu/mL prefilled pen |
| f27C.  | HUMAJECT M3 100 iu/mL prefilled pen |
| f27D.  | HUMAJECT M4 100 iu/mL prefilled pen |
| f27E.  | Humaject M5 100 iu/mL prefilled pen |
| f27F.  | HUMULIN M4 40/60 cartridges 3 mL |
| f27G.  | HUMULIN M5 50/50 cartridges 3 mL |
| f27H.  | HUMAN MIXTARD 30 ge injection 10 mL |
| f27I.  | Hypurin Porcine Biphasic Isophane 30/70 injection cartridge 3 mL |
| f27J.  | PenMix 10/90 cartridges 1.5 mL |
| f27K.  | Human Mixtard 20 Penfill 1.5 mL |
| f27L.  | HUMAN MIXTARD 30 PENFILL cartridges 1.5 mL |
| f27M.  | HUMAN MIXTARD 40 PENFILL cartridges 1.5 mL |
| f27N.  | Human Mixtard 50 Penfill 1.5 mL |
| f27O.  | Mixtard 30 InnoLet 100 units/mL prefilled syringe 3 mL |
| f27P.  | PenMix 10/90 (pyr) 100 iu/mL preloaded injection pen |
| f27Q.  | HUMAN MIXTARD 20 prefilled pen |
| f27R.  | HUMAN MIXTARD 30 prefilled pen |
| f27S.  | HUMAN MIXTARD 40 prefilled pen |
| f27T.  | PenMix 50/50 (pyr) 100 iu/mL preloaded injection pen |
| f27V.  | Pork Mixtard 30 injection 10 mL |
| f27W.  | Human Mixtard 50 vial 10 mL |
| f27X.  | Hypurin Porcine Biphasic Isophane 30/70 injection 10 mL |
| f27Y.  | HYPURIN PORCINE BIPHASIC ISOPHANE 30/70 injection cartridge 1.5 mL |
| f27Z.  | Insuman Comb 25 100 iu/mL injection vial 5 mL |
| f27a.  | HUMULIN M1 10/90 cartridges 1.5 mL |
| f27b.  | Humulin M2 20/80 vials 10 mL |
| f27c.  | Humulin M2 20/80 cartridges 1.5 mL |
| f27d.  | Humulin M3 30/70 vials 10 mL |
| f27e.  | Humulin M3 30/70 cartridges 1.5 mL |
| f27f.  | Humulin M4 40/60 vials 10 mL |
| f27g.  | Humulin M4 40/60 cartridges 1.5 mL |
| f27h.  | *INIT ARD 50/50 injection 10 mL |
| f27i.  | HUMAN ACTRAPHANE 30/70 injection 10 mL |
| f27j.  | Human Mixtard 30/70 injection 10 mL |
| f27k.  | HUMAN INIT ARD 50/50 injection 10 mL |
| f27l.  | *PENMIX 10/90 cartridges 1.5 mL |
| f27m.  | *PENMIX 20/80 cartridges 1.5 mL |
| f27n.  | *PENMIX 40/60 cartridges 1.5 mL |
| f27o.  | *PENMIX 50/50 cartridges 1.5 mL |
| f27p.  | PENMIX 30/70 preloaded injection pen |
| f27q.  | PENMIX 10/90 preloaded injection pen |
| f27r.  | PENMIX 20/80 preloaded injection pen |
| f27s.  | PENMIX 40/60 preloaded injection pen |
| f27t.  | PENMIX 50/50 preloaded injection pen |
| f27u.  | Humulin M5 50/50 injection vial 10 mL |
| f27v.  | HUMULIN M5 50/50 cartridges 1.5 mL |
| f27w.  | Humulin M1 10/90 cartridges 3 mL |
| f27x.  | Humulin M2 20/80 cartridges 3 mL |
| f27y.  | Insuman Comb 25 100 iu/mL injection cartridge 3 mL |
| f27z.  | HUMULIN M3 30/70 cartridges 3 mL |
| READ_CD | Description |
|---------|-------------|
| f28.   | Biphasic isophane insulin 2 |
| f281.  | Mixtard 10 (human) Penfill cartridge 3 mL |
| f282.  | Mixtard 20 (human) Penfill cartridge 3 mL |
| f283.  | Mixtard 30 (human) Penfill cartridge 3 mL |
| f284.  | Mixtard 40 (human) Penfill cartridge 3 mL |
| f285.  | Mixtard 50 Penfill cartridge 3 mL |
| f286.  | INSUMAN COMB 15 100 iu/mL injection cartridge 3 mL |
| f287.  | INSUMAN COMB 50 100 iu/mL injection vials 5 mL |
| f288.  | INSUMAN COMB 15 OPTISET 100 iu/mL prefilled pen 3 mL |
| f289.  | INSUMAN COMB 25 OPTISET 100 iu/mL prefilled pen 3 mL |
| f28A.  | Insuman Comb 50 OptiSet 100 iu/mL prefilled pen 3 mL |
| f28B.  | Insuman Comb 15 100 iu/mL injection vial 5 mL |
| f28C.  | Insuman Comb 50 100 iu/mL injection cartridge 3 mL |
| f28D.  | HUMULIN M3 100 iu/mL prefilled pen 3 mL |
| f28E.  | HUMULIN M3 KWIKPEN 100 iu/mL prefilled pen 3 mL |
| f28F.  | INSUMAN COMB 25 SOLOSTAR 100 iu/mL prefilled pen 3 mL |
| f29.   | INSULIN GLARGINE |
| f291.  | Insulin glargine 100 iu/mL injection cartridge |
| f292.  | INSULIN GLARGINE 100 iu/mL injection vials |
| f293.  | Insulin glargine 100 iu/mL prefilled pen |
| f294.  | Lantus 100 iu/mL injection cartridge 3 mL |
| f295.  | Lantus 100 iu/mL injection vial 10 mL |
| f296.  | LANTUS 100 iu/mL OptiSet prefilled pen 3 mL |
| f297.  | Lantus 100 iu/mL OptiClik cartridges 3 mL |
| f298.  | LANTUS 100 iu/mL SoloStar prefilled pen 3 mL |
| f299.  | TOUJEO 300 iu/mL SoloStar prefilled pen 1.5 mL |
| f29A.  | INSULIN GLARGINE 300 iu/mL prefilled pen |
| f29B.  | ABASAGLAR 100 iu/mL solution for injection cartridges 3 mL |
| f29C.  | ABASAGLAR KWIKPEN 100 iu/mL soln for inj prefilled pen 3 mL |
| f2A.   | INSULIN DETEMIR |
| f2A1.  | Levemir Penfill 100 iu/mL injection cartridge 3 mL |
| f2A2.  | Levemir FlexPen 100 iu/mL prefilled pen 3 mL |
| f2A3.  | LEVEMIR INNOLET 100 iu/mL prefilled syringe 3 mL |
| f2A4.  | INSULIN DETEMIR 100 iu/mL prefilled syringe |
| f2A5.  | INSULIN DETEMIR 100 iu/mL prefilled pen |
| f2A6.  | INSULIN DETEMIR 100 iu/mL injection cartridges |
| f2B.   | INSULIN DEGLUDEC |
| f2B1.  | TRESIBA FLEXTOUCH 100 iu/mL prefilled pen 3 mL |
| f2B2.  | INSULIN DEGLUDEC 100 iu/mL prefilled pen |
| f2B3.  | TRESIBA FLEXTOUCH 200 iu/mL prefilled pen 3 mL |
| f2B4.  | INSULIN DEGLUDEC 200 iu/mL prefilled pen |
| f2B5.  | TRESIBA PENFILL 100 iu/mL injection cartridges |
| f2B6.  | INSULIN DEGLUDEC 100 iu/mL injection cartridges |
