

PRSB Pilot Project

Diabetes Self-Management Information Standard

Technical Specification Document

Technical Specification Scope

Following the research and discovery phase of the project, the following list of sections from the standards has been determined as in-scope for the purpose of the Technical Specification Document created for the DigiBete App and Clinic Admin system.

PRSB Section	PRSB Standards Field Name	PRSB Standards Data Path
Demographics	NHS number	person demographics.nhs number
Demographics	Person First Name	person demographics.person name.person first name
Demographics	Person Family Name	person demographics.person name.person family name
Demographics	Date Of Birth	person demographics.date of birth
Demographics	Person's Email Address	person demographics.person's contact details.person's email address details.Person's email address
Social context	Smoking Status	Social context.smoking status.coded value
Social context	Smoking Status - details	Social context.smoking status - details
Social context	Alcohol intake	Social context.alcohol intake.coded value
About Me	What is most important to me	about me.what is most important to me
About Me	People who are important to me	about me.people who are important to me
About Me	How I communicate and how to communicate with me	about me.how i communicate and how to communicate with me
About Me	My wellness	about me.my wellness
About Me	Please do and please don't	about me.please do and please don't
About Me	How and when to support me	about me.how and when to support me
About Me	Also worth knowing about me	about me.also worth knowing about me
About Me	Date	about me.date
About Me	Supported to write this by	about me.supported to write this by
Assessments	Assessment Type	assessments.assessment record entry.assessments type
Assessments	Assessment Summary	assessments.assessment record entry.assessments summary
Assessments	Structured Assessment Name	assessments.assessment record entry.structured assessment.structured assessment name
Assessments	Assessment Score	assessments.assessment record entry.structured assessment.assessment result.assessment score
Medications and Medical Devices	Insulin Name	medications and medical devices.usual insulin dosing cluster.usual insulin record entry.insulin name
Medications and Medical Devices	Time Of Day	medications and medical devices.usual insulin dosing cluster.usual insulin record entry.usual insulin dose.time of day.coded value
Medications and Medical Devices	Value	medications and medical devices.usual insulin dosing cluster.usual insulin record entry.usual bolus calculations.usual insulin carbohydrate ratio.value

Medications and Medical Devices	ISF Coded Value	medications and medical devices.usual insulin dosing cluster.usual insulin record entry.usual bolus calculations.usual insulin sensitivity factor.coded value
Medications and Medical Devices	ISF	medications and medical devices.usual insulin dosing cluster.usual insulin record entry.usual bolus calculations.usual insulin sensitivity factor.value
Medications and Medical Devices	Dose Value	medications and medical devices.usual insulin dosing cluster.usual insulin record entry.usual insulin dose.value

Provenance Data

Alongside the above listed data items to be collected, the following items from the Provenance Data Standard has also been identified as relevant to the nature of data being collected. The following will be explored as part of the Technical Specification.

PRSB Section	PRSB Standards Field Name	PRSB Standards Data Path
Event Record	Person Name	event record.author.person.name
Event Record	Relationship	event record.author.person.relationship
Event Record	Professional Name	Event record.professional.name
Event Record	Professional Role	Event record.professional.role.coded value
Event Record	Professional Speciality	Event record.professional.speciality.coded value
Event Record	Professional Organisation Coded Value	Event record.professional.organisation.coded value
Event Record	Event Date	event record.event date
Event Record	Date Recorded	event record.date recorded

Top level integration pre-requisites

In order to implement standards within DigiBete, some top-level implementations that would need to be developed/integrated into the App and associated infrastructure as part of, or prior to full implementation of the standards have been identified. ***These have been detailed as part of the main project document.***

Implementing a HL7 FHIR data store and API

This would allow the system to integrate with the NHS England Terminology Server, a FHIR compliant solution which would allow us to meet the implementation guidance of the standards for many relevant categories to reference [SNOMED CT](#) codes and [dm+d](#).

