

HIESTM The Book

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WHAT IS HES?

The Hospital Episodes Statistics (HES) system is a powerful database containing personal, medical and administrative details of all patients admitted to, and treated in, NHS hospitals in England. This information has a host of uses including...

- Policy development.
- Illustrating variations in health status and health delivery through time and across geographic area.
- Providing answers to Parliamentary Questions (PQs).
- Production of comparative statistics to assist in performance management.
- Medical research - HES contains a wealth of information of use to clinicians and others who are developing new treatments, investigating causal factors and monitoring trends.
- Helping to determine how much of the taxpayers money should be spent on healthcare, and how it should be distributed.

In order to increase access to HES, tables summarising the data are published annually by the Department, and those for the 1994/95 datayear onwards will also be available in electronic form.

The records are collected from all hospital providers in England (Scotland and Wales have their own systems) and amalgamated on an annual basis - there were just over 10 million for 1994/95 (that's April 1994 to March 1995). [Graphic 1](#) gives an idea of what is contained in each general record (more about the other types later). There are 40 items of information (fields), including some of the patients personal details (age, sex and usual place of residence), information about their admission to hospital (for instance, were they an emergency case, or had they been on a waiting list?), and clinical data such as the diagnoses and details of any operations. 11 of the 40 fields provide purely clinical data. Technically, HES is a subset of the *Contract Minimum Data Set* (CMDS) - the 100 or so items which are required by purchasers and providers of healthcare to manage contracting within the internal market. The full CMDS contains personal identifiers such as the patients name, but most of these are excluded from the HES dataset.

See the entry in [Technical Appendix](#) which provides information on past datayears. Note that considerable caution should be exercised when making comparisons between data-years, and in the production of time series reports. Variations in the way HES records have been collected, and changes in the structure of NHS organisations need to be fully taken into account. Please, therefore, seek advice from Statistics Division before proceeding with such work.

Consultant Episodes

Virtually all hospital in-patients are assigned to a Consultant who is responsible for their treatment ([MAINSPEF](#)), and their period of care under a Consultant is termed a "Consultant Episode" (CE - but see also *Finished Consultant Episode* , or FCE). In the majority of cases, patients are treated by just one Consultant during their stay in hospital, known as a "spell". For these patients, there will be only one CE, and therefore only one HES record containing details of their spell.

If primary responsibility for a patient is transferred from one Consultant to another during a spell, which happens in about 5% of cases, then a new HES record must be completed. This means that the total number of CEs will generally exceed the number of spells.

A Brief HESStory of Time

Time is a very important measure of efficiency and effectiveness within the health service. Each episode has a duration, and this is calculated by subtracting the date that the episode started (recorded in the **EPISTART** field) from the date the episode ended (**EPIEND**). The result of this subtraction - a figure representing a whole number of days - is placed in the EPIDUR field. **EPIDUR** is therefore classified as a *derived* field.

Because EPIDUR is merely the difference between two dates (EPISTART and EPIEND), the figures obtained often require careful interpretation. For example, if someone is admitted to hospital in the early hours of the morning for observation following a road accident, and is discharged later the same day, the duration of that episode is zero days, even though the patient may have occupied a bed for several hours (i.e. because EPISTART and EPIEND contain the same date). An EPIDUR of zero days will also result where someone is admitted to hospital for an operation, but due to unforeseen circumstances the operation must be cancelled, and so the patient is sent home later the same day.

HES data is split into years, which run from the 1st of April to the 31st March in the following year (i.e. the 1994/95 HES year covers 1/4/94 to 31/3/95) and the file for each year contains records for every episode where EPISTART and/or EPIEND fall within that period. In most cases, patients' will be both admitted and discharged from hospital during the same year - the median duration of a spell is currently just 3 days (although this overall figure conceals the fact that for certain consultant specialties, for example geriatric medicine, the median is considerably higher). Therefore, around 97% of Consultant episodes will end during the HES year in which they started and so are recorded as *Finished* Consultant Episodes (FCEs). Where someone is *not* discharged before the end of the year - perhaps because they were admitted in late March - the hospital will submit a record of the unfinished episode, which will not contain any clinical data like diagnosis. You can tell whether an episode was finished at the end of the HES year by looking at the **EPISTAT** (Episode Status) field.

Hospital stays which straddle HES years

Our neat view of the World is threatened by people who enter hospital in one HES year, but do not leave until the next (these patients will generate an **unfinished** record at the end of the HES year in which they were admitted). Remember, unfinished records are partial - they rarely carry any clinical data, ie. Diagnosis or Operative procedure, and so should not be used in clinical analysis. The consultant specialty, however, (**MAINSPEF**) is included. When the patient is discharged, a separate, finished HES record will be constructed for their "second" HES year. This will have the same **EPISTART** as the first record and so this date tells us that they were admitted in the previous HES year.

But why do we need two records in these cases, especially when the first (unfinished) record is only partial anyway? Surely it would be better to have just one record, completed during the year in which the patient is discharged? The answer to these questions is that unfinished episodes are an integral part of both hospital information systems and HES itself, and they allow us to obtain a more complete picture of hospital activity within a particular year than would otherwise be possible.

In many HES analyses the unfinished records are simply ignored - this avoids the possibility of double counting patients when time series data for two or more consecutive years is being formulated. However, there are three main instances where they are included:

- We may wish to know how many people were *admitted* to hospital in a particular year.
- The calculation of **waiting time** statistics for those admitted during the year.
- The total number of days that beds were occupied by patients in a given year - "Beddays" (think of "Mandays", it's the same idea). This figure, which is a useful measure of hospital activity for administrators and policy divisions, must include the **EPIDURs** of unfinished records (**BEDYEAR**).

Spells

If the primary responsibility for a patient is transferred from one Consultant to another, a new episode will commence. The patients total stay in hospital - known as a "spell" - will now comprise more than one episode, with the **EPIEND** of the first being the same as the **EPISTART** of the second. To aid analysis of spells, Episodes are given an order number (**EPIORDER**) - the first will be 01, the second 02, and so on.

In order to calculate the duration of a spell, we use a similar method to that employed for **EPIDUR**. The fields involved this time are **ADMIDATE** - Date of Admission, and **DISDATE** - Date of Discharge. Subtracting ADMIDATE from DISDATE gives the spell duration in days. Around 95% of spells consist of just one episode and in all these cases the duration of the spell is exactly the same as **EPIDUR**. Where there is more than one episode in a spell, ADMIDATE is copied forward from the first, to all subsequent episodes. The final episode will therefore contain both ADMIDATE and DISDATE, so the spell duration in days can be calculated by extracting these two dates, both of which will be found in the final episode.

Aggregated totals of episodes and spells do need careful interpretation. For example, if a patient leaves hospital after a two episode spell in July, and is then re-admitted a few days later, he will commence a new hospital spell. The first episode of this (second) spell will be numbered 01 - not 03, even though it is his third episode in the same HES year. This teaches us that counting Episodes and Spells is not the same as counting patients: a person who is seriously ill may have a number of separate episodes in a single year. So, if the question is *"how many people received treatment as hospital in-patients during the 1993/4 HES year"*, the figures obtained by counting Episodes, or even Spells, would be too large (i.e. because individual patients get counted more than once). This problem arises partly because there is at present no procedure for linking episodes that relate to an individual patient, even within the same spell.

Breaking the Spell

When a patient is transferred from one hospital to another, they have technically been discharged from the first and *admitted* to the second. This shift in responsibility dictates that a new 'hospital provider spell' must be started following the transfer. In such cases **DISDATE** on the last episode of the spell in the first hospital will usually be the same as **ADMIDATE** on the first episode of the new spell in the second hospital. Note that "hospital" is shorthand for *hospital provider* - this may be an NHS trust, for instance, that comprises a number of separate hospital sites and buildings. If a patient is moved from one site to another *within the same hospital provider*, the spell is not broken. However, if there is a change in the patients consultant, a new episode will begin within the same spell.

The Big Picture

Graphic 2 shows 10 spells. Some comprise a single episode, others multiple episodes. The time frame spreads over three HES years, but we will concentrate on the implications for 94/95 (1st April 1994 to 31st March 1995). **Spell A** is the easiest to deal with because this very co-operative patient was both admitted and also discharged *during the year*. Furthermore, he or she remained under the care of the same consultant for the whole of their stay. This means that there will be just one HES record for A, the whole spell being encompassed by a Finished Consultant Episode (FCE). **E and I** are similar, in that these spells both began, and ended, within the year. However, as primary responsibility for the Patient in E was transferred to another Consultant during the spell (notice the break in the red line), there will be two records - each one detailing a separate FCE. For I, there will be three. Although multiple episode spells are in the minority, it is important to remember that they do occur, and so a count of episodes or spells is not the same as a count of patients.

Spell B straddles 94/95 and 95/96. As the patient is still in hospital on 31/3/95, an unfinished record will be constructed for 94/95. Remember, though, that the unfinished record is only partial, and we will not be able to obtain any clinical information for this patient by looking at the 94/95 HES file (this causes problems when trying to obtain clinical information on people who have remained in-patients for a number of years but a solution has been devised for **certain psychiatric patients**). As spell B ends during 95/96, a full record detailing the whole of this FCE, including events such as the admission which actually took place during 94/95, will be submitted for the 95/96 HES file. Looking at B in isolation might suggest that the 94/95 file presents a rather lopsided view of hospital activity during the year. However, **spell C** provides a nice counterbalance! Here, a single episode spell which began in 93/94 leads to a full record of the FCE being submitted in 94/95.

The median length of stay in hospital is just 3 days, but a small number of people require very prolonged hospitalisation. **Spell D**, a stay of around 18 months, is interesting because although the patient spent the *whole* of 94/95 in hospital, only an unfinished record will be submitted for this year. A full record, giving all clinical and administrative information for the spell will be found in the 95/96 file. Note that there will also be an unfinished record in the 93/94 file. Just to show how complicated things *can* become - take a look at **spell H**. Superficially, it is very similar, but whereas the patient in D remained under the care of the same consultant, H is a two episode spell. As the first episode of H finished in 94/95, there will be a full record detailing this in the 94/95 file. For the second episode, there is an unfinished record in 94/95 and a full record in 95/96. Adding the unfinished record for 93/94 brings the total for this one spell to 4! Spells **F, G and J** illustrate further variations for spells of two and three episodes.

Vital Statistics

Lets assume that graphic 2 represents all hospital in-patient activity during 94/95. The Rt. Hon. J Beadle, MP has just tabled a Parliamentary Question (PQ) asking, "how many people were treated in English NHS hospitals during 94/95". In fact, we cannot answer the question, "how many people..." using HES data as we do not have enough information to link separate episodes or spells. However, there are alternatives.... In order to try and be fair, we could start by counting only the episodes for people admitted during 94/95. This gives a total of 9, and includes [spells A, B, E, G and I](#) . The figure is, of course, ridiculous because the patients represented by E and G have been counted twice, and I three times. We can improve things by only counting the first episode in each of the relevant spells ([EPIORDER = 01](#)) - this reduces the count to 5.

Although 5 is definitely a possible answer, there are others:

- Discharges during 94/95 - 6 ([A, C, E, F, I and J](#))
- Bed days during 94/95 - 10 (every spell!)
- FCEs in 94/95 - 8 ([A, C, E, F, G, H, I and J](#))

In practice, the answer given depends very much on our interpretation of the question, and whether there is a precedence (i.e. has the same, or a very similar question already been answered), or any agreements within DH reached for the purpose of standardising such replies. When drafting a reply to a PQ, it is usually a good idea to include an explanation of how the figure was arrived at. In other cases, it may be necessary to talk to the enquirer before deciding on a methodology - much depends, after all, on why, and for what, the information is required. Even after careful consideration of the options available, the final reply must often be qualified by a statement explaining that the answer does not give *precisely* the information requested, but is the nearest approximation available given the way in which data is collected centrally.

Method of Admission and Waiting Time

The Method of Admission field - [ADMIMETH](#) will contain one of nine possible codes. These fall into three distinct groups:

- Elective
- Emergency
- Others

When somebody must be admitted to hospital immediately (other than where a woman is admitted purely because she is about to give [birth](#)) it is classified as an emergency. Although this term conjures visions of car crashes and wailing ambulance sirens, it is also possible for patients to be admitted immediately from an outpatient or other clinic, if the consultant in charge decides that the case is so serious - perhaps because of a sudden and unexpected deterioration - and there is simply no alternative to immediate in-patient treatment.

An admission is elective if the patient has been waiting for treatment. Most patients admitted in this way have been waiting for a hospital resource, such as a bed or a particular consultant, to become available. They would therefore have been included on a hospital waiting list. A smaller group, who are *not* included on the waiting list, are those who are waiting for clinical reasons - these admissions are known as planned. An example of this would be a patient, whose broken leg was mended by means of a steel pin, returning to hospital a few weeks later to have the pin removed. In this case it was necessary to allow time for the bone to heal, but the patient did not have to occupy a hospital bed while this was happening. As the patient has merely been waiting for nature to take its course, and as his/her consultant would have dictated in advance the best time for them to return, this is clearly not a waiting list case. Another example of planned admission is where radiotherapy treatment has been arranged for a cancer sufferer. The radiation must be delivered in a sequence of measured doses, with necessary gaps between sessions for recovery and stabilisation.

Questions in the House....