| f2B7.  | INSULIN DEGLUDEC + LIRAGLUTIDE |
| f2C.   | XULTOPHY 100 iu/mL/3.6 mg/mL soln for inj prefilled pen 3 mL |
| f2C1.  | INSULIN DEGLUDEC+LIRAGLUTIDE 100 iu/mL/3.6 mg/mL soln inj pen |
| fw...  | Short with intermediate-acting insulins |
| fw1.   | Biphasic isophane insulin lispro |
| fw11.  | Humalog Mix25 100 iu/mL cartridge 3 mL |
| fw12.  | Humalog Mix25 100 iu/mL prefilled pen 3 mL |
| fw13.  | HUMALOG MIX50 100 iu/mL prefilled pen 3 mL |
| fw14.  | HUMALOG MIX50 100 iu/mL cartridges 3 mL |
| fw15.  | HUMALOG MIX25 KWIKPEN 100 iu/mL prefilled pen 3 mL |
| fw16.  | HUMALOG MIX50 KWIKPEN 100 iu/mL prefilled pen 3 mL |
| fw2.   | BIPHASIC INSULIN ASPART |
| fw21.  | NovoMix 30 Penfill 100 units/mL injection cartridge 3 mL |
| fw22.  | NovoMix 30 FlexPen 100 units/mL injection prefilled pen 3 mL |

Continued
| READ_CD | Description |
|---------|-------------|
| x005R   | Actrapid (pyr) 100 iu/mL injection vial |
| x005T   | Human Insulatard (emp) 100 iu/mL injection vial |
| x005X   | Human Insulatard ge 100 units/mL injection vial |
| x005Y   | Human Insulatard 100 units/mL Penfill |
| x006L   | Hypurin Isophane (bovine) 100 iu/mL injection vial |
| x006M   | Hypurin Lente (bovine) 100 iu/mL injection vial |
| x006N   | Hypurin Bovine Neutral 100 iu/mL injection vial |
| x006O   | Hypurin Protamine Zinc (bovine) 100 units/mL injection vial |
| x006e   | Insulatard (porcine) 100 iu/mL injection vial |
| x006f   | Insulin product |
| x008B   | Neutral insulin 100 iu/mL injection vial |
| x008t   | Pork Actrapid 100 iu/mL injection vial |
| x011Z   | Actrapid NovoLet 100 iu/mL prefilled pen |
| x011a   | Hypurin 100 units/mL injection vial |
| x011b   | Humulin insulin |
| x011c   | PenMix insulin |
| x011d   | Initard insulin |
| x011e   | Pur-In-Mix insulin |
| x011f   | Mixtard insulin |
| x011g   | Actraphane insulin |
| x011h   | Insulatard NovoLet 100 units/mL prefilled pen |
| x011l   | Glass U100 insulin syringe |
| x011m   | Disposable U100 insulin syringe |
| x02kn   | Human insulin 100 units/mL prefilled pen |
| x02ko   | Human isophane insulin 100 units/mL prefilled pen |
| x03ak   | Pork Insulatard 100 units/mL injection |
| x03ad   | Pork Insulatard |
| x03al   | Humalog 100 iu/mL injection vial |
| x03aj   | Humalog 100 iu/mL injection cartridge |
| x03ek   | Humalog |
| x03ln   | Hypurin Bovine Neutral 100 iu/mL injection cartridge |
| x03lo   | Hypurin Bovine Isophane 100 iu/mL injection cartridge |
| x03lp   | Hypurin Porcine Neutral 100 iu/mL injection cartridge |
| x03lp   | Hypurin Porcine Isophane 100 iu/mL injection cartridge |
| x03lv   | Hypurin Porcine Neutral 100 iu/mL injection vial |
| x03lw   | Hypurin Porcine Isophane 100 iu/mL injection vial |
| x03lq   | Hypurin biphasic isophane insulin |
| x03ly   | Hypurin Porcine 30/70 Mix injection vial |
| x03lz   | Hypurin Porcine 30/70 Mix injection cartridge |
| x049l   | Human Actrapid Penfill |
| x049m   | Human Insulatard ge |
| x049q   | Hypurin Bovine Isophane |
| x049r   | Hypurin Bovine Lente |
| x049s   | Hypurin Bovine Neutral |
| x049t   | Hypurin Bovine Protamine Zinc |
| x049u   | Hypurin Porcine Biphasic Isophane |
| x04wn   | Humalog biphasic isophane insulin lispro |
| x04wn   | Humalog Mix25 100 iu/mL cartridge |
| x04wo   | Humalog Mix25 100 iu/mL prefilled pen |
| x04wp   | Humalog Mix25 |
| x051f   | Hypurin Porcine |
| x053d   | NovoRapid NovoLet 100 units/mL prefilled syringe |
| x053e   | NovoRapid Penfill 100 units/mL cartridge |
| x053f   | NovoRapid |
| x053g   | NovoRapid NovoLet |
| READ_CD | Description |
|---------|-------------|
| x053h   | NovoRapid Penfill |
| x056T   | Insuman Rapid 100 iu/mL injection vial |
| x056U   | Insuman Rapid 100 iu/mL injection cartridge |
| x056X   | Insuman Basal 100 iu/mL injection vial |
| x056Y   | Insuman Basal |
| x056Z   | Insuman Basal 100 iu/mL injection cartridge |
| x056a   | Insuman Comb insulin |
| x056b   | Insuman Comb 25 100 iu/mL injection vial |
| x056c   | Insuman Comb 25 100 iu/mL injection cartridge |
| x056d   | Insuman Rapid |
| x056e   | Insuman Comb 25 |
| x059L   | Humalog-Pen 100 iu/mL prefilled pen |
| x059M   | Humalog-Pen |
| x059N   | Humalog Mix50 100 iu/mL prefilled pen |
| x059P   | Humalog Mix50 |
| x05Cm   | Insuman Comb 15 100 iu/mL injection cartridge |
| x05Cn   | Insuman Comb 50 100 iu/mL injection vial |
| x05Co   | Insuman Comb 15 |
| x05Cp   | Insuman Comb 50 |
| x05EY   | Insuman Basal OptiSet 100 iu/mL prefilled pen |
| x05EZ   | Insuman Basal OptiSet |
| x05Ec   | Insuman Rapid OptiSet 100 iu/mL prefilled pen |
| x05Ed   | Insuman Rapid OptiSet |
| x05Ec   | Insuman Comb 15 OptiSet 100 iu/mL prefilled pen |
| x05Ed   | Insuman Comb 25 OptiSet 100 iu/mL prefilled pen |
| x05Ee   | Insuman Comb 50 OptiSet 100 iu/mL prefilled pen |
| x05Ef   | Insuman Comb 15 OptiSet |
| x05Eg   | Insuman Comb 25 OptiSet |
| x05Eh   | Insuman Comb 50 OptiSet |
| x05FF   | Insuman Comb 15 100 iu/mL injection vial |
