Public Health England

Protecting and improving the nation's health

HCAI Data Capture System
User Manual

Overview of Trust Apportioning Algorithm

About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. It does this through world-class science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. PHE is an operationally autonomous executive agency of the Department of Health.

Public Health England
Wellington House
133-155 Waterloo Road
London SE1 8UG
Tel: 020 7654 8000
www.gov.uk/phe
Twitter: @PHE_uk
Facebook: www.facebook.com/PublicHealthEngland

Document History

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Algorithms for Apportioning Cases

Introduction

Please note that the algorithm applied for the apportioning of MSSA bacteraemia (and historically MRSA, until 1 April 2013) versus *C. difficile* infection uses a different number of days between specimen collection and admission to apportion cases; the principle is the same however. All cases of MSSA, *E.coli* bacteraemia and *C. difficile* infection are either Trust apportioned or non-Trust apportioned based on the algorithms below (see also Figures 1 and 2). *P. aeruginosa* and *Klebsiella* spp. bacteraemia are not Trust apportioned. Please also note that the apportioning algorithm is only applied to data entered by NHS acute Trusts.

It is not possible for PHE to change the apportionment of a case, as apportionment is based on the data entered by the acute Trust and the algorithm is applied to the entire dataset not on a case by case basis; a case may only change from one category to another if the relevant case details are incorrect and require amendment by the Trust.
In addition to apportioning, all cases are also attributed to a CCG (see above). Thus all Trust apportioned and non-Trust apportioned cases will be attributed to a CCG.

MSSA ,*E.coli***, *P.aeruginosa* **and *Klebsiella*** spp. bacteraemia (and historically MRSA bacteraemia*)

Trust apportioned:

Any NHS patient specimens taken on the third day of admission onwards (eg day 3 when day 1 equals day of admission) at an acute Trust (including cases with unspecified specimen location) for Inpatients, Day-patients, Emergency Assessment, or unspecified patient category.

Records with a missing admission date (where the specimen location is acute Trust or missing and the patient category is Inpatient, Day-patient, Emergency Assessment, or unspecified) are also included.

Non-Trust apportioned:

Any NHS patient specimens not apportioned to the above. This will typically include the following groups:

- Any acute Trust specimens taken on either the day of admission or the subsequent day (eg days 1 or 2, where day 1 equals day of admission).
- Any specimens from patients attending an acute Trust who are not Inpatients, Day patients or under Emergency Assessment (ie non admitted patients).

- Any specimens from patients attending an identifiable healthcare location except an acute Trust. This will typically include GP, nursing home, non-acute NHS hospital and private patients.

*MRSA bacteraemias underwent the apportioning algorithm until 31 March 2013. From 1 April 2013 all MRSA bacteraemia cases were subject to the Post Infection Review. Based upon these individual investigations an MRSA case would then be assigned to an acute Trust or CCG. As apportioning is based solely on other data items collected the process can be carried out on current data to allow the time series to be continued.
** From April 2017, the facility for apportioning Gram-negative bacteraemia using the 3 day algorithm, already in use for MSSA bacteraemia was turned on in the HCAI DCS. *E.coli* bacteraemia cases entered earlier will be retrospectively apportioned and then counts and rates of apportioned *E.coli* bacteraemia will be available via the DCS reports.

C. difficile

Trust apportioned:

Any NHS patient specimens taken on the fourth day of admission onwards (eg day 4 when day 1 equals day of admission) at an acute Trust (including cases with unspecified specimen location) for Inpatients, Day-patients, Emergency Assessment, or unspecified patient category.

Records with a missing admission date (where the specimen location is acute Trust or missing and the patient category is Inpatient, Day-patient, Emergency Assessment, or unspecified) are also included.

Non-Trust apportioned:

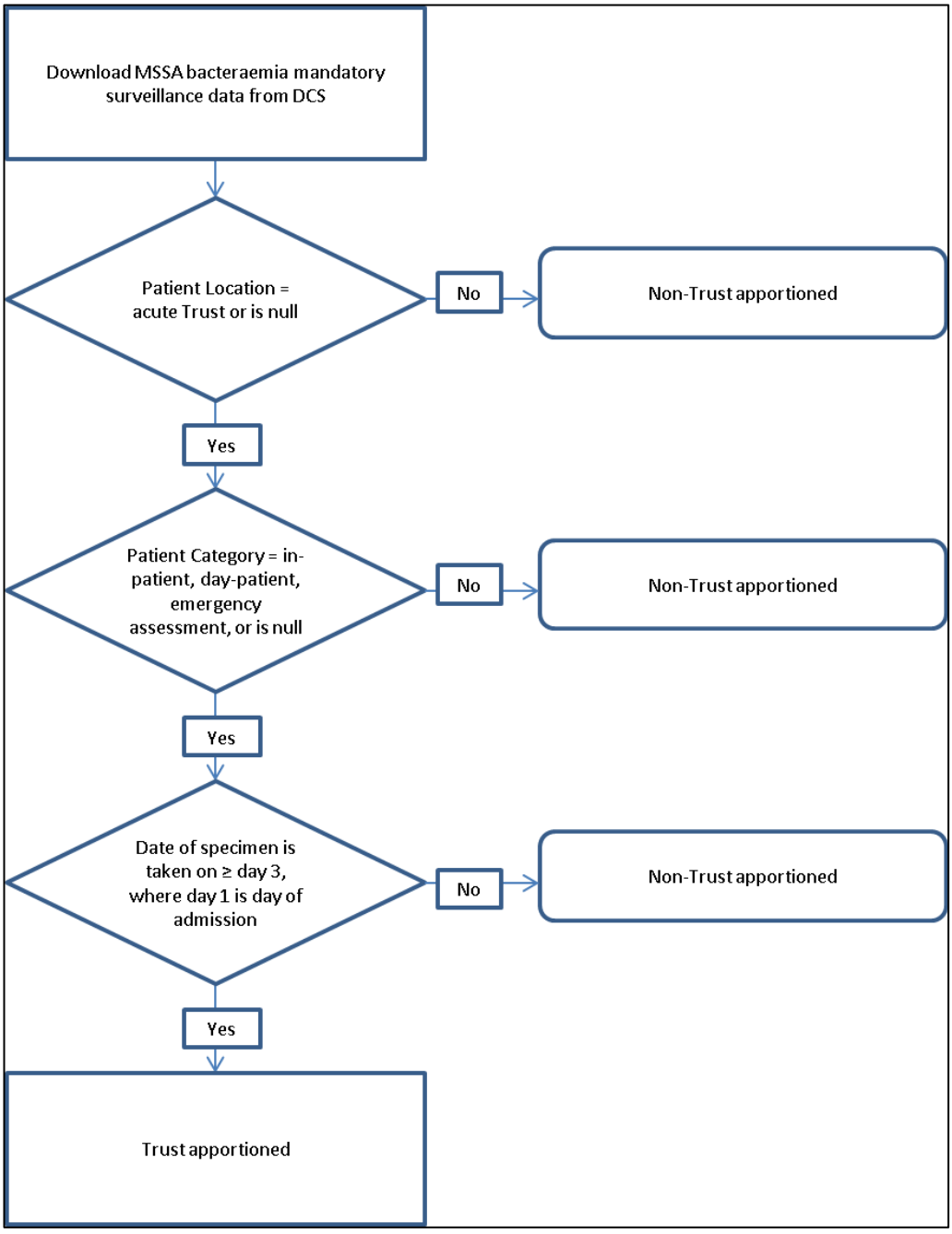
Any NHS patient specimens not apportioned to the above. This will typically include the following groups:

- Any acute Trust specimens taken on either the day of admission or the two subsequent days (eg days 1, 2, 3 where day 1 equals day of admission).
- Any specimens from patients attending an acute Trust who are not Inpatient, Day-patient or under Emergency Assessment (eg non admitted patients).
- Any specimens from patients attending an identifiable healthcare location **except** an acute Trust. This will typically include GP, nursing home, non-acute NHS hospital and private patients.

Appendix

Figure 1

Summary of the apportionment process for MSSA, *E.coli, P. aeruginosa* and *Klebsiella* spp. bacteraemia (and historically MRSA) cases entered onto the DCS



Until 1 April 2013, MRSA bacteraemia cases also had the above algorithm applied in order to ascertain whether a case was Trust apportioned or non-Trust apportioned. Since 1 April 2013,

all MRSA cases are subject to a PIR. Through this a case is then assigned to the organisation best placed to learn and improve from the infection episode. Between 1 April 2013 and 31 March 2014, an MRSA bacteraemia could only be assigned to either an NHS acute Trust (Trust-assigned) or a CCG (CCG-assigned). However, to better reflect the complex MRSA bacteraemia cases being reported to PHE, all MRSA bacteraemias with a specimen date on or after 1 April 2014 could also be assigned to an additional category (a “Third Party”). Such an approach provides acknowledgment of this complexity by allowing MRSA bacteraemias that would have previously been allocated to either an acute provider or CCG by default (when neither were involved and/or when there were no possible failings in patient care) to be allocated as third party.

Figure 2

Summary of the apportionment process for *C. difficile* infection cases entered onto the DCS