For all elective admissions, whether the patient has been waiting for a resource, or for clinical reasons, the date it was decided to admit the patient is recorded. This field is known as **ELECDATE**, and the difference in days between that date and the date of admission becomes the waiting time (**ELECDUR**). The waiting time of planned admissions is rarely analysed. Clearly, it will vary from case to case depending on a number of factors, and has little meaning outside complex epidemiological studies. In contrast, the waiting time of those waiting for a resource is of great importance, and is the subject of numerous enquiries.

As with other admission data, the date it was decided to admit the patient (**ELECDATE**) and the number of days waiting (**ELECDUR**) are recorded on the first episode, and then copied to any subsequent episode(s) in the same spell. This enables us to obtain waiting information by looking at any episode - remember, there is no mechanism for linking episodes which relate to the same patient. It is vital, therefore, when analysing waiting time to look only at the data for the first episode of a spell (**EPIORDER** = 01). To calculate, say, the average waiting time of all HES records would result in data being counted more than once in respect of certain admissions (eg. spells E and I in [graphic 2](#)). An analysis of waiting time for a given HES year must include only those admissions which occurred during the year (ie. **ADMIDATE** is during the year). To include all episodes where **EPIORDER** = 01, irrespective when the patient was admitted, would result in spells **C, F, H and J** - all for patients admitted during the previous year - being erroneously included. Clearly, if we are trying to detect and analyse small changes in say, the mean waiting time from year to year it is vital to select only those admissions which actually took place within each year.

More on Waiting Time

It is very common for an enquirer to ask what is the average waiting time for, say, a hip operation, or for heart surgery. This highlights three important concepts, all of which need to be considered. Firstly, a patient on a waiting list is not, strictly speaking, waiting for a specified treatment - they are merely waiting to see a doctor. Only once the patient has been admitted to hospital will a doctor decide on an appropriate form of treatment, or **operation**. This is, perhaps, a fine distinction, but one that can sometimes be significant. For example, a patient with heart disease may be placed on a waiting list because it has been decided that they require surgery. However, the decision as to which of the many types of heart repair is appropriate may not be made until after the patient has been admitted and then undergone further tests. Therefore, if somebody asks what the waiting time is for a particular type of heart valve repair, we may have to qualify our answer by explaining that the result is very much a product of hindsight. This also applies when analysing waiting time by **diagnosis**. After all, it is not unknown for people to be admitted to hospital in order to find out *what* they are suffering from.

Because unfinished records do not contain any **clinical data**, we cannot easily provide analyses of waiting time by diagnosis or operation where the request is for waiting time data in respect of patients admitted *during the year*. For instance, example B in **Graphic 2** shows a patient for whom we have only an unfinished record within 94/5. However, the consultant specialty (**MAINSPEF**) is entered on unfinished records and so "waiting time by specialty" poses no such problems.

The *average*, or *mean*, waiting time does not necessarily give a true picture of the service provided for the majority of patients. This is because there will often be a very small number of patients with very long waiting times. The answer is to quote the **median** waiting time instead or, at the very least, to qualify the average.

Patient classification

There are three classes of patient:-

- Ordinary Admissions
- Day Cases
- Mothers and Babies using delivery facilities only

Each HES record therefore has a patient classification field ([CLASSPAT](#)). The third group listed above are extremely rare and it could be argued that a strict interpretation of the [Data Manual](#) , Technical Module volume 2 - flowchart at D1/10 would lead to no in-patients receiving this classification. However, a few of these records are to be found in HES, and they must be included if we are seeking to capture all [birth events](#) . Almost invariably, these patients are treated as ordinary admissions, and are simply added in to the first group.

Day cases are [elective](#) in-patients who, not surprisingly, have been admitted for treatment just for the day. They will always be single episode spells with a duration of zero days, whether measured by [EPIDUR](#) or [SPELDUR](#). In order for an in-patient be classified as a day case, it is essential that there is a clear intention for the treatment to be concluded in one day. If, unexpectedly, the patient is kept in overnight, they must be re-classified as an ordinary admission. The large majority of in-patients are ordinary admissions.

Operations and Diagnosis

All HES records, excepting those for unfinished episodes (but see [psychiatric episodes](#)), contain details of the diagnosis, and any operations performed on the patient. Collectively, these fields provide the all important **clinical data**. Each episode has a primary diagnosis (**DIAGNSIS**) - *the main reason why the patient is in hospital*. There are six further diagnosis fields, the first to record any subsidiary diagnosis, leaving five for secondary diagnoses. The subsidiary and secondary fields are used to record other diseases, conditions or complications: this means that HES is able to cope with patients who have more than one thing wrong with them, and there is plenty of room in each record to elaborate on the primary diagnosis. For example, where the primary diagnosis is a broken femur, osteoporosis may be recorded as a complication. Similarly, a birth event can be complicated by the baby being in an abnormal position; here, the mothers primary diagnosis would show the method of delivery and the complication would be entered as a subsidiary diagnosis.

Clinical Coding

Putting aside the problem of doctors' handwriting, it would be difficult to store the full English or Latin name of every diagnosis and operation. "Baron Munchhausen Syndrome" boasts no less than 24 letters, and there is always the possibility that someone will use a slightly different spelling, or substitute other words having the same meaning. Therefore, even if the HES database had unlimited capacity to retain and search text, it would be virtually impossible, when constructing enquiries, to take account of all the possible descriptive variables that clinicians might use.

This problem is solved by using sets of alpha-numeric codes. Diagnosis is coded in either ICD9 or, from April 1995, ICD10 (The International Classification of Diseases, 9th and 10th revisions). The codes for Baron Munchhausen Syndrome are 301.5 (ICD9) and F68.1 (ICD10) - now go and impress your friends! These codes clearly use a lot less record space and are much easier to search for. ICD also allows for the pairing of certain codes, so that the two may be quoted together in order to convey more information - see the notes on the [Dagger and Asterisk](#) system. Operations are coded using OPCS-4.2 (The Office of Population Censuses and Surveys Tabular List of the Classification of Surgical Operations and Procedures - normally referred to as just [OPCS4](#)). Consulting OPCS4, we find that "Percutaneous transluminal balloon angioplasty of aorta" is neatly reduced to L26.1.

Diagnostic Analysis

If we are going to provide answers to questions such as, "how many in-patients were diagnosed as suffering from XYZ during 94/95" it is necessary, if only for the sake of consistency, to employ common standards when deciding which episodes to count. Also, we will probably have to qualify any answer given with an explanation of how the figures were produced. The original question may, after all, be vague and open to interpretation. In some cases it may not be possible to give a literal answer simply because HES stores information divided into consultant episodes - it does not deal directly in "patients" or "stays in hospital". Finally, the fact that each record has space for seven separate diagnoses can present another dilemma.

For the sake of consistency, the standard adopted - unless the questioner specifically demands something different - is to look only at the *primary diagnosis* field of those episodes which *finished during the year*. Counting FCEs means that we will inevitably include a few patients who were admitted the previous year, or even earlier, but this is counterbalanced by the fact that those who remain in hospital until the following year are not counted (this works just fine, because the latter group are only represented by unfinished episodes which, remember, rarely carry [clinical data](#) anyway). By way of a summary, the spells in [graphic 2](#) which would contribute to the finished episode count are [A](#), [C](#), [E](#) (both episodes), [F](#) (second episode only), [G](#) (first episode only), [H](#) (first episode only), [I](#) (all three episodes) and [J](#) (all three episodes). A consequence of the standard approach, which may seem slightly odd at first, is that because the same primary diagnosis may well be recorded on two or more episodes which form part of the same multi-episode spell, the count of primary diagnoses will frequently exceed the number of individual *patients* who have been given the primary diagnosis of interest. But remember, HES was designed to measure activity, rather than count patients.

Learning How to Count

By counting the instances of a particular diagnosis only where it is entered in the primary field, we are of course ignoring those cases where the diagnosis has been entered in the subsidiary or secondary fields. However, if we are asked "how many episodes are there detailing treatment for XYZ", this is a reasonable approach. XYZ could, of course, be entered in either the subsidiary or secondary fields of some records, but because these fields do not indicate the main reason why the patient is in hospital, they are ignored. In order to understand why this should be so, we need to understand how the subsidiary and secondary fields are used. There are three main possibilities:

- They allow the primary diagnosis to be elaborated upon, thus providing a more complete picture of the patients condition. The use of asterisk and dagger codes is an aspect of this.
- To record other conditions or injuries which are not directly related to the primary diagnosis (except, perhaps, through the cause eg. following a car crash), but which nevertheless demand specific hospital in-patient treatment in addition to that necessary because of the primary.
- Conditions which are nothing to do with the primary, and do not require in-patient treatment. For instance, if a patient with a broken arm is diabetic, this may appear as a secondary diagnosis - simply because the consultant has been conscientious in noting the fact in the patients' records. Remember, however, that in many cases the condition described by the secondary diagnosis will influence the treatment given.

The first group shows that it is important to choose the appropriate code(s), or range(s) of codes when carrying out a diagnostic analysis. There is obviously little point in searching the primary field for a code that would normally be used only to qualify a primary diagnosis.

The second group illustrates the fact that by following the convention of looking at the primary only, we may under count slightly. For instance, if the question is, "how many records are there for patients who received treatment for broken legs" a record where a broken leg is given as a subsidiary or secondary diagnosis will not be counted. For example, imagine patient with a broken leg who has received multiple injuries in a car crash - here, the primary diagnosis might well relate to (more serious) head injuries.

The third group explains why it is normally appropriate to look only at the primary. If the question was, "how many records are there for patients who have received in-patient treatment for diabetes" it would be important to exclude the last example from our count. Looking only at the primary ensures this.

Finally, a word of warning. Diagnostic analysis is a complex field, and the examples given above merely provide pointers - they do not tell the whole story. Before attempting to answer any enquiry, ask yourself whether you are really competent to appreciate every nuance of the problem, and remember, expert advice is always available from the appropriate sections.

"You won't feel a thing...."

The HES record contains fields allowing up to four operations to be recorded, as it is not uncommon for more than one operative procedure to be performed during the same episode - often during the same theatre visit ([OPERATN](#)). The main, or 'principal', operation should be the one which is the most resource intensive, even though this may have been performed last. For example, it would be unusual to undertake a mastectomy without first performing a biopsy. If these operations took place during the same episode, the "bigger" surgical procedure - the Mastectomy, would normally be recorded as the main operation, even though it obviously followed the biopsy. Therefore, when counting instances of comparatively simple exploratory procedures like biopsies or endoscopic examinations, it is important to look at both the main and all the secondary operation fields (But remember that the figures you get will probably be higher than those given in the standard end of year tables because these normally provide the number of main operations only).

Operations can be counted by looking either at the main operation field in isolation (bearing in mind that this is likely to markedly under count certain operations); or by looking at all the operation fields. There are also instances where more complex approaches are demanded. For example, It may be necessary to ascertain in how many instances a particular main operation was accompanied by certain secondary procedures. Needless to say, the need for caution highlighted in ["learning how to count"](#) applies equally to the analysis of operations.

Maternity

The HES record for the mother is known as a Delivery Record. It contains the same data as a general record but has 19 additional fields for information about the delivery. The extra fields are known colloquially as the "baby tail". At the same time, a separate Birth Record, once again having the same format as a general record, is completed for the baby. This also has a baby tail containing exactly the same information recorded in the corresponding tail of the delivery record. Delivery and Birth episodes can be either a Consultant Episode or a Midwife Episode depending on who has responsibility for the patient. For HES purposes, both are treated in the same way, but can be distinguished by looking at the Main specialty code ([MAINSPEF](#)).

As a general rule, excepting the small group of patients referred to in below, all in-patients on admission to hospital are classified as General ([RECTYPE](#)). This rule even applies to a heavily pregnant woman who is admitted to a maternity ward with the clear intention of giving birth. However, immediately after giving birth the mother clearly becomes a delivery case, so the RECTYPE field will be suitably amended *before* the record is submitted as part of HES. If a pregnant woman does not, for whatever reason, give birth before the episode ends, the record will, of course, remain coded as General. These rules also apply when a mother gives birth during the course of a multi-episode spell. However, as a birth is a singular event, it follows that only one of the episodes will be a delivery record. This ensures that only one 'baby tail', or for multiple births, one set of 'tails', is appended to the delivery record. [Graphic 3](#) shows how HES deals with multiple births. Note that the delivery record has a separate tail for each baby.

Delivery and Birth records have their own special methods of admission ([ADMIMETH](#)). For Deliveries these are 31 (ante-partum - before birth) and 32 (post-partum - following birth). 31 should only be used when the woman has been admitted in order to give birth, and so is not appropriate where a pregnant woman has been admitted to a maternity ward for observation, or a diagnostic procedure like an ultrasound scan (although in practice many of these procedures are undertaken in out patient clinics, or by "ward attendance" and so are not part of HES anyway) - these cases should be coded as General episodes with an [elective](#) method of admission.

If a baby is born en-route to hospital, a post-partum delivery record (ADMIMETH 32) is appropriate. Typically, these cases will be mothers who have given birth in the ambulance, or at home while waiting for it to arrive.

Nearly all Delivery records will be ordinary admissions ([CLASSPAT](#) = 1); a delivery record cannot be a day case (as a day case must have an elective method of admission), even if the mother does not stay overnight and has a recorded duration of stay of 0 days. Such patients might be mothers and babies using delivery facilities only (CLASSPAT = 5), but such cases are extremely rare.