| x05FG   | Insuman Comb 50 100 iu/mL injection cartridge |
| x05MR   | Biphasic insulin - chemical |
| x05MS   | Biphasic isophane insulin - chemical |
| x05Ke   | Insulatard InnoLet 100 units/mL prefilled syringe |
| x05Fx   | Insulatard InnoLet |
| x05d0   | NovoMix |
| x05d1   | Insulin biphasic aspart 30/70 100 units/mL injection cartridge 3 mL |
| x05d2   | Insulin biphasic aspart 30/70 100 units/mL injection prefilled pen 3 mL |
| x05FE   | Lantus |
| x05FF   | Lantus 100 iu/mL injection cartridge |
| x05FG   | Lantus 100 iu/mL injection vial |
| x05FH   | Lantus 100 iu/mL OptiSet prefilled pen |
| x05fv   | Disposable insulin U100 0.3 mL syringe+needle |
| x05fw   | Disposable insulin U100 0.5 mL syringe+needle |
| x05fx   | Disposable insulin U100 1 mL syringe+needle |
| x05gU   | NovoRapid FlexPen |
| x05GV   | Insulatard FlexPen |
| x05gw   | Insulatard FlexPen 100 iu/mL prefilled pen |
| x05gX   | NovoRapid FlexPen 100 units/mL prefilled pen |
| x05tf   | Levenir Penfill 100 iu/mL injection cartridge |
| x05tg   | Levenir |
| x05th   | Levenir FlexPen 100 iu/mL prefilled pen |
| x05ya   | Apidra 100 iu/mL injection vial |
| x05yb   | Apidra 100 iu/mL injection cartridge |
| x05yc   | Apidra |
| x05Z    | Lantus 100 iu/mL OptiClik cartridge |
| x05zr   | Apidra 100 iu/mL OptiSet prefilled pen |
| READ_CD | Description |
|---------|-------------|
| f3...   | SULPHONYLUAREAS |
| f31.    | Acetohexamide |
| f311.   | Dimelor 500 mg tablet |
| f31z.   | Acetohexamide 500 mg tablet |
| f32.    | CHLORPROPAMIDE |
| f321.   | Chlorpropamide 100 mg tablet |
| f322.   | Chlorpropamide 250 mg tablet |
| f323.   | Diabinese 100 mg tablet |
| f324.   | *DIABINESE 250 mg tablets |
| f325.   | Glymese 250 mg tablet |
| f33.    | Glybenclamide |
| f331.   | GLIBENCLAMIDE 2.5 mg tablets |
| f332.   | GLIBENCLAMIDE 5 mg tablets |
| f333.   | Daonil 5 mg tablet |
| f334.   | *SEMI-DAONIL 2.5 mg tablets |
| f335.   | *EUGLUCON 2.5 mg tablets |
| f336.   | *EUGLUCON 5 mg tablets |
| f337.   | *LIBANIL 2.5 mg tablets |
| f338.   | Libanil 5 mg tablet |
| f339.   | Malix 2.5 mg tablet |
| f33a.   | *MALIX 5 mg tablets |
| f33b.   | *DAONIL CP 5 mg tablets |
| f33c.   | Semi-daonil CP 2.5 mg tablets |
| f33d.   | *DIABETAMIDE 2.5 mg tablets |
| f33e.   | *DIABETAMIDE 5 mg tablets |
| f33f.   | *CALABREN 2.5 mg tablets |
| f33g.   | Calabren 5 mg tablet |
| f33h.   | Glibornuride |
| f33i.   | *GLUTRIL 25 mg tablets |
| f33j.   | *GLIBORNURIDE 25 mg tablets |
| f33k.   | GLICLAZIDE |
| f33l.   | DIAMICRON 80 mg tablets |
| f33m.   | DIAGLYK 80 mg tablets |
| f33n.   | Vivazide 80 mg tablet |
| f33o.   | DIAMICRON MR 30 mg m/r tablets |
| f33p.   | NAZDOL MR 30 mg m/r tablets |
| f33q.   | EDICIL MR 30 mg m/r tablets |
| f33r.   | ZICRON 40 mg tablets |
| f33s.   | VITILE XL 30 mg m/r tablets |
| f33t.   | LAAGLYDA MR 60 mg m/r tablets |
| f33u.   | VAMJU 30 mg m/r tablets |
| f33v.   | VAMJU 60 mg m/r tablets |
| f33w.   | BIXONA 30 mg m/r tablets |
| f33x.   | BIXONA 60 mg m/r tablets |
| f33y.   | GLICLAZIDE 60 mg m/r tablets |
| f33z.   | GLICLAZIDE 40 mg tablets |
| f33A.   | GLICLAZIDE 30 mg m/r tablets |
| f33B.   | GLICLAZIDE 80 mg tablets |
| f33C.   | GLICLAZIDE 5 mg tablets |
| f33D.   | GLICLAZIDE 2.5 mg tablets |
| f33E.   | Minodiab 5 mg tablet |
| f33F.   | *GLICLAZIDE 5 mg tablets |
| f33G.   | Glipizide 2.5 mg tablet |
| f33H.   | Gliquidone |
| f33i.   | *GLURENORM 30 mg tablets |

Continued
| READ_CD | Description |
|---------|-------------|
| f37z.  | GLIQUIDONE 30 mg tablets |
| f38..  | Glymidine |
| f381.  | Gondafon 500 mg tablet |
| f382.  | GLYMIDINE 500 mg tablets |
| f39..  | TOLAZAMIDE |
| f391.  | TOLANASE 100 mg tablets |
| f392.  | TOLANASE 250 mg tablets |
| f39y.  | Tolazamide 100 mg tablet |
| f39z.  | Tolazamide 250 mg tablet |
| f3A..  | GLIMEPIRIDE |
| f3A1.  | Glimepiride 2 mg tablet |
| f3A2.  | AMARYL 2 mg tablets |
| f3A3.  | GLIMEPIRIDE 1 mg tablets |
| f3A4.  | Glimepiride 3 mg tablet |
| f3A5.  | Glimepiride 4 mg tablet |
| f3A6.  | Amaryl 1 mg tablet |
| f3A7.  | Amaryl 3 mg tablet |
| f3A8.  | AMARYL 4 mg tablets |
| f3A9.  | NIDDARYL 1 mg tablets |
| f3AA.  | NIDDARYL 2 mg tablets |
| f3AB.  | NIDDARYL 3 mg tablets |
| f3AC.  | NIDDARYL 4 mg tablets |
| f3A..  | TOLBUTAMIDE |
| f3A1.  | TOLBUTAMIDE 500 mg tablets |
| f3A2.  | GLYCONON 500 mg tablets |
| f3A3.  | PRAMIDEX 500 mg tablets |
| f3A4.  | Rastinon 500 mg tablet |
| f4...  | Biguanide |
| f41..  | Metformin hydrochloride |
| f411.  | Glucophage 500 mg tablet |
| f412.  | Glucophage 850 mg tablet |
| f413.  | ORABET 500 mg tablets |
| f414.  | ORABET 850 mg tablets |
| f415.  | Glucame 500 tablet |
| f416.  | Glucame 850 tablet |
| f417.  | Glucophage SR 500 mg m/r tablet |
| f418.  | METSOL 500 mg/5 mL oral solution |
| f419.  | GLUCOPHAGE SR 750 mg m/r tablets |
| f41A.  | GLUCOPHAGE SR 1000 mg m/r tablets |
| f41B.  | BOLAMYN SR 500 mg m/r tablets |
| f41C.  | GLUCOPHAGE 500 mg/sachet oral powder |