Integrating with NHS Login

This would allow users of the app to access DigiBete using the NHS login, providing DigiBete with the following benefits:

- Using a trusted and secured identity platform
- Choosing a proper level of end user verification
- Displaying a brand name the public recognises
- Meeting the Identity Verification and Authentication Standard (DCB3051)

This would also allow DigiBete to follow the PRSB standards guidance regarding the Personal Demographics Service (PDS); DigiBete can use the PDS as the source of *Person Demographic* information

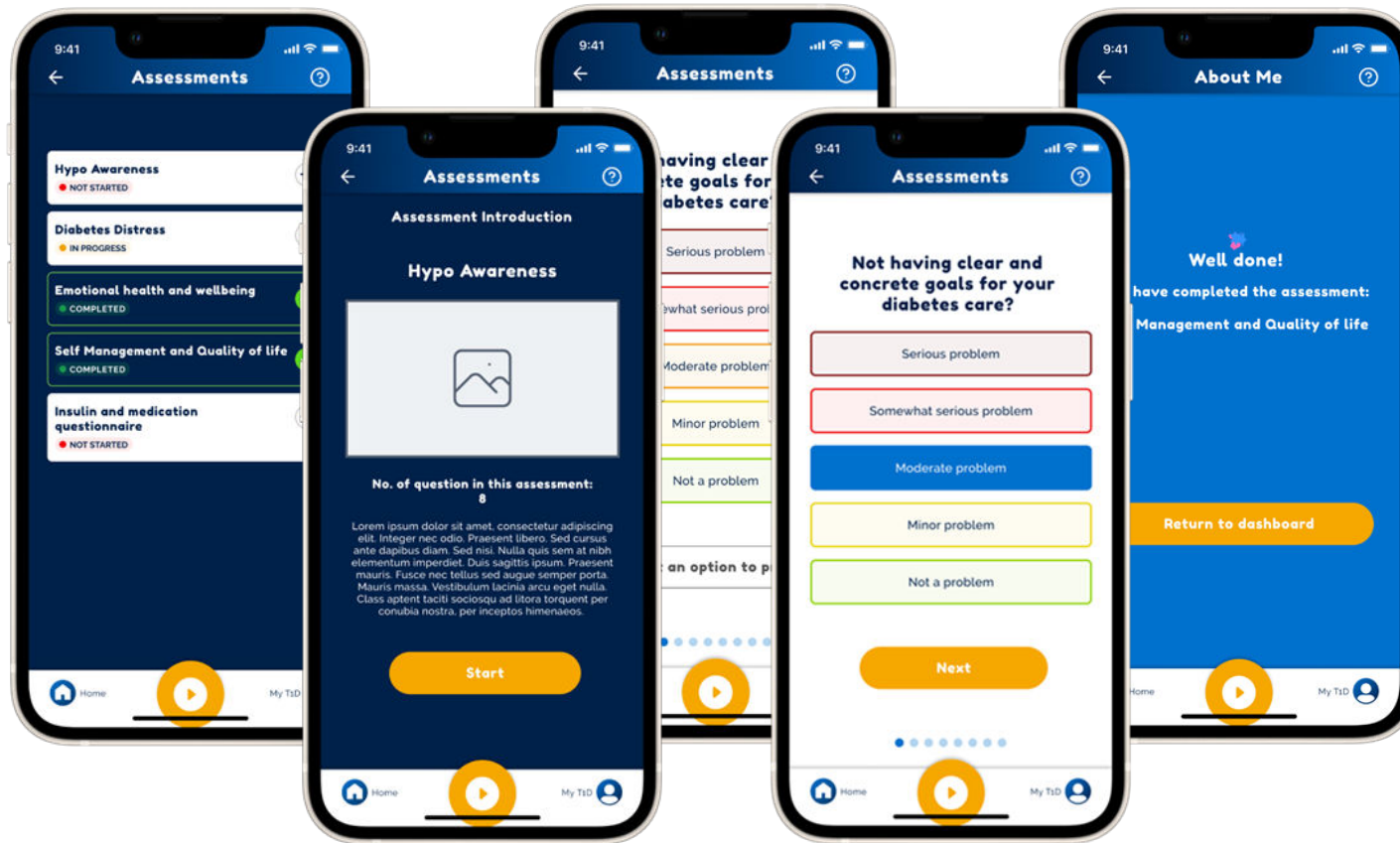
Prototype Designs

App Prototype [Accessible via this link](#)