Well Babies

Thankfully, most babies born in hospital are alive and healthy, and have simply been making use of the facilities, but it is not uncommon for a neonate (a baby aged up to, and including, 28 days) to suffer from a minor ailment like jaundice. Many HES analyses therefore require the exclusion of these "well babies" and in order to assist in this, a derived field (**VIND**), which indicates the level of nursing care that the baby required, is available. VIND tells us which, if any, neonate nursing level codes are recorded in the subsidiary or first available secondary diagnosis field. The three codes currently used (V290, V291 or V292) indicate normal, special and intensive care respectively. However, VIND does not tell the whole story, and so a more complex rule has been developed which also makes reference to **ADMIMETH**, **EPIORDER**, **RECTYPE** and other diagnosis codes (V30-39), which may be present, in order to decide whether a neonate should be classified as a 'well baby'. The HES front end system (FES) contains an algorithm (the 'well baby filter') allowing this rule to be applied automatically. In theory, a well baby born in hospital is defined as one having a Birth record (EPITYPE = 3) which shows that a normal level of nursing care was required (VIND = 1), even though a minor ailment may, in some cases, be recorded in the primary diagnosis field.

A neonate who is kept in hospital, and starts a new episode, or is admitted within the first 4 weeks since birth is classified for HES purposes as a general in-patient. This includes foundlings (abandoned babies) and neonates admitted for social or economic reasons.

Home Births and Births in Non-NHS hospitals

HES covers *all* births and so delivery records are completed for mothers who give birth at home and in non-NHS hospitals, and birth records also for the babies they produce. These are often referred to as "Other Maternity events" and are distinguished by their record type (**RECTYPE**). Not surprisingly, these records are incomplete - they have no **CLASSPAT**, date of admission or method of discharge etc - but they should have 'baby tails', completed in exactly the same way as for mothers and babies in NHS hospitals. It is normal HES practice to exclude these records from most analyses, other than those concerned with maternity issues.

Psychiatric records

Psychiatric episodes are those where the main consultant specialty (MANSPEF) is either mental handicap, mental illness, child and adolescent psychiatry, forensic psychiatry, psychotherapy or old age psychiatry. These are known as the psychiatric specialties. A proportion of psychiatric patients remain in hospital for a considerable time, and this makes it more likely that the episode will be unfinished at the end of the HES year. So, unless special provisions are made, there will be a lack of clinical information on these long stay psychiatric patients.

The Psychiatric Census

For some unfinished psychiatric episodes, additional information, sometimes referred to as the psychiatric tail, is collected for patients under the care of consultants in the psychiatric specialties. This extra information is called the Psychiatric Census, and it enables us to obtain clinical information about long stay or formally detained psychiatric patients in psychiatric specialties which would otherwise be missing from HES.

Remember that the Psychiatric Census does not include all the unfinished psychiatric episodes within HES. It only collects information on patients in psychiatric specialties who have either:-

- been formally detained under specific sections of the Mental Health Act 1983; previous mental health legislation; the Criminal Procedure (Insanity) Act 1964 or other legislation

and/or

- remained in hospital for a year or more continuously and are therefore considered to be long stay patients at 31 March - the last day of the HES data year. These patients must have spent the majority of their stay under the care of a consultant in the psychiatric specialties, but not necessarily all of it.

To be included in the Psychiatric Census, a patient does not have to be in hospital at the time of the census. As with certain other in-patients, psychiatric patients can be allowed to go home for short periods of time, as long as they agree to return to the hospital to continue treatment. This is termed Home Leave, and can be up to 28 days. The episode or spell is still considered 'unfinished' as the patient remains under the care of the consultant, and the patient will still need to be counted. However, if a patient fails to return from a period of home leave, they are considered to have absconded. In this case the episode or spell is considered to have finished.

In some cases, a patient who is formally detained may leave the hospital on Trial Leave, which can be extended indefinitely, with the hope that the patient will be well enough not to need to return to hospital. When this happens, the episode or spell is also considered to have finished.

Patients who are on trial leave, or have absconded, should not be included in the census.

HOW DOES HES WORK?

Currently, the information about FCEs which HES requires originates from the Patient Administration Systems (PAS) of individual hospital providers. The data is then amalgamated on RHA systems and submitted either quarterly, or annually, to Data Sciences: the contractor appointed by DH to run the HES system. In future it is planned that HES data will be extracted from the new NHS-wide Clearing Service (NWCS).

Database

The master copies of all HES records are kept by Data Sciences at their Sunbury data centre. Relevant DH statistics sections are able to access this information using a dedicated communications link.

HES data may be accessed by:

- the On-line facility provided via OIS, which allows interrogation of the base data using the SPSS statistics package and custom front-end system (FES).
- ready made tables which may be viewed On-line via OIS using the Monarch browsing software. In practice, these tables are comprehensive enough to answer most general queries. For example, they can be used to find out how many operations of a particular kind were carried out in each region during the year of interest.
- Data files containing extracts from the database may be ordered from SD2G.
- Publications, including the volumes of Hospital Episode Statistics which give data on a regional basis.

THE USER INTERFACE AND SECURITY

DH users are allowed to access the HES database via the OIS network, which is itself protected by user passwords. These must be changed regularly - at least as often as prompted by the system. The OIS networking software (Novell) is used to allocate users to one of five possible access groups which will govern the HES facilities available to the individual. On clicking the appropriate HES icon (these will appear automatically on the OIS desktop following the selection of Windows 3.1), all users will be presented with a security warning message.

Good security depends on adopting sensible procedures:

- Users must not divulge their passwords to anyone else, write them down or store them in an un-encrypted form.
- Users must log-off the network each time they leave their PC (except for short periods - ie. less than 30 minutes, in which case the activation of a password protected [Windows screen saver](#) is acceptable. It is also important to lock away floppy disks or tapes containing sensitive data.

In addition to computer security, users must be careful to safeguard paper based information by storing this in locked drawers/cabinets. The security implications of sending material by fax must also be considered as ordinary facsimile machines do not encrypt data.

The HES front-end application (FES), which works in conjunction with SPSS analytical software, is explained in the Data Sciences [User Manual](#).

Windows Screen Saver

To invoke Windows screen saver password protection, click the Control Panel icon located in the Main program group, and then click Desktop. If you have not already done so, select a screensaver from the Name list near the middle of the Desktop dialogue box (this defaults to "[None]") and then adjust Delay according to preference. To set the password, click Setup to open the "[Screensaver Name] Setup" dialogue box. Now click Set Password. The Change password dialogue box which appears will invite you to type your password twice. Passwords may be up to 20 characters long, but it is important not to forget them afterwards! - this is because the password is set within your personal copy of the windows software, ie. It is not like your OIS password, which is controlled by the network administrator, and so nobody in SSG or ISD will have a record of it. Having typed your password twice click OK, and then OK twice more to exit Setup and Desktop. You should, of course, change the screensaver password regularly (the only difference in the procedure here is that the Change Password dialogue box will require you to type your old password first). Windows will not prompt you to do this - it is your own responsibility to remember.

HES FIELDS

Each HES record contains a variety of fields (entries). Most of the fields contain data collected from the PAS (Patient Administration System) of the Hospital Provider - this is how entries for the diagnosis fields are obtained, for instance. There is another class of field termed "derived", so called because these contain data that has been imputed from entries in other fields, An example is [EPIDUR](#) (duration of episode) which is derived by subtracting the start date of the episode (found in [EPISTART](#)) from the end date ([EPIEND](#)). Some derived fields, for example [CAUSE](#), are generated by the HES system itself, and so do not exist within the hospital systems.

As with most other databases, HES fields may be broadly categorised as either numeric (eg. [BIRWEIT](#) - the newborn's weight in grammes) or alphanumeric (eg. [OPERATN](#) - the OPCS4 code for an operative procedure, consisting of a letter followed by two or three numbers). However, HES allows for the use of certain alpha characters within `numeric' fields. These include `-' (hyphen), sometimes followed by space characters, generally meaning *not applicable*, and `&' (ampersand), meaning *not known*. In practice, some of these alpha codes are converted into special numeric equivalents for storage in the main HES database. If you plan to make enquiries using SPSS (ie. rather than via the HES Front End), please ask SD2G for more details about the *system missing* and *not applicable* codes.

The quality of the results obtained by analysing and aggregating the field contents depends very much on how well the data was originally input and collected. HES has markedly improved over the years - a greater proportion of episodes have been submitted (ie. the *coverage* has grown) and we believe that the quality of the information is now generally better.

The Technical Module, Volume 2 of the [Data Manual](#), published by the Information Management Group (IMG) of the NHS Executive, contains descriptions of HES fields, including those that are intended to be derived by NHS systems. The glossary which follows provides a `user friendly' guide to the most important fields and should assist in the design of general enquiries, whether run from the Front End System, or written directly in the SPSS scripting language.

This chapter continues with a listing of the most important HES fields - including some that are derived. For the sake of brevity, the list excludes Maternity and Psychiatric `tail' data.

ADMIDATE

Date of admission

This contains the date the patient was admitted to hospital in the format *ddmmyy*. It therefore indicates when the hospital spell began, and if we are looking at the first episode of a spell (**EPIORDER** = 01), it will contain the same date as **EPISTART**. Where a spell of hospital treatment consists of more than one episode, ADMIDATE will be completed for **all** episodes, not just the first.

ADMIDATE is useful in telling whether the spell started within the HES year. For example, a finished record with an end date (**EPIEND**) of 10 April 1993 would be found in the 1993-94 HES year because the consultant episode **finished** during 1993-94. However, it is quite possible that the patient was **admitted** before April 1993. Sometimes these records must be excluded from tabulations.

ADMIMETH

Method of admission

This two digit code gives the method of admission to hospital. Where a spell of hospital treatment consists of more than one episode, ADMIMETH will be copied from the first episode on to all the subsequent episodes within that spell. The field is essential in determining which are emergency and which elective admissions.

Codes

- 11 Elective - from a waiting list
 - 12 Elective - which was booked
 - 13 Elective - planned
 - 21 Emergency - via A&E services, including the casualty department of the provider
 - 22 Emergency - via General Practitioner (GP)
 - 23 Emergency - via Bed Bureau (including the Central Bureau)
 - 24 Emergency - via Consultant out-patient clinic
 - 28 Emergency - Other means (includes patients who arrive via the A&E Accident and Emergency) department of another healthcare provider)
 - 31 Maternity - where the baby was delivered *after* the mothers admission
 - 32 Maternity - baby delivered *before* admission
 - 81 Other - patient transferred from another healthcare provider (but **excluding** emergencies - see 28)
 - 82 Other - babies born in health care provider
 - 83 Other - Babies born outside the health care provider (**except** when born at home as intended)
- spaces *Other maternity event*
- &space Not known

Tells us where the patient was immediately prior to admission. For most patients this will be their home, but there are some significant exceptions. In particular, this field differentiates between patients admitted into the hospital provider spell from home and patients transferred from a spell within another hospital provider or institution.

Code

- 19 The usual place of residence, but this should also be used for people with no fixed abode
 - 29 Temporary place of residence, when usually resident elsewhere e.g. hotels, residential educational establishments
 - 39 Sent by order of penal establishments, court or police station
 - 49 Special hospital e.g. Rampton, Park Lane, Broadmoor, Moss Side
 - 51 Another NHS hospital provider where the patient was in a general ward; a ward for the younger physically disabled or an A&E department
 - 52 Another NHS hospital provider where the patient was on a maternity or neonatal ward
 - 53 Another NHS hospital provider where the patient was on a ward for people who are mentally ill or who have learning disabilities
 - 54 NHS run nursing homes, residential care homes or group homes
 - 69 Under local authority care (including residential accommodation and foster care)
 - 79 Babies born in or on the way to hospital
 - 89 Non-NHS hospital, nursing home, health care or residential institution
- spaces *Other Maternity Event*

ANASDATE

First Antenatal Assessment Date

Gives the date when a pregnant woman was first assessed and arrangements were made for antenatal care. This is not always the date when delivery arrangements were made.

Code	Classification
ddmmyy	dd = day of date (01 - 31) mm = month of date (01 - 12) yy = year of date (00 - current year)
- (hyphen) spaces	Not applicable (no assessment made)
& spaces	Not known

See also the entry for [Anagest](#) in [Technical Appendix](#) .

BEDYEAR

Bed days within year

A derived field which provides the duration of an episode (in days) *within the HES year*. It is calculated by subtracting the start date ([EPISTART](#)) from the end date ([EPIEND](#)). If the episode is unfinished, EPIEND will not exist and so BEDYEAR is calculated by subtracting EPISTART from the HES year end date (31/3/199*) and *adding one day to the result*. One day is added as a means of including the night of 31/3/9* in the BEDYEAR of unfinished episodes. If EPISTART is *before* the beginning of the HES year, BEDYEAR will equal 1/4/199* subtracted from EPIEND.

BEDYEAR is similar to [EPIDUR](#), but EPIDUR **includes** days before the beginning of the HES year.

See also the entry in [Technical Appendix](#).

BIRORDER

Birth order

If there is a multiple delivery, this gives the position in the sequence of births.

Code

1 First

2 Second

3 Third

4 Fourth

5 Fifth

6 Sixth

- Not applicable (means single birth, or 'singleton')

Note: From the 1995/96 datayear, the use of ‘-‘ to indicate a singleton will be replaced by ‘1’ to represent both the first neonate in a multiple birth and a singleton. The codes 8 (not applicable) and 9 (not known) are also introduced.