| f41D.  | GLUCOPHAGE 1000 mg/sachet oral powder |
| f41E.  | METABET SR 500 mg m/r tablets |
| f41F.  | METABET SR 1000 mg m/r tablets |
| f41G.  | GLUCIENT SR 500 mg m/r tablets |
| f41H.  | DIAGEMET XL 500 mg m/r tablets |
| f41I.  | SUKKARTO SR 500 mg m/r tablets |
| f41J.  | SUKKARTO SR 1000 mg m/r tablets |
| f41s.  | METFORMIN HYDROCHLORIDE 1000 mg/sachet oral powder |
| f41t.  | METFORMIN HYDROCHLORIDE 500 mg/sachet oral powder |
| f41u.  | METFORMIN HYDROCHLORIDE 1000 mg m/r tablets |
| f41v.  | METFORMIN HYDROCHLORIDE 750 mg m/r tablets |
| f41w.  | METFORMIN HYDROCHLORIDE 500 mg/5 mL oral solution |
| f41x.  | Metformin hydrochloride 500 mg m/r tablet |
| f41y.  | METFORMIN HYDROCHLORIDE 500 mg tablets |
| f41z.  | METFORMIN HYDROCHLORIDE 850 mg tablets |
| f4...  | Other drugs used in diabetes |

Continued
| READ_CD | Description |
|---------|-------------|
| ft1..  | ACARBOSE |
| ft11.  | Acarbose 50 mg tablet |
| ft12.  | ACARBOSE 100 mg tablets |
| ft13.  | Glucobay 50 mg tablet |
| ft14.  | GLUCOBAY 100 tablets |
| ft2..  | Troglitazone |
| ft21.  | Troglitazone 200 mg tablet |
| ft22.  | *TROGLITAZONE 300 mg tablets |
| ft23.  | Troglitazone 400 mg tablet |
| ft24.  | *ROMOZIN 200 mg tablets |
| ft25.  | *ROMOZIN 300 mg tablets |
| ft26.  | Romozin 400 mg tablet |
| ft3..  | REPAGLINIDE |
| ft31.  | Repaglinide 0.5 mg tablet |
| ft32.  | Repaglinide 1 mg tablet |
| ft33.  | Repaglinide 2 mg tablet |
| ft34.  | *NOVONORM 0.5 mg tablets |
| ft35.  | *NOVONORM 1 mg tablets |
| ft36.  | NovoNorm 2 mg tablet |
| ft37.  | PRANDIN 500 micrograms tablets |
| ft38.  | PRANDIN 1 mg tablets |
| ft39.  | PRANDIN 2 mg tablets |
| ft4..  | Rosiglitazone |
| ft41.  | *AVANDIA 4 mg tablets |
| ft42.  | *AVANDIA 8 mg tablets |
| ft43.  | Avandamet 1 mg / 500 mg tablet |
| ft44.  | Avandamet 2 mg / 500 mg tablet |
| ft45.  | AVANDAMET 2 mg / 1000 mg tablets |
| ft46.  | Avandamet 4 mg / 1000 mg tablet |
| ft4u.  | Rosiglitazone 2 mg / Metformin 1000 mg tablet |
| ft4v.  | ROSIGLITAZONE 4 mg / METFORMIN 1000 mg tablets |
| ft4w.  | Rosiglitazone 2 mg / metformin 500 mg tablet |
| ft4x.  | ROSIGLITAZONE 1 mg / METFORMIN 500 mg tablets |
| ft4y.  | Rosiglitazone 8 mg tablet |
| ft4z.  | *ROSIGLITAZONE 4 mg tablets |
| ft5..  | PIOGLITAZONE |
| ft51.  | ACTOS 15 mg tablets |
| ft52.  | Actos 30 mg tablet |
| ft53.  | ACTOS 45 mg tablets |
| ft54.  | GLIDIPION 15 mg tablets |
| ft55.  | GLIDIPION 30 mg tablets |
| ft56.  | GLIDIPION 45 mg tablets |
| ft5x.  | PIOGLITAZONE 45 mg tablets |
| ft5y.  | PIOGLITAZONE 30 mg tablets |
| ft5z.  | PIOGLITAZONE 15 mg tablets |
| ft6..  | Nateglinide |
| ft61.  | STARLIX 60 mg tablets |
| ft62.  | Starlix 120 mg tablet |
| ft63.  | STARLIX 180 mg tablets |
| ft6x.  | NATEGLINIDE 180 mg tablets |
| ft6y.  | NATEGLINIDE 120 mg tablets |
| ft6z.  | Nateglinide 60 mg tablet |
| ft7..  | METFORMIN + PIOGLITAZONE |
| ft71.  | COMPETACT 15 mg / 850 mg tablets |
| ft7z.  | METFORMIN 850 mg / PIOGLITAZONE 15 mg tablets |
| ft8..  | SITAGLIPTIN |
| ft81.  | JANUVIA 100 mg tablets |
| READ_CD | Description |
|---------|-------------|
| ft82.  | JANUVIA 50 mg tablets |
| ft83.  | JANUVIA 25 mg tablets |
| ft8x.  | SITAGLIPTIN 25 mg tablets |
| ft8y.  | SITAGLIPTIN 50 mg tablets |
| ft8z.  | SITAGLIPTIN 100 mg tablets |
| ft9.   | EXENATIDE |
| ft91.  | BYETTA 5 micrograms/0.02 mL injection prefilled pen |
| ft92.  | BYETTA 10 micrograms/0.04 mL injection prefilled pen |
| ft93.  | BYDUREON 2 mg powder and solvent for suspension for injection |
| ft94.  | BYDUREON 2 mg powder + solvent for suspension for injection |
| ft95.  | EXENATIDE 2 mg powder + solvent for suspension for injection |
| ft96.  | EXENATIDE 2 mg powder + solvent for suspension for injection |
| ft9y.  | EXENATIDE 10 micrograms/0.04 mL injection prefilled pen |
| ft9z.  | EXENATIDE 5 micrograms/0.02 mL injection prefilled pen |
| fta.   | VILDAGLIPTIN |
| fta1.  | GALVUS 50 mg tablets |
| fta2.  | VILDAGLIPTIN 50 mg tablets |
| ftaZ.  | METFORMIN + VILDAGLIPTIN |
| ftb1.  | EUCREAS 50 mg/850 mg tablets |
| ftb2.  | EUCREAS 50 mg/1000 mg tablets |
| ftbY.  | VILDAGLIPTIN/METFORMIN 50 mg/1000 mg tablets |
| ftbZ.  | VILDAGLIPTIN/METFORMIN 50 mg/850 mg tablets |
| ftc.   | LIRAGLUTIDE |
| ftc1.  | VICTOZA 6 mg/mL solution for injection prefilled pen 3 mL |
| ftc2.  | LIRAGLUTIDE 6 mg/mL solution for injection prefilled pen |
| ftd.   | SAXAGLIPTIN |
| ftd1.  | ONGLYZA 5 mg tablets |
| ftd2.  | ONGLYZA 2.5 mg tablets |
| ftdy.  | SAXAGLIPTIN 2.5 mg tablets |
| ftdz.  | SAXAGLIPTIN 5 mg tablets |
| fte.   | METFORMIN + SITAGLIPTIN |
| fte1.  | JANUMET 50 mg/1000 mg tablets |
| fte2.  | SITAGLIPTIN/METFORMIN HYDROCHLORIDE 50 mg/1000 mg tablets |
| fte3.  | LINAGLIPTIN |
| fte4.  | TRAJENTA 5 mg tablets |
| fte5.  | LINAGLIPTIN 5 mg tablets |
| fte6.  | METFORMIN + LINAGLIPTIN |
| fte7.  | JENTADUETO 2.5 mg/850 mg tablets |
| fte8.  | LINAGLIPTIN/METFORMIN HYDROCHLORIDE 2.5 mg/850 mg tablets |