About Me



Assessments



Technical Specification

Person Demographics

PRSB Standards Field Name	DigiBete Field Name	Value Set/Data Type	Comments
NHS number	NA	NHS data dictionary:- NHS number	To be made available following implementation of the NHS Login & Patient Demographic Service integration. <i>Note: Due the use case of Parents being the user of the app on behalf of their children, one proposed solution is to use Formal Proxy Access, which would sill require further R&D to understand the full user journey and limitations in practice.</i>
Person First Name	patient_given_name	NHS data dictionary :- Person given name	No amends required, currently collect Patient Given Name as part of Registration Process
Person Family Name	patient_family_name	NHS data dictionary :- Person family name	No amends required, currently collect Patient Family Name as part of Registration Process
Date Of Birth	patient_dob	NHS data dictionary:- Person birth date	No amends required, currently collect Patient Date of Birth as part of Registration Process
Person's Email Address	email	NHS data dictionary:- Contact Email Address	Similarly to the comments made for the "NHS Number" field, the patient may not have an email address, and Formal Proxy Access may be used, with the app user having a different email address.

Applicable Provenance Data

PRSB Standards Field Name	Value Set/Data Type	Comments
Person Name	Free text	App Profile user name to be used
Relationship	FHIR valueset 'UKCorePersonRelationshipType'	Current app only accommodates single 'Parent/Carer' relationship value, to be mapped to FHIR valueset 'UKCorePersonRelationshipType' . If no relevant value applicable, free text to be used
Date Recorded	Date	Date automatically captured at point of registration or app profile update

Social Context

PRSB Standards Field Name	DigiBete Field Name	Value Set/Data Type	Comments
Smoking Status	NA	SNOMED CT:- ^999000891000000102	<p>New select field to be implemented referencing fixed SNOMED CT IDs – To be agreed.</p> <p>Vaping codes will also be included:</p> <ul style="list-style-type: none"> • 722499006 Electronic cigarette user (finding) • 35361000087100 Ex-electronic cigarette user (finding) .
Smoking Status - details	NA	Free text	New free text field to be implemented
Alcohol intake	NA	SNOMED CT ID	<p>New select field to be implemented referencing fixed SNOMED CT IDs from implementation guidance:</p> <ul style="list-style-type: none"> • 219006 Current drinker of alcohol (finding) Descendant or self of concept. • 105542008 Current non-drinker of alcohol (finding) Descendant or self of concept. • 783261004 Lifetime non-drinker of alcohol (finding) Equal of concept. • 371434005 History of alcohol abuse (situation) Equal of concept. • 1104551000000109 Declined to provide information about alcohol use (situation) Equal of concept.

Applicable Provenance Data

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Event Date	Date	Date automatically captured at point of data entry/update
Date Recorded	Date	Date automatically captured at point of data entry/update

About Me

The About Me Design Prototype uses a mixture of multi-line free text fields, multi-check box data and dropdown fields input types to collect user reported data. Data will be parsed from the non-free text data capture fields to a free-form text entry (free text field) for storage in the database.

PRSB Standards Field Name	DigiBete Field Name	Value Set/Data Type	Comments
What is most important to me	NA	Free text	New free text field to be implemented
People who are important to me	NA	Free text	New Multi-Choice check box field to be implemented, with additional value for "Other" where user can enter single line free text value.
How I communicate and how to communicate with me	NA	Free text	New free text field to be implemented
My wellness	NA	Free text	New free text field to be implemented
Please do and please don't	NA	Free text	New free text field to be implemented
How and when to support me	NA	Free text	New free text field to be implemented
Also worth knowing about me	NA	Free text	New free text field to be implemented
Date	NA	Date and Time	A UTC Timestamp will be automatically stored when About Me record saved

Supported to write this by	NA	Free text	New free text field to be implemented. However this will not be presented to the user. It will be left empty if the user is a 'Patient' user type. However if the user is a Parent (or other family member) using the Formal Proxy Access, it will be populated with their name, relationship to the patient and account email address.
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Applicable Provenance Data