BIRRESUS

Resuscitation method

The method used to get the baby breathing normally. This is not recorded for stillbirths.

code

- 1 Positive pressure nil, drugs nil
 - 2 Positive pressure nil, drugs administered
 - 3 Positive pressure by mask, drugs nil
 - 4 Positive pressure by mask, drugs administered
 - 5 Positive pressure by endotracheal tube, drugs nil
 - 6 Positive pressure by endotracheal tube, drugs administered
- & Not known
- Not applicable (stillborn and no method of resuscitation attempted)

BIRSTATE

Live or still birth

Indicates whether the baby was born alive or dead ('stillbirth'). A stillbirth is a birth after a gestation period (pregnancy) of 24* weeks (168 days) where the baby shows no sign of life when delivered. *Up to 30/9/92 the period was 28 weeks.

code

- 1 Live
- 2 Stillbirth, ante-partum
- 3 Stillbirth, intra-partum
- 4 Stillbirth, indeterminate

BIRWEIGHT

Birth weight

The weight of the baby in grammes immediately after birth.

code

nnnn	0001 - 6999 grammes
7000	7000 grammes or greater
&spaces	Not known

CATEGORY

Administrative and legal status of patient

This gives the administrative and legal status of a patient. Most patients in NHS hospitals or hospital units will come under category 10 (see below). Many NHS hospitals have private wards where private patients may use the accommodation and services of the hospital provider. Some hospitals also provide amenity beds, usually located in small side wards for which a charge is made for the accommodation. Both of these categories of patient are defined by the NHS Act of 1977. Any category of patient, whether NHS, private or amenity patients, can be formally detained under the provisions of the Mental Health Act 1983 and other legislation.

Code

- 10 NHS patient - not formally detained
 - 11 NHS patient - formally detained under Part II of the Mental Health Act 1983
 - 12 NHS patient - formally detained under Part III of the Mental Health Act 1983 or under other Acts
 - 13 NHS patient - formally detained under part X, Mental Health Act 1983 *
 - 20 Private patient - not formally detained
 - 21 Private patient - formally detained under Part II of the Mental Health Act 1983
 - 22 Private patient - formally detained under Part III of the Mental Health Act 1983 or under other Acts
 - 23 Private patient - formally detained under part X, Mental health Act 1983*
 - 30 Amenity patient - not formally detained
 - 31 Amenity patient - formally detained under Part II of the Mental Health Act 1983
 - 32 Amenity patient - formally detained under Part III of the Mental Health Act 1983 or under other Acts
 - 33 Amenity patient - formally detained under part X, Mental health Act 1983 *
- spaces* Other maternity event

* Codes 13, 23 and 33 were introduced at the start of the 1994/95 HES year (1/4/95)

CENDATE

Date of detained and/or long term psychiatric census

The year in which, on the 31 march, the psychiatric census of detained and/or long term patients is held.

code

yy yy = year of date (00 = current year)

CENDIAG

Patient diagnosis on psychiatric census date

Diagnosis, or diagnoses, on the date of the psychiatric census

code

nnnnnn

ICD diagnosis code (including special V-codes where ICD9 is used)

CENDUR

Duration of care to psychiatric census date

A derived field obtained by subtracting [ADMIDATE](#) from the date of the psychiatric census , [CENDATE](#) (ie. 31st march 19**).

code

nnnnn

00000 - 29200 days (approximately 80 years)

See also the entry in [Technical Appendix](#).

CENSAGE

Age at psychiatric census date

A derived field giving the patients age at the date of the psychiatric census (31st March 19**).

Code

nnn years (000 - 110)

See also the entry in [Technical Appendix](#).

CENSTAT

Status of patient included in psychiatric census

This gives information about the detained status of the patient. It is derived from [LEGLSTAT](#) (legal status) and the length of stay recorded for the current spell.

Code

- 1 Detained patient
- 2 Long term patient
- 3 Detained and long term patient

CENWARD

Ward type at psychiatric census date

Gives a description of the hospital ward that the patient is occupying on the psychiatric census date.

It is a seven digit code. See the data manual for more details.

CAUSE

External cause of injury or poisoning

A derived field containing a copy of the first [E-code](#) found in the record's diagnosis fields ([DIAGNOSIS](#)). If there is no E-code in the record, CAUSE will be set to *null*.

See also the entry in [Technical Appendix](#).

CLASSPAT

Patient classification

CLASSPAT is one of the most useful fields in HES because it tells us whether the record is for a day case or an ordinary admission. NHS providers derive it for each episode using various data items from their Patient Administration System (PAS) - such as the admission method ([ADMIMETH](#)), the intended management of the patient and the duration of the episode.

Codes

- 1 Ordinary admission
- 2 Day case admission
- 5 Mothers and babies using only delivery facilities

Space *Other maternity event*

There should never be any records with CLASSPAT = 5, because a ward will always be used. In practice, however, some providers find this field useful and so the Department of Health retains it to help ensure complete coverage of maternity episodes.

Although technically in-patients, regular day and regular night attenders (codes 3 and 4) are excluded from HES.

DELCHANGE

Delivery place change reason

If the place of delivery is different, either in type or geographic location, from that originally intended, the reasons for the change are recorded in this field.

Code

- 1 Decision made during pregnancy because patients address changed
 - 2 Decision made during pregnancy for clinical reasons
 - 3 Decision made during pregnancy for other reasons
 - 4 Decision made during labour for clinical reasons
 - 5 Decision made during labour for other reasons
 - 6 Occured unintentionally during labour
- & Not known
- Not applicable (ie. there was no change)

DELINTEN

initial intended delivery place type

See **DELPLACE** for the codes used in this field

The method used to deliver a baby which is a Registrable Birth

Code	Classification
0	Spontaneous vertex (normal vaginal delivery, occipitoanterior).
1	Spontaneous other cephalic (cephalic vaginal delivery with abnormal presentation of head at delivery, without instruments, with or without manipulation).
2	Low forceps, not breech (eg. forceps, low application, without manipulation. Includes forceps delivery not otherwise specified.
3	Other forceps, not breech (eg. forceps with manipulation. Includes high forceps and mid forceps).
4	Ventouse, vacuum extraction
5	Breech (spontaneous delivery assisted or unspecified. Includes partial breech extraction).
6	Breech extraction (not otherwise specified. Includes total breech extraction and version with breech extraction).
7	Elective caesarean section (caesarean section before, or at onset of, labour)
8	Emergency caesarean section
9	Other than those specified above (eg. application of weight to leg in breech delivery. Includes destructive operation to facilitate delivery and other surgical or instrumental delivery).
&	Not Known ie. unspecified.

These relate to the ICD9 Classification for abbreviated Delivery Method, which may be fund after ICD 6699 in ICD9 Volume 1.

DELONSET

Labour/delivery onset method

The methods used to induce (initiate) labour, rather than to accelerate it.

code	Classification
1	Spontaneous; the onset of regular contractions whether or not preceded by spontaneous rupture of the membranes.
2	Any caesarean section carried out immediately following the onset of labour, when the decision was made before labour.
3	Surgical induction; by amniotomy.
4	Oxytocic drugs; including the administration of agents either orally, intravenously or intravaginally with the intention of initiating labour.
5	Combination of surgical induction and oxytocic drugs.
&	Not Known.

DELPLACE
(DELINTEN)

Delivery place type

Used to classify initial intention and actual place of delivery. The initial intention for place of delivery is that designated by the General Medical Practitioner (GMP) and midwife or by the GMP and hospital staff. The decision is normally made when the mother is assessed for delivery and, as a result of this, formal arrangements are made. DELINTEN is the initial intention for place of delivery, DELPLACE is the actual type of premises in which delivery took place.

Code	Classification
1	At a domestic address.
2	In NHS hospital - delivery facilities associated with consultant ward.
3	In NHS hospital - delivery facilities associated with GMP ward.
4	In NHS hospital - delivery facilities associated with consultant/GMP ward.
5	In private hospital.
6	In other hospital or institution.
7	In NHS hospital - ward or unit without delivery facilities.
8	Other, ie. none of the above.
&	Not Known.

Note: From the 1995/96 datayear, the code '0' is used to indicate "In NHS Hospital - delivery facilities associated with midwife ward".

DELPOSAN (DELPREAN)

Anaesthetic given post delivery

This records the type of anaesthetic/analgesic administered during and after labour and delivery. The anaesthetic clinical option expands on the classification. DELPOSAN is the type of anaesthetic or analgesic administered post delivery, DELPREAN is the type of anaesthetic or analgesic administered before and during labour and delivery.

Code	Classification
1	General anaesthetic, the administration by a doctor of an agent intended to produce unconsciousness.
2	Epidural or caudal anaesthetic, the injection of a local anaesthetic agent into the epidural space.
3	Spinal anaesthetic, the injection of a local anaesthetic agent into the subarachnoid space.
4	General anaesthetic and epidural or caudal anaesthetic.
5	General anaesthetic and spinal anaesthetic.
6	Epidural or caudal and spinal anaesthetic.
8	Other than 1 to 6.
-	No analgesic or anaesthetic administered.
&	Not known.

Note that the contract codes are different for these data items.

Note: From the 1995/96 datayear, the codes 6, 8 and - (hyphen), are replaced by:-

7	Other than 1 to 6.
8	Not applicable.
9	Not known.

See also the entry for [Preposan](#) in [Technical Appendix](#).

DELPREAN

Anaesthetic given during labour/delivery

See [DELPOSAN](#) for codes and classifications.

DELSTAT

status of person conducting delivery

This is normally the status of the individual who delivers the baby. When delivery is carried out by a student, the individual supervising the delivery should be the one recorded as conducting it. This may be different for each birth in a multiple birth.

code

- 1 Hospital doctor
- 2 General practitioner
- 3 Midwife
- 8 Other than above
- & Not known

DETDUR

Duration of detention

Derived item - the period in days between date current detention commenced and the date of the Psychiatric Census (ie 31 March of [CENDATE](#) minus [DETNDATE](#)) . The maximum period is 29200 days (approximately 80 years).

See also the entry in [Technical Appendix](#).

DETNDATE

Date detention commenced

For patients under a detention order at the date of the census, the date at which the first order commenced in the current continuous period of detention. Where the detention order is held by a hospital other than where the patient is present at the date of the census, the latter should ensure the information relating to this detention order is obtained from the former hospital. The latter hospital only should submit the data. The data is coded in the format *ddmmyy*.

DHATREAT

District of treatment

A derived field giving the District Health Authority in which the patient was treated. It does not, of course, indicate where the patient lived immediately prior to being admitted - see [RESDHA](#).

See also the entry in [Technical Appendix](#).

This data item is a six character field and contains information about a patient's illness or condition. In many ways it is the most important piece of information contained in a HES record. Up to and including the 1994/95 HES year it is in the form of a code taken from the 9th Revision of The International Statistical Classification of Diseases, Injuries and Causes of Death (ICD-9). ICD-9 was superseded by ICD-10 from April 1995 (the 95/96 HES year). The ICD is a list of numeric and alpha-numeric codes, each of which signifies a single disease or group of diseases, injuries or other reason(s) why a patient is receiving treatment.

Diseases and injuries make up the majority of the ICD codes, with groups of similar diseases having similar code numbers. In ICD-9, all these codes are either 3 or 4 digit numerics, and occupy the first three (or four) characters of the DIAGNSIS field. When a three digit code is used, the fourth character should be completed with a hyphen '-'; whether a three or four digit code is used, the last two characters of the field are left blank.

There are seven DIAGNSIS fields in each HES record. The first field is called the **primary**, and contains the diagnosis which provides the main reason *why the patient is in hospital*. It is important to note that this may not be the patient's most obvious condition - although it usually is - for sometimes it is the onset of a comparatively minor ailment which, when taken together with other existing conditions, can lead to a period of hospitalisation. The second DIAGNSIS field is called the **subsidiary**, and the remaining five are known as the **secondary** fields. Although it is certainly possible for a patient's condition to require the use of all seven fields, many records only contain a primary diagnosis, with the remaining fields being left blank.

Most diseases and injuries will be described by a single code but ICD enables certain diagnoses to use two. The first, known as the **Dagger code** (identified by inserting the letter D as the sixth character of DIAGNSIS) relates to the underlying disease - eg. Diabetes 2506 D). The second, known as the **Asterisk code** (identified using the letter A as the sixth character) relates to the manifestation of the disease in a particular organ or site which is a clinical problem in its own right (eg. Gangrene 7854 A). The Asterisk code therefore often describes the outward signs, or 'disability', while the dagger code tells us the root cause of the disability. Within HES records, the dagger code *must always* immediately precede the asterisk code - not surprisingly, an asterisk code should never appear as a primary diagnosis. More information can be found in the ICD manuals themselves, and in section D2 of the [Data Manual](#).

See also the entry for [Diag3dg](#) in [Technical Appendix](#).

E and V Codes

ICD-9 also has a system of supplementary classification of external causes of injury and poisoning, termed **E-codes**. These enable the cause to be specified, where applicable, *in addition* to the 'condition' code from one of the main ICD chapters (usually the chapter relating to Injuries & Poisoning) which will indicate the nature of the condition. These E-codes would never occupy a primary or secondary field. As with the main ICD codes, they are either three or four digit numerics, and to distinguish them, the alpha 'E' is placed in the sixth character position. Obviously the inclusion of 'E' is important. The derived field **Cause** contains a copy of the first E-Code (assuming there is one) found in a HES record.

Sometimes a patient is in hospital not as the result of disease or injury but for other medically related reasons, for example, when a person who is not currently ill is admitted to hospital for some specific purpose, such as when the patient is acting as an organ or tissue donor. Such patients can be identified by the use of **V-codes** in the primary diagnosis field. V-codes are three or four digit alpha-numerics (V followed by a numeric code) and occupy the first three or four character positions in the field. All completely healthy babies born in hospital are coded in this way, with a V-code from the range V30 - V39.