| fte9.  | LINAGLIPTIN/METFORMIN HYDROCHLORIDE 2.5 mg/1000 mg tablets |
| fte10. | DAPAGLIFLOZIN |
| fte11. | FORXIGA 5 mg tablets |
| fte12. | FORXIGA 10 mg tablets |
| fte13. | DAPAGLIFLOZIN 5 mg tablets |
| fte14. | DAPAGLIFLOZIN 10 mg tablets |
| fte15. | METFORMIN + SAXAGLIPTIN |
| fte16. | KOMBOGLYZE 2.5 mg/850 mg tablets |
| fte17. | SITAGLIPTIN/METFORMIN HYDROCHLORIDE 2.5 mg/850 mg tablets |
| fte18. | SITAGLIPTIN/METFORMIN HYDROCHLORIDE 2.5 mg/1000 mg tablets |
| fte19. | LIXISENA TIDE |
| fte20. | LIXUMIA 10 micrograms/0.2 mL soln for inj prefilled pen 3 mL |
| fte21. | LIXISENA TIDE 10 micrograms/0.2 mL soln for injection 3 mL |
| fte22. | LIXUMIA 20 micrograms/0.2 mL soln for inj prefilled pen 3 mL |
| fte23. | LIXUMIA 20 micrograms/0.2 mL soln for injection pen 3 mL |
| fte24. | LIXUMIA 10 mcg/0.2 mL + 20 mcg/0.2 mL soln inj prefilled pens 3 mL |
| READ_CD | Description |
|---------|-------------|
| ftj6.   | LIXISENATIDE 10 mcg/0.2mL + 20mcg/0.2 mL soln for inj pens 3 mL |
| ftk1.   | VPIDIA 6.25 mg tablets |
| ftk2.   | ALOGLIPTIN 6.25 mg tablets |
| ftk3.   | VPIDIA 12.5 mg tablets |
| ftk4.   | ALOGLIPTIN 12.5 mg tablets |
| ftk5.   | VPIDIA 25 mg tablets |
| ftk6.   | ALOGLIPTIN 25 mg tablets |
| ft1.    | METFORMIN + ALOGLIPTIN |
| ft1.    | VIPDOMET 12.5 mg/1000 mg tablets |
| ft2.    | ALOGLIPTIN + METFORMIN HYDROCHLORIDE 12.5 mg/1000 mg tablets |
| ftm1.   | METFORMIN + DAPAFLILLOZIN |
| ftm1.   | XIGDUO 5 mg/850 mg tablets |
| ftm2.   | DAPAFLILLOZIN + METFORMIN HYDROCHLORIDE 5 mg/850 mg tablets |
| ftm3.   | XIGDUO 5 mg/1000 mg tablets |
| ftm4.   | DAPAFLILLOZIN + METFORMIN HYDROCHLORIDE 5 mg/1000 mg tablets |
| ftm5.   | CANAGLIFLOZIN |
| ftm5.   | INVOKANA 100 mg tablets |
| ftm6.   | CANAGLIFLOZIN 100 mg tablets |
| ftm7.   | INVOKANA 300 mg tablets |
| ftm8.   | CANAGLIFLOZIN 300 mg tablets |
| fto1.   | EMPAGLIFLOZIN |
| fto1.   | JARDIANCIE 10 mg tablets |
| fto2.   | EMPAGLIFLOZIN 10 mg tablets |
| fto3.   | JARDIANCIE 25 mg tablets |
| fto4.   | EMPAGLIFLOZIN 25 mg tablets |
| fto5.   | METFORMIN + CANAGLIFLOZIN |
| fto5.   | VOKANAMET 50 mg/850 mg tablets |
| fto6.   | CANAGLIFLOZIN + METFORMIN HYDROCHLORIDE 50 mg/850 mg tablets |
| fto7.   | VOKANAMET 50 mg/1000 mg tablets |
| fto8.   | CANAGLIFLOZIN + METFORMIN HYDROCHLORIDE 50 mg/1000 mg tablets |
| ftp1.   | DULAGLUTIDE |
| ftp1.   | TRULICITY 750 micrograms/0.5 mL soln for injection p/f pen |
| ftp2.   | DULAGLUTIDE 750 micrograms/0.5 mL soln for injection p/f pen |
| ftp3.   | TRULICITY 1.5 mg/0.5 mL solution for injection prefilled pen |
| ftp4.   | DULAGLUTIDE 1.5 mg/0.5 mL soln for injection prefilled pen |
| ftp5.   | TRULICITY 750 micrograms/0.5 mL soln for inj prefilled syringe |
| ftp6.   | DULAGLUTIDE 750 micrograms/0.5 mL solution for injection pfs |
| ftp7.   | TRULICITY 1.5 mg/0.5 mL soln for injection prefilled syringe |
| ftp8.   | DULAGLUTIDE 1.5 mg/0.5 mL soln for injection prefilled syringe |
| ftq1.   | METFORMIN + EMPAGLIFLOZIN |
| ftq1.   | SYNJARDY 5 mg/850 mg tablets |
| ftq2.   | EMPAGLIFLOZIN + METFORMIN HYDROCHLORIDE 5 mg/850 mg tablets |
| ftq3.   | SYNJARDY 5 mg/1000 mg tablets |
| ftq4.   | EMPAGLIFLOZIN + METFORMIN HYDROCHLORIDE 5 mg/1000 mg tablets |
| ftq5.   | SYNJARDY 12.5 mg/850 mg tablets |
| ftq6.   | EMPAGLIFLOZIN + METFORMIN HYDROCHLORIDE 12.5 mg/850 mg tablets |
| ftq7.   | SYNJARDY 12.5 mg/1000 mg tablets |
| ftq8.   | EMPAGLIFLOZIN + METFORMIN HYDROCHLORIDE 12.5 mg/1000 mg tablets |
| ftr1.   | ALBIGLUTIDE |
| ftr1.   | METFORMIN + EMPAGLIFLOZIN |
| ftr2.   | SYNJARDY 5 mg/850 mg tablets |
| ftr3.   | EMPAGLIFLOZIN + METFORMIN HYDROCHLORIDE 5 mg/850 mg tablets |
| ftr4.   | SYNJARDY 5 mg/1000 mg tablets |
| ftr5.   | EMPAGLIFLOZIN + METFORMIN HYDROCHLORIDE 5 mg/1000 mg tablets |
| ftr6.   | SYNJARDY 12.5 mg/850 mg tablets |
| ftr7.   | EMPAGLIFLOZIN + METFORMIN HYDROCHLORIDE 12.5 mg/850 mg tablets |
| ftr8.   | SYNJARDY 12.5 mg/1000 mg tablets |
| fts1.   | ALBIGLUTIDE |
| fts1.   | EPERZAN 30 mg powder + solvent for solution for injection |
| fts2.   | ALBIGLUTIDE 30 mg powder + solvent for solution for injection |
| puh1.   | BM TEST-1-44 strip x50. BM TEST-1-44 blood glucose testing strip x50. |
| puh2.   | DEXTROSTIX strip x50. DEXTROSTIX blood glucose testing strip x50. |
| puh3.   | GLUCOSTIX strip x50. GLUCOSTIX blood glucose testing strip x50. |
| puh4.   | HYPOGUARD GA strip x50. HYPOGUARD GA blood glucose testing strip x50. |
## Supplementary Table 2: Continued

| READ_CD | Description |
|---------|-------------|
| puh5.   | *EXACTECH strip x50. EXACTECH blood glucose testing strip x50. |
| puh6.   | *HYPOGUARD SUPREME strip x50. HYPOGUARD SUPREME blood glucose testing strip x50. |
| puh7.   | *BM ACCUTEST strip x50. BM ACCUTEST blood glucose testing strip x50. |
| puh8.   | *GLUCOSTIX strip x25. GLUCOSTIX blood glucose testing strip x25. |
| puh9.   | *ONE TOUCH glucose test strip. ONE TOUCH blood glucose testing strip. |