PRSB Standards Field Name	Value Set/Data Type	Comments
Person Name	Free text	App Profile user name to be used
Relationship	FHIR valueset 'UKCorePersonRelationshipType'	Current app only accommodates single 'Parent/Carer' relationship value, to be mapped to FHIR valueset 'UKCorePersonRelationshipType' . If no relevant value applicable, free text to be used
Date Recorded	Date	Date automatically captured at point of data entry/update

Assessments

For an initial implementation, our proposed solution is to provide a limited set of Assessments for app users to complete within the app. A period of consultation between DigiBete and Clinics will be used to determine the applicable selection of Assessments to be made available.

App users will be able to:

- Navigate to the Assessments area of the MyT1D section
- Be presented with a list of applicable Assessments to them
 - This is likely to use the patient’s Age or Clinic Location to determine the assessments that show
- Complete the Assessments completely within the app
- Submit their Assessment result, so they can view in the app, and provide their Clinic with visibility of the result
 - This would display in the DigiBete Clinic Admin
- Complete the same assessments again – once a pre-determined time period has elapsed (e.g for Annual Review Assessments).

The following will be stored on the Patient level database record once an assessment has been completed.

PRSB Standards Field Name	DigiBete Field Name	Value Set/Data Type	Comments
Assessment Type	NA	Free text	Free text will be used for the Assessments table on the Database
Assessment Summary	NA	Free text	Free text will be used for the Assessments table on the Database
Structured Assessment Name	NA	SNOMED CT 273249006	Free text can be used if no SNOMED Code is applicable
Assessment Score – Coded Value	NA	SNOMED CT 363787002	Free text can be used if no SNOMED Code is applicable
Assessment Score - Value	NA	Enumerated value e.g. numeric, natural numbers.	e.g If the coded value was Gold Score under 'Hypoglycaemia awareness or fear', an integer value between 0-7 would be captured.
Assessment Score – Units of Measure	NA	UCUM Code	TBD dependent on agreed assessments to implement.
Assessment - Ordinal Result	NA	SNOMED CT	Free text can be used if no SNOMED Code is applicable or available

Subscale Score – Coded Vaue	NA	SNOMED CT 363787002	Free text can be used if no SNOMED Code is applicable
Subscale Score - Value	NA	Enumerated value e.g. numeric, natural numbers.	e.g If the coded value was Gold Score under 'Hypoglycaemia awareness or fear', an integer value between 0-7 would be captured.
Subscale Score – Units of Measure	NA	UCUM Code	TBD dependent on agreed assessments to implement.
Subscale - Ordinal Result	NA	SNOMED CT	Free text can be used if no SNOMED Code is applicable or available

Applicable Provenance Data

PRSB Standards Field Name	Value Set/Data Type	Comments
Person Name	Free text	App Profile user name to be used
Relationship	FHIR valueset 'UKCorePersonRelationshipType'	Current app only accommodates single 'Parent/Carer' relationship value, to be mapped to FHIR valueset 'UKCorePersonRelationshipType' . If no relevant value applicable, free text to be used
Event Date	Date	Date automatically captured at point of submission
Date Recorded	Date	Date automatically captured at point of submission

Medications and Medical Devices

PRSB Standards Field Name	DigiBete Field Name	Value Set/Data Type	Comments
Insulin Regimen – Coded Value	NA	SNOMED CT	Depending on which screen the user is inputting the information, the correct Coded value will be inferred from this as user can either enter Long Acting or Fast Acting Insulin values. Identified SNOMED CT Values: 1516051000000103 – Basal Insulin Regime 1516061000000100 – Basal/bolus regime
Insulin Name	My Fast Acting insulin (bolus) is My Long Acting insulin (basal) is	SNOMED CT dm+d AMP Concept	A look up can be performed on the dm+d data to present the user with all Fully Specified Names of insulin. Note: it was raised as part of the discovery that app users may only know Insulin by ‘Trade Family Group Name’ Free text field could be used as intermediary solution.
Time of Day	Meal Time	SNOMED CT	The time entered (HH:MM) currently in the app can be used to determine the relevant SNOMED code to be used: 307160001 Breakfast time (qualifier value) For meal related insulin doses at breakfast. 307162009 Lunch time (qualifier value) For meal related insulin doses at lunch. 307163004 Evening meal (qualifier value) For meal related insulin doses at evening meal. 307164005 Snack time (qualifier value) For meal related insulin doses at 'other' meals times i.e. 'snacks' * The following will be used to determine the code used: Breakfast. Any bolus administered between 05.30 and 10.29. E.g., a bolus dose at breakfast. Lunch. Any bolus administered between 10.30 and 15.29. E.g., a bolus dose at lunch.