Occasionally a V-code is used in a secondary field; this is when there is some problem which may have a bearing on the patients health but is not in itself a current illness or injury. For example, a patient with an artificial heart valve.

The second six digit block (the subsidiary field) also has a further function when it is used to provide additional information about two special categories of patient - neonates (patients aged less than or equal to 28 days) and psychiatric patients. For this purpose, certain special V-codes are used to indicate the level of nursing care required by neonates and the previous admission status of psychiatric patients. If the subsidiary field is already being used then the next diagnosis block should be used.

See [next page](#) for **Codes** and notes

Codes

V29.0 (U50.0) Neonate requiring normal nursing care

V29.1 (U50.1) Neonate requiring special nursing care

V29.2 (U50.2 or U50.3) Neonate requiring intensive nursing care

V69.0 (U51.0) Psychiatric patient who has not previously received treatment as a psychiatric in-patient in this or another hospital provider

V69.1 (U51.1) Psychiatric patient who has previously received treatment as a psychiatric in-patient in this hospital provider

V69.2 (U51.2) Psychiatric patient who has previously received treatment as a psychiatric in-patient in another hospital provider

Note: The U-codes shown above in brackets are for use instead of V-codes during the 1995/96 HES year only (1 April 1995 to 31st March 1996). There is also an additional code for use in 1995/96, **U50.3** - Neonate requiring maximal intensive care (before 1/4/95, cases appropriate to U50.3 would have been included in V29.2). From 1 April 1996 there will be completely new arrangements - *watch this space!*

There are a number of other publications whose classification systems are used to supplement ICD-9. These include the British Paediatric Association (BPA) Classification of Diseases, Application of the ICD to Dentistry and Stomatology; and the Glossary and Guide to the Classification of Mental Disorders.

DISDATE

Date of discharge

Gives the date of discharge at the end of a hospital provider spell. DISDATE is in the form *ddmmyy*. DISDATE cannot be completed until the spell is finished and should only be entered in the last episode of a provider spell.

DISDEST

Destination on discharge

Tells us where the patient was due to go when they left hospital. In the majority of cases they will return home and for many patients DISDEST will be the same as [ADMISORC](#). The same codes are used except that DISDEST also contains code '79' to indicate deaths, including stillbirths. This value is derived when [DISMETH](#) = 4 or 5. DISDEST cannot be completed until the spell is finished. DISDEST should be completed with 'hyphen' if the end date ([EPIEND](#)) of an episode does not coincide with the end of the hospital provider spell ([DISDATE](#)). Otherwise it should be completed with a numeric value.

DISMETH

Method of discharge

This gives the circumstances under which a patient left hospital. For most patients, this will be when they are discharged by their consultant because their course of treatment has finished. This field should only be completed in respect of the last episode of a spell; if a patient on ending one episode starts a new one, the appropriate entry in the DISMETH field of the first episode would be '-' to indicate that the patient has not been discharged.

Codes

- 1 Patient discharged on clinical advice or with clinical consent
 - 2 Patient discharged him/herself or was discharged by a relative or advocate
 - 3 Patient was discharged by a mental health review tribunal, the Home Secretary or the court
 - 4 Patient died
 - 5 Baby was stillborn
- "-" The hospital provider spell is unfinished and the patient is still in hospital

space *Other maternity event*

DISMETH is one of the most important fields in HES as it is used for counting spells. When 'spells' are selected in the FCE window 'Type of enquiry', SPSS syntax is generated to select only those records with a DISMETH code in the range 1 to 5.

DOB

Date of birth

An eight digit field containing the patients date of birth in the form *ddmmyy*. The only time it is acceptable to have 'not known' is where the record relates to 'Other delivery events'. Access to DOB is limited but, for most enquiries, **STARTAGE** will suffice.

DOBBABY

Birth date (baby)

Code

ddmmyy

dd

day of birth (01- 31)

mm

Month of Birth yy = year of birth (00 - current year)

&spaces

Not known (only acceptable for *other delivery events* which are not intended home births).

See also the entries for [Anagest](#) , [Antedur](#) and [Postdur](#) in Technical Appendix.

ELECDATE

Date of decision to admit

This is the date on which a decision is made by a consultant or another member of the clinical staff to admit a patient to a hospital provider. The patient may be admitted straight away or at some point in the future. The time between ELECDATE and **ADMIDATE** is known as the 'waiting time', and is the subject of numerous enquiries.

ELECDUR

Waiting time

This contains the difference in days between the date a decision has been taken to admit a patient ([ELECDATE](#)) and the date on which a patient was admitted ([ADMIDATE](#)). However, this is only applicable where an elective admission was **planned and took place**, that is where [ADMIMETH](#) = 11 or 12 or 13. So if a patient was waiting to be admitted and then had to be admitted as an emergency, ELECDUR would be 'not applicable'.

See also the entry in [Technical Appendix](#).

ENDAGE

Age at end of episode

The age of the patient in years at the end of a finished episode. For unfinished episodes, the patients age on the last day of the HES year (31/3/9*). It is derived from [EPISTAT](#), [DOB](#) and [EPIEND](#). In most cases, ENDAGE will be the same as [STARTAGE](#).

See also the entry in [Technical Appendix](#).

EPIDUR

Episode duration

The duration of an episode in days; derived by subtracting the start date ([EPISTART](#)) from the end date ([EPIEND](#)). If the episode is unfinished, EPIEND will not exist and so EPIDUR is calculated by subtracting EPISTART from the HES year end date (31/3/9*) and *adding one day to the result*. For unfinished episodes, therefore, EPIDUR only tells you how many days of the episode occurred *within the year*. One day is added as a means of including the night of 31/3/9* in the EPIDUR of unfinished episodes.

See also the entry in [Technical Appendix](#).

EPIEND

Date episode ended

When a patient leaves the care of a particular Consultant, because they are discharged from the hospital completely, or move to the care of another consultant, or if they are transferred to another hospital provider (irrespective of whether there is a new Consultant), the episode is considered to have finished. The date on which this occurs is EPIEND and is in the form *ddmmyy*.

EPIORDER

Episode order

When a patient comes into hospital, their first period of care under a particular consultant is termed the 'first episode' and has EPIORDER=01. Most patients leave hospital at the end of this first episode, but some will move to the care of other Consultants. Each time a different consultant takes over the main responsibility for their care a new episode will start and EPIORDER will increase by one. This will continue until they leave hospital. If the same patient returns to hospital after they have been discharged, the EPIORDER will return to '01'. The field should be completed in all cases except where the record is for an 'other maternity event'.

This is a very important HES field as the first episode of each spell has an EPIORDER of '01', even when they refer to the same patient. Counting the episodes with EPIORDER = '01' effectively counts the number of admissions, and it is this that is used in the HES Front End System when 'Admissions' is selected.

EPISTART

Date episode started

This field records the start date for the episode in the form *ddmmyy*. If a patient has more than one episode in a spell, then for each episode there will be a new value of EPISTART. Only when **EPIORDER** = 01 will EPISTART be the same as the date of admission to the hospital (**ADMIDATE**).

EPISTAT

Status of episode

When the HES data file is examined, it is important to know what sort of record you are looking at. For this reason, there are a number of 'labels' which help identify certain types of records so that they can be selected for analysis. One of these is EPISTAT which is the status of an individual episode in a spell.

Codes

1 Unfinished

3 Finished

EPISTAT provides the second digit of [RECTYPE](#).

EPITYPE

Type of episode

Identifies the type of episode, so that groups of similar episodes can be considered together.

Codes

- 1 General episode (Anything that is not covered by the other groups)
- 2 Delivery episode
- 3 Birth episode
- 4 Formally detained, under the provisions of mental health legislation or long term (over 12 months) psychiatric patients who should have additional information recorded on the psychiatric census. This can only be used for unfinished records.
- 5 *Other delivery event*
- 6 *Other birth event*

EPITYPE provides the first digit of [RECTYPE](#).

ETHNOS

Ethnic origin

A two digit code used from 1 April 1995 to collect information about the ethnic group of the patient.

Code

0	White
1	Black - Caribbean
2	Black - African
3	Black - Other
4	Indian
5	Pakistani
6	Bangladeshi
7	Chinese
8	Any other ethnic group
9	Not given

Note: The ethnic group is entered as the left digit. Providers collecting Ethnic Group to the national standard with no further detail are advised to enter 0 (zero) after the national code.

GESTAT

Length of gestation

The WHO definition is to be used measured from the first day of the last menstrual period (LMP) where this is thought to be reliable. For the remainder a best estimate based on likely LMP and ultrasonic measurement is recommended. Gestational age is expressed in completed weeks eg. events occurring 280 to 286 days after the onset of the last menstrual period are considered to have occurred at 40 weeks gestation.

Code	Classification
nn	10 - 49 in weeks
&space	Not Known

See also the entry for [Anagest](#) in [Technical Appendix](#) .

HOMEADD

Postcode of patient

This has space for seven characters and, ideally, will contain the full postcode of the patients home address. If the post code only contains 5 or 6 digits spaces should be inserted between the two parts of the code and not at the end, so that the fifth digit is always a number. If they are away from home for a short while, for example on holiday, then their home postcode is used, but if they are away from home for long periods e.g. in university halls of residence, then that post code should be used. Postcode information is usually supplied by the patient, but hospital providers are responsible for verifying it with Post Office manuals. The postcode must never be left blank and there are currently a range of options that can be used instead. However, their use is not encouraged and it is likely that they may not be supported in future.

There are certain special cases where different rules apply:

- If the patient is of no fixed abode there is a specific code which should be used (ZZ993VZ).
- The mothers postcode should be used for her baby for all birth episodes.
- If a patient is usually resident in a hospital, the hospitals postcode should be used.

Because HOMEADD could be used to help identify individual patients, access to it is strictly limited.

LEGLSTAT

Legal status classification

Legal Status exists for all formally detained patients and patients who are not formally detained but who have a hospital provider spell of a year or more during which the majority of time has been spent in the care of a consultant in the psychiatric specialties. See the NHS Data Manual for details of the classifications.

MAINSPEF

Main specialty

Following admission, patients will usually be placed under the care of a specific consultant. The consultant will be considered a specialist in the type of work undertaken by the hospital department he/she is attached to. Only those specialty titles recognised by the Royal Colleges and Faculties can be used (see the Data Manual for a comprehensive list). Remember that MAINSPEF refers to the consultant, and so does not necessarily give an accurate picture of the patients condition. Some hospitals set aside a few beds for GPs to use, and patients admitted to such beds at the request of their GPs would not be under the care of a consultant. Obstetrics and gynaecology and general practice are sub-divided into maternity function and others.

A related field - SUBSPEF, contains the specialty function of the (second) consultant in cases of shared care.

MARSTAT

Marital status

This item was recorded on all records up to and including the 1993/94 HES year, but from the 1995/96 year it is only required where [MAINSPEF](#) is one of the psychiatric specialties.

code

- 1 Single
- 2 Married (whether or not separated)
- 3 Divorced
- 4 Widowed
- & Not known

MENTCAT

Mental category

The mental category of detained patients is classified as per the designations in the Mental Health Act 1983. A patient should be included under only one mental category.

Where a patient has been assigned more than one mental category, mental illness takes precedence over the others and mental impairment or severe mental impairment over psychopathic disorder. A patient should only be classified as *Not specified* if the mental category has not been specified by the time the return has to be submitted. For more details, see the NHS Data Manual.

Code	Classification
1	Mental illness
2	Mental impairment
3	Severe mental impairment
4	Psychopathic disorder
8	Not specified
&	Not known
-	Not applicable (ie. not detained).

NUMBBABY

Number of babies

The number of registrable babies (live or stillborn) at a particular delivery.

Code	Classification
1	One
2	Two
3	Three
4	Four
5	Five
6	Six or more.

NUMPREG

Total number of previous pregnancies

Code	Classification
nn	nn = 00 - 19
00	No previous pregnancy resulting in a registrable birth.
01	One previous pregnancy resulting in a registrable birth.
02	Two previous pregnancies resulting in a registrable birth.
03	Three previous pregnancies resulting in a registrable birth.
04	Four previous pregnancies resulting in a registrable birth.
05	Five previous pregnancies resulting in a registrable birth.
06	Six previous pregnancies resulting in a registrable birth etc, until,
19	Nineteen previous pregnancies resulting in a registrable birth.
&space	Not known.

OPERATN

Operation

Many patients will undergo an operation, or 'surgical procedure' whilst they are in hospital, which is what this field is intended to record. It is a four digit field and occurs 4 times in each episode. The code used is taken from the 4th revision of OPCS Operation Classification and ranges from 'minor ops' to major surgery. If an operation has not been performed this has to be positively indicated by a hyphen in this field. Where the field is blank it should indicate that the episode is unfinished or that it relates to an 'Other maternity event'. For each OPERATN field there is a field called [OPERDATE](#) which gives the date on which the operation was performed.

Electro convulsive therapy (ECT) should be recorded as an operative procedure.

See also the entries for [OPER3DG](#), [POSOPDUR](#) and [PREOPDUR](#) in Technical Appendix.

OPERDATE

Date of operation

Gives the date of any operations performed during the episode in the form *ddmmyy*. There are four OPERDATE fields in each HES record - one for each [OPERATN](#).

PROCEDURE

Provider code

Following implementation of the Health Service Reforms, there have been considerable changes in the organisational structure of the NHS. To support the exchange of contract information within the internal market, a new data format was introduced which - for each episode - enables both the purchaser and provider to be identified. These items are extracted for HES. See [PRODMUT](#).