| puhA.   | *BM-TEST-GP strip x100. BM-TEST-GP blood glucose testing strip x100. |
| puhB.   | *BM-HOPITEST strip x50. BM-HOPITEST blood glucose testing strip x50. |
| puhC.   | *MEDI-TEST GLYCAEMIE P strip. MEDI-TEST GLYCAEMIE P blood glucose testing strip. |
| puhD.   | *MEDI-TEST GLYCAEMIE F strip. MEDI-TEST GLYCAEMIE F blood glucose testing strip. |
| puhE.   | *MEDI-TEST GLYCAEMIE C strip. MEDI-TEST GLYCAEMIE C blood glucose testing strip. |
| puhF.   | *MEDISENSE G2 test strip. MEDISENSE G2 blood glucose testing strip. |
| puhG.   | *GLUCOTIDE test strip. GLUCOTIDE blood glucose testing strip. |
| puhH.   | *GLUCOMETER ESPRIT test disc. GLUCOMETER ESPRIT blood glucose testing sensor disc. |
| puhI.   | *GLUCOTREND test strips. GLUCOTREND blood glucose testing strips. |
| puhJ.   | *POCKETS CAN test strip. POCKETS CAN blood glucose testing strip. |
| puhK.   | *MEDISENSE OPTIUM electrode. MEDISENSE OPTIUM blood glucose testing electrode. |
| puhL.   | *HYPOGUARD SUPREME SPECTRUM strip x50. HYPOGUARD SUPREME SPECTRUM blood glucose testing strip x50. |
| puhM.   | MEDISENSE OPTIUM PLUS electrode. MEDISENSE OPTIUM PLUS blood glucose testing electrode. |
| puhN.   | *ON-CALL PLUS strip. ON-CALL PLUS blood glucose testing strip. |
| puhO.   | BREEZE 2 test disc. BREEZE 2 blood glucose test sensor disc. |
| puhP.   | BETACHEK G5 test strip. BETACHEK G5 blood glucose testing strip. |
| puhQ.   | FREESTYLE LITE testing strip. FREESTYLE LITE blood glucose testing strip. |
| puhR.   | *BIONIME RIGHTEST GS300 strip. BIONIME RIGHTEST GS300 blood glucose testing strip. |
| puhS.   | *MICRODOT test strip. MICRODOT blood glucose testing strip. |
| puhT.   | GLUCOMEN LX SENSOR strip. GLUCOMEN LX SENSOR blood glucose testing strip. |
| puhU.   | ONE TOUCH VITALIA test strip. ONE TOUCH VITALIA blood glucose testing strip. |
| puhV.   | WAVESENSE JAZZ test strip. WAVESENSE JAZZ blood glucose testing strip. |
| puhW.   | BETACHEK VISUAL test strip. BETACHEK VISUAL blood glucose testing strip. |
| puhX.   | COSYLAB S7 glucose test strip. COSYLAB S7 blood glucose testing strip. |
| puhY.   | CARESENS N testing strip. CARESENS N blood glucose testing strip. |
| puhZ.   | PURA blood glucose test strip. PURA blood glucose testing strip. |
| puha.   | FINETOUC H blood glucose test tip. FINETOUCH blood glucose testing tip. |
| puhb.   | GLUCOMEN GM test strip. GLUCOMEN GM blood glucose testing strip. |
| puhc.   | CLEVER CHEK test strip. CLEVER CHEK blood glucose testing strip. |
| puhc.   | *CLEVER CHEK test strip. CLEVER CHEK blood glucose testing strip. |
| puhd.   | TRUETEST test strip. TRUETEST blood glucose testing strip. |
| puhe.   | ACCU-CHEK MOBILE test cassette. ACCU-CHEK MOBILE blood glucose testing cassette. |
| puhf.   | *BIOCARE GLUCOSE VT strip. BIOCARE GLUCOSE VT blood glucose testing strip. |
| puhg.   | *SMARTSTRIP blood glucose test. SMARTSTRIP blood glucose testing strip. |
| puhh.   | GLUCOMEN SENSOR test strip. GLUCOMEN SENSOR blood glucose testing strip. |
| puhI.   | *GLUCOTREND PLUS test strips. GLUCOTREND PLUS blood glucose testing strips. |
| puhi.   | ADVANTAGE II testing strip. ADVANTAGE II blood glucose testing strip. |
| puhk.   | *PRESTIGE SMART SYSTEM strip. PRESTIGE SMART SYSTEM blood glucose testing strip. |
| puhl.   | ACTIVE glucose testing strip. ACTIVE blood glucose testing strip. |
| puhm.   | MEDISENSE SOFT-SENSE strip. MEDISENSE SOFT-SENSE blood glucose testing strip. |
| puhn.   | GLUCOFLEX-R strip. GLUCOFLEX-R blood glucose testing strip. |
| puhn.   | ONE TOUCH ULTRA strip. ONE TOUCH ULTRA blood glucose testing strip. |
| puho.   | FREESTYLE testing strip. FREESTYLE blood glucose testing strip. |
| puhr.   | COMPACT test strip. COMPACT blood glucose testing strip. |
| puhs.   | ASCEN SIA AUTODISC test disc. ASCEN SIA AUTODISC blood glucose test sensor disc. |
| puhL.   | ASCEN SIA AUTODISC test disc. ASCEN SIA AUTODISC blood glucose test sensor disc. |
| puht.   | ASCEN SIA MICROFILL test strip. ASCEN SIA MICROFILL blood glucose testing strip. |
| puhv.   | TRUETRACK SMART SYSTEM strip. TRUETRACK SMART SYSTEM blood glucose testing strip. |
| puhv.   | *SENOVA blood glucose test strip. SENOVA blood glucose testing strip. |
| puhw.   | SENSOCARD test strip. SENSOCARD blood glucose testing strip. |
| puhx.   | AVIVA blood glucose test strip. AVIVA blood glucose testing strip. |
| READ_CD | Description |
|---------|-------------|
| puhz.  | GLUCOMEN VISIO SENSOR strip. GLUCOMEN VISIO SENSOR blood glucose testing strip. |
| pui.   | BLOOD GLUCOSE METERS. |
| pui1.  | *ACCU TREND blood glucose meter. |
| pui2.  | *ACCU TREND ALPHA meter. ACCUTREND ALPHA blood glucose meter. |
| pui3.  | *ACCU TREND MINI meter. ACCUTREND MINI blood glucose meter. |
| pui4.  | *EXACTECH blood glucose meter. |
| pui5.  | EXACTECH PEN meter. EXACTECH PEN blood glucose meter. |
| pui6.  | MEDISENSE COMPANION 2 meter. MEDISENSE COMPANION 2 blood glucose meter. |
| pui7.  | MEDISENSE PEN 2 meter. MEDISENSE PEN 2 blood glucose meter. |