			<p>Evening meal. Any bolus administered between 15.30 and 22.59. E.g., a bolus dose at evening meal.</p> <p>Other. Any bolus administered between 23.00 and 05.29 E.g., bolus dose given at other times (i.e. with snacks). This includes overnight.</p>
Usual Insulin Dose – Value	Long Acting Insulin – Units	Value	
Usual Insulin Dose Units of Measure	NA	UCUM Code	<p>UCUM Code = [IU]</p> <p>See: UCUM code * Description of the unit Parent PRSB Element Implementation guidance</p> <p>[IU] international unit ** Usual insulin dose Systems must display 'unit(s)' or 'international unit(s)' without abbreviation.</p>
Usual Carbohydrate Intake Coded Value	Time	SNOMED CT	<p>The time entered (HH:MM) currently in the app can be used to determine the relevant SNOMED code to be used: 1003631002</p> <p>Estimated quantity of carbohydrate intake in one meal - breakfast (observable entity) Estimated quantity of carbohydrate intake in one meal - lunch (observable entity) Estimated quantity of carbohydrate intake in one meal - evening meal Estimated quantity of carbohydrate intake in one meal - other</p>
Usual Carbohydrate Intake Value	G Carbs	Value	
Usual Carbohydrate Intake Units of Measure	NA	UCUM Code	<p>UCUM Code = g</p> <p>See: UCUM code * Description of the unit Parent PRSB Element Implementation guidance</p> <p>g gram Usual carbohydrate intake. No specific guidance.</p>
Usual Insulin Sensitivity Factor Coded Value	time_#		<p>The time entered (HH:MM) currently in the app can be used to determine the relevant SNOMED code to be used: 768161000000100 Insulin sensitivity factor - breakfast (observable entity) 768171000000107 Insulin sensitivity factor - lunch (observable entity)</p>

			<p>768181000000109 Insulin sensitivity factor - evening meal (observable entity) New code request Insulin sensitivity factor - other (observable entity)</p> <p>The following will be used to determine the code used: Breakfast. Any bolus administered between 05.30 and 10.29. E.g., a bolus dose at breakfast. Lunch. Any bolus administered between 10.30 and 15.29. E.g., a bolus dose at lunch. Evening meal. Any bolus administered between 15.30 and 22.59. E.g., a bolus dose at evening meal. Other. Any bolus administered between 23.00 and 05.29 E.g., bolus dose given at other times (i.e. with snacks). This includes overnight.</p>
Usual Insulin Sensitivity Factor Value	ratio_#	Value	
Usual Insulin Sensitivity Units of Measure	NA	UCUM Code	<p>UCUM Code = mmol/[IU]</p> <p>See: UCUM code * Description of the unit Parent PRSB Element Implementation guidance</p> <p>mmol/[IU]. millimole per international unit ** Usual insulin sensitivity factor. New UCUM code required. This is the UK standard unit. Can also be recorded as how many units required to lower plasma glucose by 1 mmol/L.</p>

Applicable Provenance Data

PRSB Standards Field Name	Value Set/Data Type	Comments
Person Name	Free text	App Profile user name to be used
Relationship	FHIR valueset 'UKCorePersonRelationshipType'	Current app only accommodates single 'Parent/Carer' relationship value, to be mapped to FHIR valueset 'UKCorePersonRelationshipType' . If no relevant value applicable, free text to be used
Event Date	Date	Date automatically captured at point of data 'saving'
Date Recorded	Date	Date automatically captured at point of data 'saving'