PRODMUT

Hospital provider

A derived item which provides the first three characters of [PROCEDURE](#) which is used to identify the individual hospital provider - ie. the District Managed Unit (DMU) or Trust, where the treatment took place. The control file of provider and purchaser organisation codes is updated every year.

See also the entry in [Technical Appendix](#)

PURCODE

Purchaser code

This is a five digit field which indicates the organisation paying for the patients treatment. There are four main types of purchaser:

- District Health Authorities
- GP fund holders
- private patients
- Department of Health*

*The Department purchases a small amount of treatment for patients from abroad - either under EC regulations or other reciprocal agreements; and for certain UK residents whose treatment is centrally financed, notably those treated by Special Health Authorities.

RECTYPE

Record type

A two digit field derived from **EPITYPE** (1st digit) and **EPISTAT** (2nd digit). It shows not only the type of episode, whether general, delivery, birth etc but also whether that particular episode is finished or unfinished. RECTYPE no longer exists as a separate field within the main HES database, but it may be generated locally and provides a useful shorthand for the categorisation of records.

Codes

- 11 General patient (Epitype = 1), unfinished episode (Epistat = 1)
- 13 General patient (Epitype = 1), finished episode (Epistat = 3)
- 21 Delivery episode (Epitype = 2), unfinished episode (Epistat = 1)
- 23 Delivery episode (Epitype = 2), finished episode (Epistat = 3)
- 31 Birth episode (Epitype = 3), unfinished episode (Epistat = 1)
- 33 Birth episode (Epitype = 3), finished episode (Epistat = 3)
- 41 Psychiatric census episode (Epitype = 4), unfinished episode (Epistat = 1)
- 53 Other maternity event, delivery (Epitype =5), finished episode (Epistat=3)
- 63 Other maternity event, birth (Epitype =6), finished episode (Epistat = 3)

RESDHA

DHA of residence

A derived field which tells us the District Health Authority (DHA) area in which the patient lived immediately before admission. This is not necessarily the area where the treatment took place - see [DHATREAT](#).

See also the entry in [Technical Appendix](#).

RESRHA

RHA of residence

A derived field giving the Regional Health Authority (RHA) area in which the patient lived immediately before admission.

See also the entry in [Technical Appendix](#).

RHATREAT

RHA of treatment

A derived field giving the Regional Health Authority (RHA) area in which the patient was treated.

SEX

Sex of patient

Gives the sex of a patient using a single digit code -

- Male 1
- Female 2
- Indeterminate 3

Note: 3 is also used for patients undergoing a sex change operation.

SPELDUR

Duration of spell

A derived field containing the duration of the spell in days, which will only be calculated where it is clear from the entry in **DISMETH** that the spell has finished. It is obtained by subtracting **ADMIDATE** from **EPIEND**.

See also the entries for **SPELBGIN**, **SPELDUR** and **SPELEND** in Technical Appendix.

STARTAGE

Age on admission

For patients aged 1 year or older *on the date of admission*, this gives their age in *years*. If the patient is under one year old, the following codes are used:

Codes

7001 less than one day

7002 1 - 6 days

7003 7 - 27 days

7004 28 days - under 3 months

7005 3 months - under 6 months

7006 6 months - under 9 months

7007 9 months - under 1 year

STARTAGE is derived by hospital systems from [ADMIDATE](#) and [DOB](#).

See also the entry in [Technical Appendix](#).

VIND

V code indicator

A single digit, derived field which indicates whether any of the diagnosis fields ([DIAGNSIS](#)) contains a valid, "special" [V-code](#):

Codes

1 [RECTYPE](#) is 13, 23 or 33 AND ([ADMIMETH](#) is 82 or 83 OR [STARTAGE](#) = 7001, 7002 or 7003) AND V-code is **V290**

2 As above but V-code is **V291**

3 As above but V-code is **V292**

4 [RECTYPE](#) is 13,23, 33 or 41 AND V-code is **V690**

5 As above but V-code is **V691**

6 As above but V-code is **V692**

If there is no V-code, VIND will contain a hyphen ("-").

See also the entry in [Technical Appendix](#).

SOURCES OF INFORMATION

The Data Manual, Technical Module: Volume 2. Published by the NHS Executive Information Management Group, Quarry House, Leeds. *The definitive reference for those wishing to study every nuance of the HES record layout and field contents. This is the book which IT experts must use when designing the hospital systems that actually generate HES records.*

The HES User Manual. Data Sciences Limited provide a comprehensive description of the functions available to users who have direct access to HES via the OIS PC network. *Covers the Front End application in detail and explains how to launch the SPSS statistical analysis package and also the Monarch document browser.* For more information, contact section SD2G, Room 430B, Skipton House, London.

International Classification of Diseases, 9th Revision. A complete index to the ICD9 diagnosis codes in two volumes. Volume 1 is arranged numerically by diagnosis code and volume 2 alphabetically by name of disease. Originally published by the World Health Organisation (ISBN 92 4 154005 2), but issued as special re-print (incorporating the Departmental V-codes) by the NHS Executive. *The diagnosis fields of all HES records, up to and including the 94/5 data-year, are completed using ICD9.* Copies are held by SD2G (see above).

International Classification of Diseases, 10th Revision. Published by the World Health Organisation in three volumes. Volume 1 is a tabular list (ISBN 92 4 154419 8), volume 2, an instruction manual (ISBN 92 4 154420 1) and volume 3, an alphabetical index (ISBN 92 4 154421 X). *From the 95/6 datayear onwards, HES uses ICD10 diagnosis codes only.*

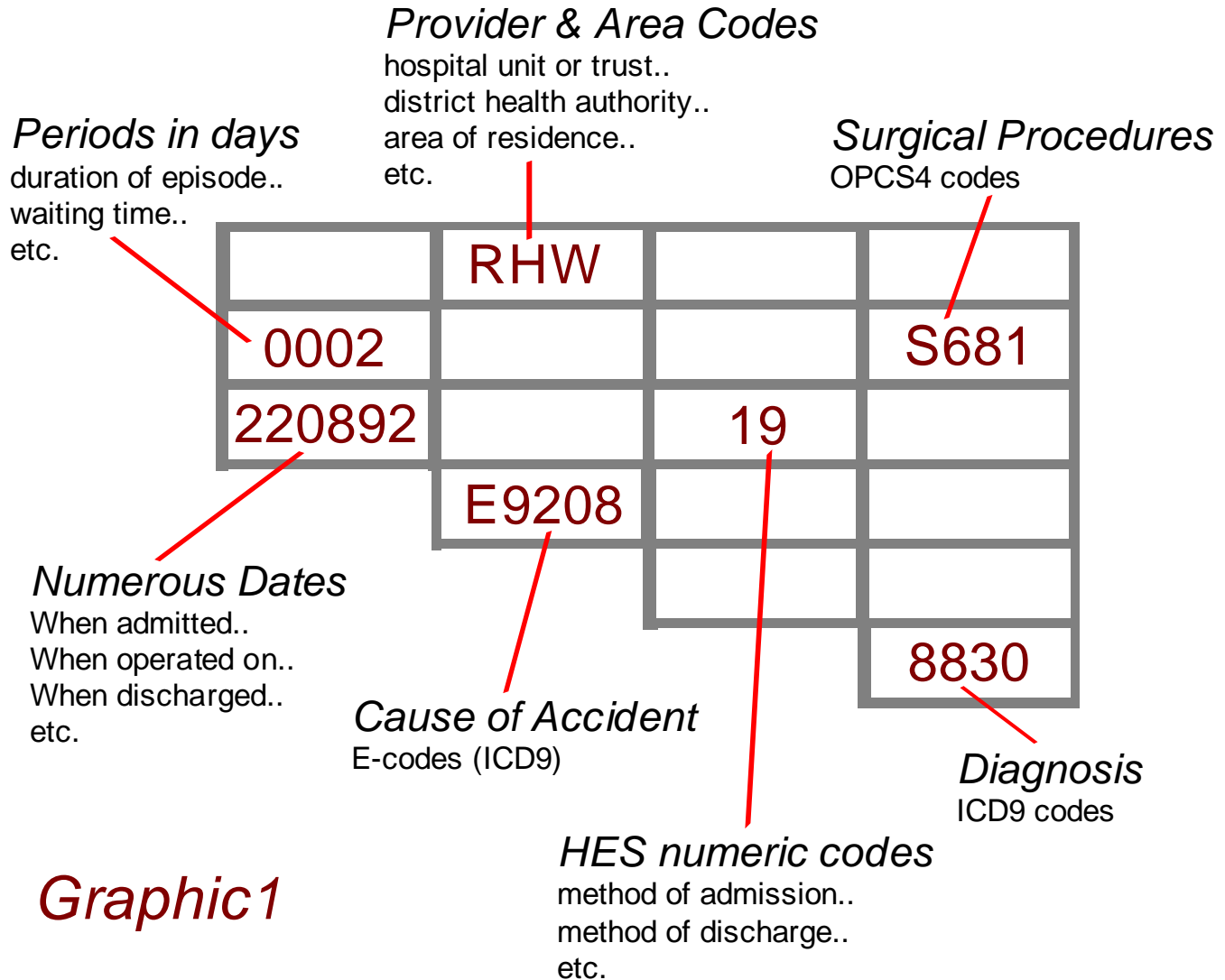
Tabular List of the Classification of Surgical Operations and Procedures, Fourth Revision. Published by HMSO (ISBN 0 11 691295 2) for the Office of Population Censuses and Surveys, and known colloquially as "OPCS4". *The Operation fields of HES records are completed using OPCS4 codes.* SD2G hold a copy.

SPSS and Monarch. These are the commercial software packages used by those accessing HES via OIS. They are provided with Windows Help, but there are also paper manuals available. contact SD2G for details.



CLICK

What's in a Record?



Graphic 1

Graphic 2

 Episodes

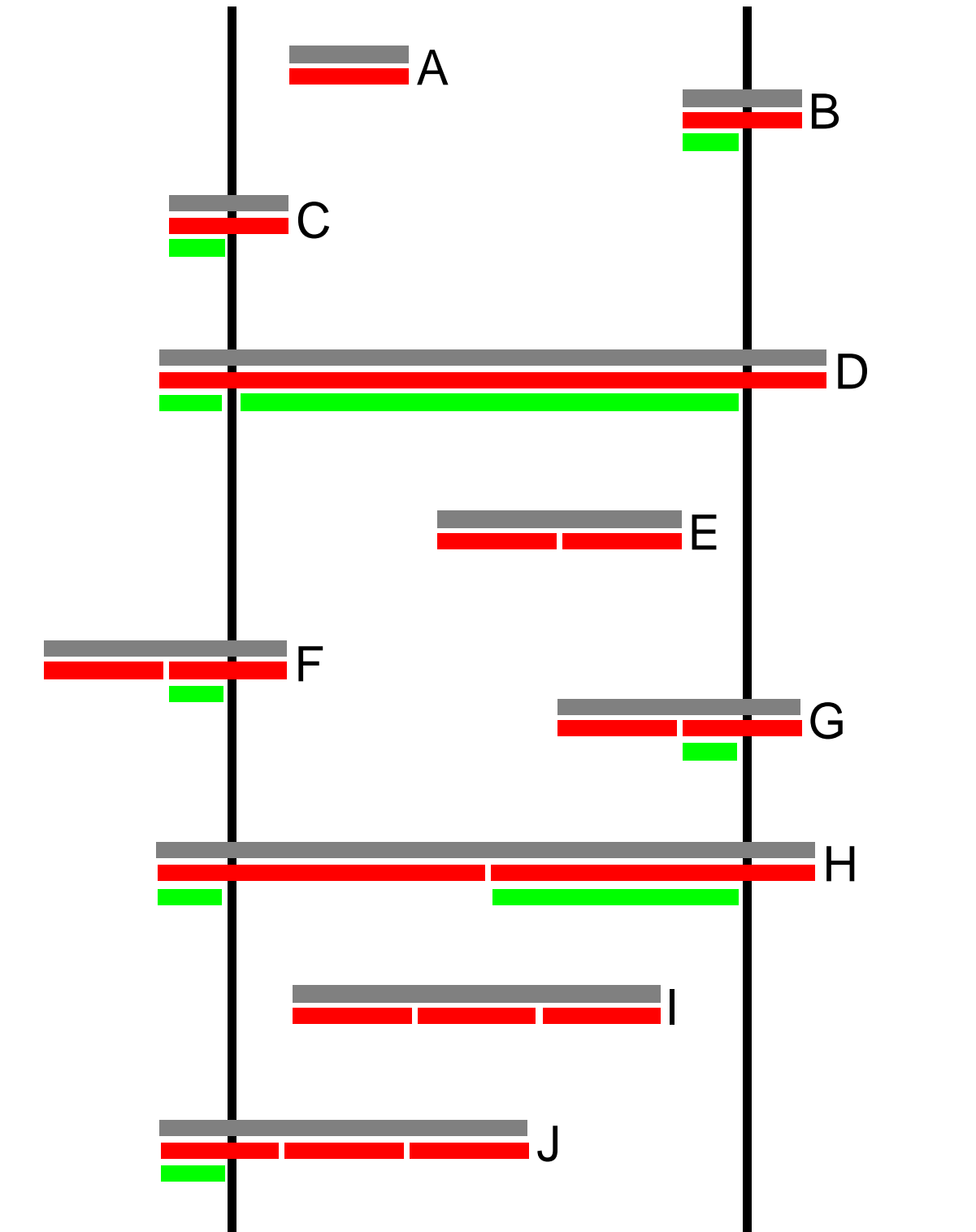
 Unfinished Episodes

 Spells

93/4

94/5

95/6



93/4

94/5

95/6

 Episodes

 Unfinished Episodes

 Spells

Graphic 2

TWINS!