| pui8.  | *GLUCOMETER 4 meter. GLUCOMETER 4 blood glucose meter. |
| pui9.  | GLUCOMETER GX meter. GLUCOMETER GX blood glucose meter. |
| puiA.  | GLYCOTRONIC C meter. GLYCOTRONIC C blood glucose meter. |
| puiB.  | *HYPOCOUNT GA meter. HYPOCOUNT GA blood glucose meter. |
| puiC.  | HYPOCOUNT SUPREME meter. HYPOCOUNT SUPREME blood glucose meter. |
| puiD.  | *ONE TOUCH blood glucose meter. |
| puiE.  | *ONE TOUCH II meter. ONE TOUCH II blood glucose meter. |
| puiF.  | *REFLOLUX S meter. REFLOLUX S blood glucose meter. |
| puiG.  | *ONE TOUCH PROFILE meter. ONE TOUCH PROFILE blood glucose meter. |
| puiH.  | *GLUCOTREND blood glucose meter. GLUCOTREND blood glucose meter. |
| puiI.  | *ESPRIT GLUCOMETER. ESPRIT GLUCOMETER blood glucose meter. |
| puiJ.  | SAKURA-GL II meter. SAKURA-GL II blood glucose meter. |
| puiK.  | GLUCOTREND PREMIUM meter. GLUCOTREND PREMIUM blood glucose meter. |
| puiL.  | *SUPREME PETIT meter. SUPREME PETIT blood glucose meter. |
| puiM.  | *POCKETSCAN blood glucose mtr. POCKETSCAN blood glucose meter. |
| puiN.  | MEDISENSE OPTIUM meter. MEDISENSE OPTIUM blood glucose meter. |
| puiO.  | *SUPREME EXTRA meter. SUPREME EXTRA blood glucose meter. |
| puiP.  | *SUPREME PLUS meter. SUPREME PLUS blood glucose meter. |
| puiQ.  | GLUCOMETER ESPRIT 2 meter. GLUCOMETER ESPRIT 2 blood glucose meter. |
| puiR.  | *ACCU-CHEK ACTIVE meter. ACCU-CHEK ACTIVE blood glucose meter. |
| puiS.  | *ACCU-CHEK ADVANTAGE meter. ACCU-CHEK ADVANTAGE blood glucose meter. |
| puiT.  | SOFT-SENSE blood glucose meter. |
| puiU.  | *PRESTIGE SMART SYSTEM LX meter. PRESTIGE SMART SYSTEM LX blood glucose meter. |
| puiV.  | *PRESTIGE SMART SYSTEM XQ meter. PRESTIGE SMART SYSTEM XQ blood glucose meter. |
| puiW.  | *ONE TOUCH ULTRA meter. ONE TOUCH ULTRA blood glucose meter. |
| puiX.  | *ACCU-CHEK COMPACT meter. ACCU-CHEK COMPACT blood glucose meter. |
| puiY.  | FREESTYLE blood glucose meter. |
| puiZ.  | ASCENSIA BREEZE glucose meter. ASCENSIA BREEZE blood glucose meter. |
| puiA.  | ONE TOUCH ULTRASMA RT meter. ONE TOUCH ULTRASMA RT blood glucose meter. |
| puiB.  | ASCENSIA CONTOUR meter. ASCENSIA CONTOUR blood glucose meter. |
| puiC.  | FREESTYLE MINI glucose meter. FREESTYLE MINI blood glucose meter. |
| puid.  | TRUETRACK SMART SYSTEM meter. TRUETRACK SMART SYSTEM blood glucose meter. |
| puiE.  | *SENOVA blood glucose meter. |
| puiF.  | OPTIUM XCEED glucose meter. OPTIUM XCEED blood glucose meter. |
| puiG.  | ACCU-CHEK COMPACT PLUS meter. ACCU-CHEK COMPACT PLUS blood glucose meter. |
| puiH.  | SENOCA RDI PLUS meter. SENSOCARD PLUS blood glucose meter. |
| puiI.  | ON-CALL NOW blood glucose meter. ON-CALL NOW blood glucose meter. |
| puiJ.  | GLUCOMEN VISIO meter. GLUCOMEN VISIO blood glucose meter. |
| puiK.  | BETACHEK G5 meter. BETACHEK G5 blood glucose meter. |
| puiL.  | BREEZE 2 blood glucose meter. |
| puiM.  | FREESTYLE LITE meter. FREESTYLE LITE blood glucose meter. |
| puiN.  | FREESTYLE FREEDOM LITE meter. FREESTYLE FREEDOM LITE blood glucose meter. |
| puiO.  | *BIONIME RIGHTEST GM300 meter. BIONIME RIGHTEST GM300 blood glucose meter. |
| puiP.  | *MICRODOT blood glucose meter. |
| puiQ.  | MICRODOT blood glucose meter. |
| puiR.  | GLUCOMEN LX blood glucose meter. GLUCOMEN LX blood glucose meter. |
| puiS.  | ONE TOUCH VITA glucose meter. ONE TOUCH VITA blood glucose meter. |

Continued
| READ_CD | Description |
|---------|-------------|
| puis.   | WAVESENSE JAZZ glucose meter. WAVESENSE JAZZ blood glucose meter. |
| puit.   | ACCU-CHEK AVIVA NANO meter. ACCU-CHEK AVIVA NANO blood glucose meter. |
| puiu.   | COSYLAB ST blood glucose meter. |
| puiv.   | CARESENS N blood glucose meter. |
| puiw.   | PURA blood glucose meter. |
| puix.   | ACCU-CHEK MOBILE meter. ACCU-CHEK MOBILE blood glucose meter. |
| puiy.   | TRUERESULT blood glucose meter. |
| pui.    | TRUE2GO blood glucose meter. |
| puk.    | BLOOD GLUCOSE TESTING KIT. |
| puk1.   | *GLUCOTREND SOFT TEST SYSTEM. |
| puk2.   | *GLUCOTREND-2 SOFT TEST SYSTEM. |
| puk3.   | AVIVA blood glucose test kit. |
| pun.    | BLOOD KETONE TESTING STRIPS. |
| pun1.   | *OPTIUM blood ketone test strip. MEDISENSE OPTIUM blood ketone test strip. |
| pun2.   | OPTIUM blood ketone strips. OPTIUM blood ketone test strips. |
| pun3.   | GLUCOMEN LX blood ketone strip. GLUCOMEN LX blood ketone test strips. |
| puq.    | BLOOD GLUCOSE METERS (2). |
| puq1.   | CLEVER CHEK meter. CLEVER CHEK blood glucose meter. |
| puq2.   | CLEVER CHEK VOICE meter. CLEVER CHEK VOICE blood glucose meter. |
| puq3.   | FINETOUC blood glucose meter. |
| puq4.   | GLUCOMEN GM meter. GLUCOMEN GM blood glucose meter. |
| puq5.   | GLUCORX blood glucose meter. |
| puq6.   | IME-DC blood glucose meter. |
| puq7.   | OMNITEST 3 blood glucose meter. |
| puq8.   | ONETOUCH VERIOPRO meter. ONETOUCH VERIOPRO blood glucose meter. |
| puq9.   | ON-CALL ADVANCED meter. ON-CALL ADVANCED blood glucose meter. |
| puqA.   | GLUCORX NEXUS meter. GLUCORX NEXUS blood glucose meter. |