Each baby has its own record, which includes a copy of their 'tail'

Delivery Record
[Mother]

Babytail A

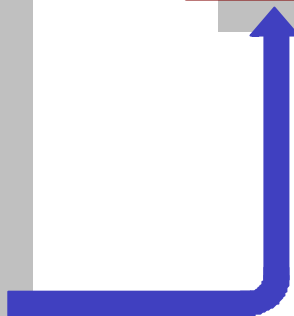
Babytail B

Birth Record A
[First Baby]

Babytail A

Birth Record B
[Second Baby]

Babytail B



Graphic 3

Notes on derivation rules

The Technical Appendix explains how the Data Sciences (DSL) system generates a wide range of additional data items which are made available to HES. Some of these items have traditionally been provided by the NHS as part of their HES submissions (eg. [Elecdur](#)), and so also appear in the Fields section. Others are more specialised (eg. [Gross_a](#) and [Gross_b](#)) and have been created specifically to enhance the function, and efficiency, of the central HES system. Some items ([Diag3dg](#), [Oper3dg](#) and [Prodmut](#)) do not actually exist as derived fields in the database and are generated 'on the fly' by software.

The date referred to as 'Yearend' is not actually the HES year end date (31/3/19**), but 1/4/19**. This ensures that the night of the 31st of March is included. Yearend is used in Cendur, Censage, Detdur, Epidur, Bedyear and Speldur.

If the data provider has entered an invalid code into a date field (other than one which can be re-derived), ie. a collection of characters that cannot be recognised as a date by the HES database software) the date 15th October 1582 (the first date of the Julian calendar) will be substituted. This serves as an indication that the field cannot be used.

where readability is enhanced by their use, field names from the NHS data manual are Substituted for the Data Sciences equivalents (for example, Operdate1 is employed instead of the DSL variant op_dte_1). In other cases, the underscoring used by DSL has been omitted (therefore, diag_1 becomes diag1).

Anagest

Provides the Gestation period in weeks at the date of the first ante natal assessment. It is derived from:

Anasdate - date (*ddmyyyy*) of the first ante natal assessment.

Dobbaby - date (*ddmmyyyy*) of birth of baby.

Gestat - length of gestation in weeks.

Firstly, *Anasdate* is subtracted from *Dobbaby* to give the period between the first ante natal assessment and the birth date of the baby. The initial calculation produces a period measured in days. This is then divided by 7 to convert the period into weeks. Any fractions of a week are ignored (ie. the integer is used).

Anagest is now obtained by subtracting the above period from *Gestat*:-

$$\text{Anagest} = \text{Gestat} - \text{integer} ((\text{Dobbaby} - \text{Anasdate}) / 7)$$

If either *Anasdate* or *Dobbaby* are invalid (ie. set to 15 October 1582) or null, or *gestat* is invalid or null, then *Anagest* is set to -999.

Antedur

Ante natal days of stay (number of days between the start of the episode and the date of delivery).

If a record is either Epitype 2 (delivery record) or 5 (other delivery event), Antedur is calculated by subtracting Epistart (date episode started, *ddmmyyyy*) from Dobbaby (date of birth of baby, *ddmmyyyy*). This gives a period in days.

Where either Dobbaby or Epistart are invalid (ie set to 15 October 1582), or If the subtraction produces a negative value, or a period greater than 270 days, Antedur will be set to null (-999)

For all other Epitypes Antedur is inapplicable and so will be set to null.

Bedyear

The duration of an episode in days, but excluding any part of the episode which falls outside of the HES year. Basically, this involves subtracting the date the Episode Started (Epistart, ddmmyyyy) from the date the Episode Ended (Epiend, ddmmyyyy). But to ensure the result is applicable, and also to avoid counting days outside of the HES year, the following rules are applied:

If Rectype (record type) is 53 or 63 (other maternity events), then Bedyear = null.

If Rectype = 11, 21, 31 or 41 (ie. the record is unfinished):

Bedyear = **Yearend** - Epistart (in days).

but if Epistart is invalid (ie 15 October 1582), then Bedyear is set to -999.

If Epistart is prior to the beginning of the data year (before 1 April 19** where ** is the HES year being processed) then Epistart is replaced by the HES year start date.

If Rectype = 13, 23, or 33 (ie. the record is finished):

Bedyear = Epiend - Epistart (in days).

but if either Epistart or Epiend is invalid (i.e. 15 October 1582), then Bedyear is set to -999.

If Epistart is prior to the beginning of the HES year (before 1 April 19** where ** is the HES year being processed) then replace Epistart by the HES year start date.

Cause

Indicates if any of the records diagnosis fields contains an E-code.

If Rectype = 11, 21, 31, 41, 53 or 63 (Unfinished or other maternity event), then Cause is set to null.

If Rectype = 13, 23 or 33 (ie. finished episodes which are therefore suitable to be included in clinical analysis) then search all of the subsidiary/secondary diagnosis fields, looking for the character E in the 6th position.

If an E is found the contents of the diagnosis field (ie. the whole of the E-code itself) will be copied into the Cause field. If no E-code is found, then Cause will be set to null.

In practice this means that Cause will contain the first E-code found in the record - ie. the search commences at the second diagnosis field and continues until an E-code is found, or the last diagnosis field is reached.

There are two further data items related to Cause - **Cause3dg**, which provides the first 3 characters of **Cause**, and **Cause4dg**, which provides the first 4 characters of **Cause**.

Example

Assuming that **Diag_2** (the second diagnosis field) contains **8198-E**

Cause provides **8198-E**

Cause3dg provides **819**

Cause4dg provides **8198**

Cendur (NHS derived)

Applies to annual psychiatric census records only and gives the total duration of stay, in days, as measured on the census date (31st March). Therefore, if Epitype is not 4, Cendur will be set to null.

Cendur = **Yearend** (*ddmmyyyy*) - Admidate (*ddmmyyyy*)

If Admidate is invalid or null, or if the subtraction produces either a negative value or a period greater than 29,200 days (approximately 80 years), then Cendur is set to -999.

Censage (NHS derived)

Applies to annual psychiatric census records only and gives the patients age, in years, on the date of the annual psychiatric census (31st March). Therefore, if Epitype is not 4, Censage will be set to null.

Censage = **Yearend** (*ddmmyyyy*) - DOB (*ddmmyyyy*). Recorded as a whole number of years (ie. any days or months produced by the calculation are ignored).

If Dob is invalid or null, then Censage is set to -999.

Detdur (NHS derived)

Applies to annual psychiatric census records only and gives the period in days between the date current detention commenced (Detndate) and the date of the annual psychiatric census (31st March). Therefore, if Epitype is not 4, Detdur will be set to null.

Detdur = **Yearend** (*ddmmyyyy*) - Detndate (*ddmmyyyy*)

If Detndate is invalid or null then Detdur is set to -999.

If the subtraction produces a negative value, or a result greater than 29,200 days, Detdur will be set to -999

Dhacomp

If Dhatreat (district health authority of treatment) is the same as Resdha (district health authority of residence) then Dhacomp will be set to **1**. Otherwise,

if the *first character* of Dhatreat (which indicates the region) is the same as the first character of Resrha (ie. indicating that the patient lived in the same region where he or she was treated, but not in the same district) then Dhacomp will be set to **2**. Otherwise,

if the first character of Procode = T (indicating that the provider was a special health authority) and Resrha is either A-H, J-N or P (ie. one of the Regional Health Authorities) then Dhacomp will be set to **3**. Otherwise,

Dhacomp will be set to **4**. (this will normally indicate that the patient was resident outside of England).

Dhatreat

A three character field giving the District Health Authority where the treatment took place. This is obtained from the hospital provider code (Procode - ie. the DMU or Trust where treatment took place) using a look-up table.

Diag3dg

Provides the first three characters of the primary diagnosis. It does not exist as a separate field in the database.

A related item - Diag4dg, provides the first four characters of the primary diagnosis.

Elecdur (NHS derived)

Gives the period in days between the date of the decision to admit (Elecdate) and the actual date of admission (Admidate).

If Rectype (record type) is 53 or 63 (other maternity events) then Elecdur is set to null.

If Admidate and/or Elecdate are invalid or null then Elecdur will be set to -999.

Otherwise,

$\text{Elecdur} = \text{Admidate} (d d m m y y y y) - \text{Elecdate} (d d m m y y y y).$

If the above subtraction produces a value less than 1 day, or a period greater than 8887 days, Elecdur will be set to -999.

Endage

The patients age in years at end of a finished (complete) episode (Epistat = 3) where Epitype is 1,2 or 3 (ie. General record, Delivery record or Birth record).

Endage = Epiend (ddmmyyyy) - Dob (ddmmyyyy). Recorded as a whole number of years (ie. any days or months produced by the calculation are ignored, unless endage is under 1 year - see below).

If the above subtraction produces an Endage greater than 120, Endage will be set to 120. Where Endage is 0 - ie. under 1 year, the field is set according to the rules used for [Startage](#).

In all other cases, including where Epiend and/or Dob are invalid, Endage will be set to null.

Epidur (NHS derived)

The full duration of a finished episode, or the duration of an unfinished episode up to the end of the HES year, in days.

If Rectype = 13, 23 or 33 (indicating a finished general, delivery or birth episode), then

Epidur = Epiend (*ddmmyyyy*) - Epistart (*ddmmyyyy*)

Or

If Epistat = 1 (indicating an unfinished record), then

Epidur = **Yearend** (*ddmmyyyy*) - Epistart (*ddmmyyyy*)

However.....

Where either of the above subtractions produces a negative value, or a duration greater than 29,200 days, then Epidur will be set to -999

If Rectype = 53 or 63 (other maternity events) then Epidur is not applicable and so will be set to null.

If Rectype is 13, 23 or 33 and Epistart and/or Epiend is invalid, then Epidur will be set to -999.

If Epistat = 1 (indicating an unfinished record) and Epistart is invalid, then Epidur will be set to -999.

Gross_a

The coverage grossing field is initially set to 1. This default value may subsequently be over-written when grossing is applied.

Coverage grossing involves comparing the number of finished HES records in a pre-defined group (eg. cases treated within a particular consultant specialty and regional health authority) with the number for the same group reported on the aggregate return KP70. The ratio between the two provides a factor which may be used to correct for any shortfall, or surplus, in the number of HES records.

Gross_b

The combined coverage and clinical grossing field is initially set to 1. This default value may subsequently be over-written when grossing is applied.

The clinical grossing factor is used to compensate for the under counting of diagnoses or operations that will occur where cases in the group (see Gross_a above) contain the ICD9 diagnosis code 799.9 or ICD10 code R69X (not known). Gross_b is a composite factor derived by multiplying the clinical factor by [Gross_a](#).

Matage

The mothers age in years on the date of delivery, calculated by subtracting the mothers date of birth from the babies date of birth.

Matage = Dobbaby (*ddmmyyyy*) - Motdob (*ddmmyyyy*)

Recorded as a whole number of years (ie. any days or months produced by the calculation are ignored).

If either date is missing or invalid (15 October 1582) then Matage will be set to -999.

Neodur

Age of baby, in days, on Admission. Calculated by subtracting the babies date of birth (Dob) from the date of admission (Admidate). Neodur is not calculated if the patient is older than 27 days (ie. startage must be in the range 7001 to 7003).

If Epitype = 1-4 (all records excepting other maternity events) and Startage = 7001, 7002 or 7003, then

Neodur = Admidate (*ddmmyyyy*) - Dob (*ddmmyyyy*).

However....

If Epitype is 5 or 6 (other maternity event), or startage is 7004 or greater, then Neodur will be set to null.

If either Admidate or Dob is invalid, Neodur will be set to -999

Oper3dg

Provides the first three characters of the principal operation code. It does not exist as a separate field in the database.

Posopdur

The number of days between the date of the principal operation and the end of a finished episode.
Calculated by subtracting Operdate1 from Epiend.

$$\text{Posopdur} = \text{Epiend (ddmmyyyy)} - \text{Operdate1 (ddmmyyyy)}$$

However....

If Epistat = 1 (episode unfinished), then Posopdur will be set to null.

If Operdate1 is null (no operation), then Posopdur will be set to null.

Postdur

Postnatal stay in days. Calculated by subtracting the babies date of birth (Dobbaby) from the episode end date (Epiend). Where a delivery record is unfinished, Postdur will give the number of days between Dobbaby and the end of the HES year (Yearend).

If Rectype is 23 or 53 (delivery or other maternity event, finished episode), then

$$\text{Postdur} = \text{Epiend} (ddmmyyyy) - \text{Dobbaby} (ddmmyyyy)$$

If the above produces a negative value, or a result greater than 270 days, or either Epiend or Dobbaby are invalid (15 October 1582) or null, then Postdur will be set to -999.

If Rectype is 21 (delivery, unfinished), then

$$\text{Postdur} = \text{Yearend} (ddmmyyyy) - \text{Dobbaby} (ddmmyyyy)$$

If the above produces a negative value, or a result greater than 270 days, or either Epiend or Dobbaby are invalid (15 October 1582) or null, then Postdur will be set to -999.

For all other Rectypes, Postdur will be set to null.

Preopdur

For finished records only, the number of days between the start of an episode (Epistart) and the date of the principal operation (Operdate1). Calculated by subtracting Epistart from Operdate1.

If Epistat is 3 (finished record) and Operdate1 is not null (ie. there has been an operation), then

Preopdur = Operdate1 (*ddmmyyyy*) - Epistart (*ddmmyyyy*)

if Operdate1 is null, or Epistat is 1 (unfinished record), then Preopdur will be set to null.

Preposan

Anaesthesia indicator derived from Delprean (anaesthesia during delivery) and Delposan (anaesthesia after delivery).

Preposan is set according to the following table:-

Field	Contents								
Delposan	&	&	&	1-6, 8	1-6, 8	1-6, 8	other	other	other
Delprean	&	1-6, 8	other	1-6, 8	&	other	1-6, 8	&	other
Preposan	&	1	0	3	2	2	1	0	0

Note: From the 1995/96 datayear, Preposan is set according to this table:

Field	Contents								
Delposan	9	9	9	1-6, 7	1-6, 7	1-6, 7	other	other	other
Delprean	9	1-6, 7	other	1-6, 7	9	other	1-6, 7	9	other
Preposan	9	1	0	3	2	2	1	0	0

Prodmut

Provides the first three characters of Procode (Provider code). It does not exist as a separate field in the database.

Rhatreat

The Regional Health Authority where the treatment took place. The provider code (Procode) is located within a look-up table (the ORGUNIT file for the HES year) which will then give the appropriate RHA character.

Sampled

This indicates that the record has been selected for the 25% sample and is set when the data submission is authorised.

Records having the same Rectype (record type), Mainspef (consultant specialty) and Procode (provider code) are grouped in blocks of four. One record in each block is then randomly selected and is 'marked' by having Sampled set to Y (yes).

Spelbgin

Indicates if an episode is the first in hospital spell (Epiorder = 01, the 'admission episode'), and whether the spell started in the current, or a previous, HES year. Uses Epiorder (episode order) and Epistart (date episode started).

Rectype must be either 11, 13, 21, 23, 31, 33 or 41 (ie. other maternity events are excluded).

If Epiorder is 02 or higher, then set Spelbgin to **0** (meaning not first episode).

If Epiorder is 01 and Epistart (*ddmmyyyy*) is before first day of the current HES year, set Spelbgin to **1** (meaning first episode of a spell which began before the beginning of the HES year).

If Epiorder is 01 and Epistart (*ddmmyyyy*) is within current data year, then set Spelbgin to **2** (meaning first episode of a spell which began during the HES year).

If Spelbgin cannot be set by any of the above rules it will be set to null.

Speldur

Gives the Duration of a spell in days, calculated for finished spells by subtracting Admidate (date of admission) from Epiend (episode end date), and for unfinished spells by subtracting Admidate from Yearend.

If Rectype is 13, 23, 33 (finished general, delivery or birth episode) and Dismeth (method of discharge) is 1 to 5 (meaning patient has been discharged), then
 $\text{speldur} = \text{Epiend} (ddmmyyyy) - \text{Admidate} (ddmmyyyy)$.

If Epistat = 1 (meaning episode unfinished), then
 $\text{Speldur} = \text{Yearend} (ddmmyyyy) - \text{Admidate} (ddmmyyyy)$

If Rectype = 13, 23, 33 (finished general, delivery or birth episode) and Dismeth is not a numeral within the range 1 to 5 (meaning patient not discharged), then set Speldur to null.

However....

If Epitype = 5 or 6 (other maternity event) then set Speldur to null.

If Epiend and/or Admidate are invalid (15 Oct 1582), then set Speldur to -999.

Spelend

Indicates whether the Episode is the last in a spell.

If Epistat is 3 (finished episode) and Epitype is 1,2 or 3 (general, delivery or birth) and Dismeth is in the range 1 to 5 (meaning patient has been discharged), then set Spelend to Y (Yes).

In all other cases, Spelend will be set to N (No).

Startage (NHS derived)

Gives the patients age in years at the start date of the episode (Epistart), calculated by subtracting Dob (patients date of birth) from Epistart.

Startage = Epistart (ddmmyyyy) - Dob (ddmmyyyy). Recorded as a whole number of years (ie. any days or months produced by the calculation are ignored, unless Startage is under 1 year - see below).

If the Startage is under one year, then it is set to one of the following values:-

Startage	Age
7001	Less than one day
7002	1 - 6 days
7003	7 - 28 days
7004	29-90 days (approx. 29 days - under 3 months)
7005	91-181 days (approx. 3 months - under 6 months)
7006	182-272 days (approx. 6 months - under 9 months)
7007	273-364 days (approx. 9 months - under 1 year)

However....

If the calculation produces a Startage greater than 120 years, then Startage will be set to 120.

If the Rectype is 53 or 63 (other maternity events), then Startage will be set to null.

If Dob and/or Epistart contain invalid date code (15 Oct 1582) or null, then Startage is set to -999.

Vind

For Rectypes 13, 23 and 33 (general, delivery and birth - finished) this shows whether a diagnosis code of V290, V291, V292, V690, V691 or V692 is present in the subsidiary (Diag2) or secondary diagnosis (Diag3 to Diag7) fields. For V290 to V292, there is a check involving Admimeth and Startage which prevents Vind being set when the record does not relate to the baby. For the 1995/96 datayear [U-codes](#) will replace these V-codes.

If Rectype is 13, 23, 33 and any of Diag2 to Diag7 contains V290 and Admimeth is 82 or 83 (other births) or Startage is 7001, 7002 or 7003, then set Vind to **1**.

If Rectype is 13, 23, 33 and any of Diag2 to Diag7 contains V291 and Admimeth is 82 or 83 or (other births) or Startage is 7001, 7002 or 7003, then set Vind to **2**.

If Rectype is 13, 23, 33 and any of Diag2 to Diag7 contains V292 and Admimeth is 82 or 83 (other births) or Startage is 7001, 7002 or 7003, then set Vind to **3**.

If Rectype is 13, 23, 33 and any of Diag2 to Diag7 contains V690, then set Vind to **4**.

If Rectype is 13, 23, 33 and any of Diag2 to Diag7 contains V691, then set Vind to **5**.

If Rectype is 13, 23, 33 and any of Diag2 to Diag7 contains V692, then set Vind to **6**.

If Rectype is 13, 23, 33 and none of Diag2 to Diag7 contains V290, V291, V292, V690, V691 or V692, then set Vind to - (hyphen).

Rectype 41 - Psychiatric Census

For this record type the Vind indicator shows whether a diagnosis code of V690, V691 or V692 is present in any one of the diagnosis fields (diag1 to diag7).

If Rectype is 41 and any of Diag1 to Diag7 contains V690, then set Vind to **4**.

If Rectype is 41 and any of Diag1 to Diag7 contains V691, then set Vind to **5**.

If Rectype is 41 and any of Diag1 to Diag7 contains V692, then set Vind to **6**.

If Rectype is 41 and there is no entry in Diag1 to Diag7 of V690, V691 or V692 then set Vind to - (hyphen).

All other Rectypes

If Rectype is 11, 21, or 31 (ie unfinished records other than Rectype 41) or 53 or 63 (other maternity events), then set Vind to - (hyphen).

Postcode Derived Items

Currward
Rescty
Resdha
Resladst
Resrha
Resstand
Ward81

HOMEADD (the full postcode of the patients home address) is used in conjunction with a look-up table to populate the derived fields giving other area classifications for the patients place of residence (current electoral ward, county, DHA, local authority district, RHA, standard region and electoral ward in 1981 respectively).

If Homeadd = POSTCODEEy.Postcode then

```
set XXXYYEQ.Currward to POSTCODE.Currward
set XXXYYEQ.Rescty   to POSTCODE.Rescty
set XXXYYEQ.Resdha   to POSTCODE.Resdha
set XXXYYEQ.Resladst to POSTCODE.Resladst
set XXXYYEQ.Resrha   to POSTCODE.Resrha
set XXXYYEQ.Resstand to POSTCODE.Resstand
set XXXYYEQ.Ward81   to POSTCODE.Ward81
```

But if the entry in Homeadd does not exist in the look-up table,

```
set XXXYYEQ.Currward to -sp
set XXXYYEQ.Rescty   to Ysp
set XXXYYEQ.Resdha   to Yspsp
set XXXYYEQ.Resladst to Yspspsp
set XXXYYEQ.Resrha   to Y
set XXXYYEQ.Resstand to Y
set XXXYYEQ.Ward81   to -spspspsp
```

(sp = 1 space character)

Audit Data Items

These fields are set as indicated below when changes are made to certain other fields by Autocleaning, Manual Cleaning or Derivation.

A_elecdur

If ((Epitype = 1,2, or 4 and Epistat = 1) or (Epitype = 2 and Epistat=3)) and Elecdur changed by Autocleaning, then set to 1, otherwise set to 0.

A_epidur

If ((Epitype = 1,2,3 or 4 and Epistat = 1) or (Epitype = 2 or 3 and Epistat = 3)) and Epidur changed by Autocleaning, then set to 1, otherwise set to 0.

A_epityp

If Epitype changed by Autocleaning, then set to 1, otherwise set to 0.

A_st_age

If Startage changed by Autocleaning, then set to 1, otherwise set to 0.

A_whole

If any Episode data item changed by Autocleaning or Manual Cleaning, then set to 1, otherwise set to 0.



1989/90

- Poor coverage of Maternity events.
- Diagnosis coding - some RHAs were not using a hyphen in the 4th character position where no 4th digit breakdown is shown in ICD9. The syntax for end of year table generation was amended to overcome this problem from 1989/90 onwards but no such correction was applied for previous years.
- From 1.4.89:
 - Parkside (E17) created from merger of Brent & North Paddington and North Kensington.
- Specialty 315 - Palliative Medicine, created.



1990/91

- The last quarter's data had incomplete episodes artificially completed. EPISTAT 2 (incomplete) changed to 3 (unfinished) and Diagnosis changed to 7999. This was done because from 1991-92 incomplete episodes were no longer to be submitted.
- West Midlands and South Western RHAs maternity data depleted. South Western RHA day cases submitted as ordinary admissions.
- Final revised version of OPCS4 Surgical Operations Classification used.
- Specialties created as from 1.4.90:
 - 312 Clinical cytogenetics
 - 450 Dental medicine
 - 715 Old age psychiatry
- SHA (Special Health Authority) T02 name changed from 'National Hospital for Nervous Diseases' to 'National Hospital for Neurology and Neurosurgery'.
- DHAs as for 1989-90.



1991/92

- NHS Review changes implemented - new dataset based on Hospital Provider rather than DHA of Treatment. There were considerable problems with Provider coding for this and subsequent years. Many Providers coded as new wave Trusts which did not then officially exist. These had to be recoded back to the Provider but as 'TWINS'.
- New data items added:
 PROCEDURE, PURCHASE, ETHNICITY, SUBSPECIES, DISDATE, DHATREAT.
- Deleted items:
 TREATDIS, MANAGING, TREATCON, ECT.
- Codes now invalid:
 ADMIMETH 24
 CLASSPAT 3 and 4
 EPISTAT 2
- Specialties* created as from 1.4.91:
 313 Clinical immunology and allergy
 314 Rehabilitation
- Some DHA mergers occurred. L10 Bristol and District accepted as a DHA and appeared in outputs based on District of Treatment but not as District of Residence. Officially this DHA did not then exist.
- East Germany country code deleted and Germany renamed Unified Germany but code remained the same - ZZ994QZ.
- Known problems with data included DISMETH coding errors resulting in inflated spell counts.



1992/93

- DISMETH problem reoccurred (see 1991/92). Data cleaned at OPCS and all outputs run from this cleaned data except for the non maternity HSIs.
- There were some DHA changes.
- All new specialties added to regular tables as from 1989-90 whether or not they had officially come in to being for the table year.

1993/94



- Coverage and consistency generally better than previous years.
- Continuing changes to health authority boundaries plus mergers and de-mergers of trusts cause problems with year on year analysis.
- New specialty created: 460 Medical Ophthalmology.
- Introduction of dual coding system to identify operations performed horacoscopically (Y498) or laparoscopically (Y508), for which there is no single specific 3 or 4 digit code.
- Changes made to definitions of certain categories of ADMISORC and DISDEST to clarify the classification.
- 'Health care provider' now used in place of 'District' in the definition of the psychiatric admission status codes, V691 and V692.
- Some duplicate records for providers in North West Thames RHA.
- Use of psychiatric V-codes particularly poor in some regions. No mental handicap records for East Anglian RHA.
- Poor coding of subsidiary neonate V-codes and E-codes in some RHAs.



- Continuing changes to health authority boundaries plus mergers and de-mergers of trusts cause problems with year on year analysis.
- SHA's included in their relevant regions.
- Anglia & Oxford region - The coding of primary diagnosis is poor: 12% of Oxford's records and 19% of Anglia's records have either missing, 'not known' or invalid primary diagnoses. Also, there are no cause of accident E-codes on records supplied by Anglia & Oxford. These problems are due to be corrected - ask **SD2HES** for the latest information.
- Trent region - coverage measured against KP70 is only 82%.
- Good use of neonate V-codes with the exception of Yorkshire (51%) and South East Thames (55%).
- Lack of psychiatric V-codes - particularly poor are Northern (26%), Yorkshire (42%), North West Thames (35%) and South East Thames (37%).
- Maternity data - reasonably consistent with OPCS with the exception of Yorkshire (87%), Trent (80%), North East Thames (76%) and Oxford (70%). Provider RCH (North Tees Acute Trust - Northern & Yorkshire) did not submit any well baby records.
- Wessex had a large proportion (25%) of elective admissions with zero days waiting times.

HIES The Book

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The Fields section
draws heavily on the
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