| puqB.   | ONETOUCH ULTRA 2 meter. ONETOUCH ULTRA 2 blood glucose meter. |
| puqC.   | ONETOUCH ULTRA EASY meter. ONETOUCH ULTRA EASY blood glucose meter. |
| puqD.   | GLUCOMEN LX PLUS meter. GLUCOMEN LX PLUS blood glucose and ketone meter. |
| puqE.   | SUPERCHECK 2 meter. SUPERCHECK 2 blood glucose meter. |
| puqF.   | GLUCOLAB blood glucose meter. |
| puqG.   | ELEMENT blood glucose meter. |
| puqH.   | BGSTAR blood glucose meter. |
| puqI.   | CONTOUR XT blood glucose meter. |
| puqJ.   | MENDOR DISCREET meter. MENDOR DISCREET blood glucose meter. |
| puqK.   | TRUERESULT TWIST meter. TRUERESULT TWIST blood glucose meter. |
| puqL.   | SD CODEFREE meter. SD CODEFREE blood glucose meter. |
| puqM.   | TRUEYOU MINI meter. TRUEYOU MINI blood glucose meter. |
| puqN.   | MYLIFE UNIO meter. MYLIFE UNIO blood glucose meter. |
| puqO.   | ICARE ADVANCED meter. ICARE ADVANCED blood glucose meter. |
| puqP.   | AUTOSENSE blood glucose meter. |
| puqQ.   | AUTOSENSE VOICE meter. AUTOSENSE VOICE blood glucose meter. |
| puqR.   | SURESIGN RESURE meter. SURESIGN RESURE blood glucose meter. |
| puqS.   | TEE2 blood glucose meter. |
| puqT.   | CONTOUR TS blood glucose meter. |
| puqU.   | DARIO blood glucose meter. |
| puqV.   | GLUNEO blood glucose meter. |
| puqW.   | GLUCOMEN AREO meter. GLUCOMEN AREO blood glucose meter. |
| puqX.   | SUPERCHECK PLUS meter. SUPERCHECK PLUS blood glucose meter. |
| puqY.   | ONETOUCH SELECT PLUS meter. ONETOUCH SELECT PLUS blood glucose meter. |
| puqZ.   | ADVOCATE REDI-CODE+ meter. ADVOCATE REDI-CODE+ blood glucose meter. |
| puqa.   | ACCU-CHEK PERFORMA meter. ACCU-CHEK PERFORMA blood glucose meter. |
| puqb.   | IHEALTH ALIGN meter. IHEALTH ALIGN blood glucose meter. |
| puqc.   | IHEALTH GLUCO meter. IHEALTH GLUCO blood glucose meter. |
| puqd.   | GLUCOZEN AUTO meter. GLUCOZEN AUTO blood glucose meter. |
| puqe.   | BETACHEK C50 meter. BETACHEK C50 blood glucose meter. |
| READ_CD | Description |
|---------|-------------|
| pur.    | BLOOD GLUCOSE TEST STRIPS (2). BLOOD GLUCOSE TESTING STRIPS (2). |
| pur1.   | GLUCORX test strip. GLUCORX blood glucose testing strip. |
| pur2.   | IME-DC test strip. IME-DC blood glucose testing strip. |
| pur3.   | OMNITEST 3 glucose test strip. OMNITEST 3 blood glucose testing strip. |
| pur4.   | ONETOUCH VERIO test strip. ONETOUCH VERIO blood glucose testing strip. |
| pur5.   | ON-CALL ADVANCED test strip. ON-CALL ADVANCED blood glucose testing strip. |
| pur6.   | GLUCORX NEXUS test strip. GLUCORX NEXUS blood glucose testing strip. |
| pur7.   | SUPERCHECK 2 test strip. SUPERCHECK 2 blood glucose testing strip. |
| pur8.   | GLUCOLAB test strip. GLUCOLAB blood glucose testing strip. |
| pur9.   | ELEMENT test strip. ELEMENT blood glucose testing strip. |
| purA.   | BGSTAR test strip. BGSTAR blood glucose testing strip. |
| purB.   | CONTOUR NEXT test strip. CONTOUR NEXT blood glucose testing strip. |
| purC.   | MENDOR DISCREET test strip cart. MENDOR DISCREET blood glucose testing strip cartridge. |
| purD.   | GLUCODOCK test strip. GLUCODOCK blood glucose testing strip. |
| purE.   | MEDITOUCH test strip. MEDITOUCH blood glucose testing strip. |
| purF.   | TRUEONE test strip + meter. TRUEONE blood glucose testing strip with built-in meter. |
| purG.   | TRUERESULT test strip. TRUERESULT blood glucose testing strip. |
| purH.   | SD CODEFREE test strip. SD CODEFREE blood glucose testing strip. |
| purI.   | TRUEYOU testing strip. TRUEYOU blood glucose testing strip. |
| purJ.   | WAVESENSE JAZZ duo pack strip. WAVESENSE JAZZ duo pack blood glucose testing strip. |
| purK.   | MYLIFE UNIO testing strip. MYLIFE UNIO blood glucose testing strip. |
| purL.   | ICARE ADVANCED SOLO test strip. ICARE ADVANCED SOLO blood glucose testing strip. |
| purM.   | AUTOSENSE testing strip. AUTOSENSE blood glucose testing strip. |
| purN.   | SURESIGN RESURE testing strip. SURESIGN RESURE blood glucose testing strip. |
| purO.   | TEE2 blood glucose test strip. TEE2 blood glucose testing strip. |
| purP.   | CONTOUR TS testing strip. CONTOUR TS blood glucose testing strip. |
| purQ.   | DARIO blood glucose test strip. DARIO blood glucose testing strip. |
| purR.   | GLUNEO test strip. GLUNEO blood glucose testing strip. |
| purS.   | GLUCOMEN AREO SENSOR strip. GLUCOMEN AREO SENSOR blood glucose testing strip. |
| purT.   | SUPERCHECK PLUS test strip. SUPERCHECK PLUS blood glucose testing strip. |
| purU.   | ONETOUCH SELECT PLUS strip. ONETOUCH SELECT PLUS blood glucose testing strip. |
| purV.   | ADVOCATE REDI-CODE+ test strip. ADVOCATE REDI-CODE+ blood glucose testing strip. |
| purW.   | ACCU-CHEK PERFORMA test strip. ACCU-CHEK PERFORMA blood glucose testing strip. |
| purX.   | IHEALTH test strip. IHEALTH blood glucose testing strip. |
| purY.   | GLUCOZEN AUTO test strip. GLUCOZEN AUTO blood glucose testing strip. |
| purZ.   | BETACHEK C50 test cassette. BETACHEK C50 blood glucose testing cassette. |