

Health Protection Surveillance Centre
Lárionad Fáilte um Chosaint Sláinte

Healthcare-associated infections & antimicrobial use in long-term care facilities (HALT) 2016

Training Day: Lecture 4
Case Studies: 1 – 5
Student Version

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Presentation Outline

- This session gives you a chance to practice completing the resident questionnaire
- To record a resident's antimicrobial data
- To learn about the surveillance definitions of the most common HCAI types, based on the results of previous HALT surveys in Ireland

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What were the most prevalent HCAI types in the Ireland HALT surveys?

HCAI Type	2010 (%)	2011 (%)	2013 (%)
Respiratory Tract	1.0	1.4	1.9
Urinary Tract	1.5	1.3	1.7
Skin	0.7	1.0	1.3
Eye, Ear, Nose, Mouth	0.3	0.4	0.3
Gastro-intestinal	0.2	0.1	0.1

Figure 3.9.1 Prevalence of HCAI types: 2010 – 2013. Source: HALT 2013 National Report

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Case Study 1 – G Gertrude

- G. Gertrude, 93 year old female (born in 1923) has been living full time in the LTCF for over a year
- She is in her bed at 8am on the survey day (4th May)
- Her resident study number is A03
- She is generally well, with no hospital admissions since she has been in the LTCF
- She requires a wheelchair
- She has no urinary catheter/no vascular catheter/ no pressure sores / no wounds
- She is fully orientated and continent

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Case Study 1 – G Gertrude

- Three days ago she complained of pain on urination. She was otherwise well and had no temperature
- On 1st May, her in-house GP started her on oral ciprofloxacin 250mg twice daily (BD) for five days
- Dipstick test on urine showed positive result for nitrites and leucocytes
- A mid-stream urine sample (MSU) was sent to laboratory for culture and sensitivities, three days previously
- On day of the survey (4th May), G. Gertrude is feeling much better. The MSU results showed $>10^5$ cfu/ml *E. coli*, which were reported as ESBL-positive, cefotaxime resistant and meropenem susceptible/sensitive

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Case Study 1 – G Gertrude

- Does G Gertrude need a resident questionnaire?

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What infection do you think G Gertrude might have?

- If you're not sure – cast the net wide
- Record all of the signs and symptoms
- For chronic signs and symptoms – they need to be acutely worse
- USE THE HALT PROTOCOL**
- If you think a resident might have signs or symptoms consistent with a urinary tract infection, check for a urinary catheter

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Resident Questionnaire – UTI Section See HALT Protocol Section 2.3.3.10 (Page 43)

URINARY TRACT INFECTIONS

Resident with or without a urinary catheter	Resident with a urinary catheter
<p>SYMPTOMS/CRITERIA:</p> <p>At least 2/3 of the following (1, 2, 3 or 4) present:</p> <ul style="list-style-type: none"> 1. Change in colour, turbidity or consistency of the urine, micturition, or pruritus 2. Presence of haematuria 3. Presence of pyuria 4. Acute change in the nature of the urine <p>OR</p> <ul style="list-style-type: none"> 1. Presence of any of the following: <ul style="list-style-type: none"> Acute change in the nature of the urine Acute change in the nature of the urine Acute change in the nature of the urine Acute change in the nature of the urine Acute change in the nature of the urine 2. Presence of any of the following: <ul style="list-style-type: none"> Acute change in the nature of the urine Acute change in the nature of the urine Acute change in the nature of the urine Acute change in the nature of the urine Acute change in the nature of the urine 	<p>SYMPTOMS/CRITERIA:</p> <p>At least 2/3 of the following (1, 2, 3 or 4) present:</p> <ul style="list-style-type: none"> 1. Change in colour, turbidity or consistency of the urine, micturition, or pruritus 2. Presence of haematuria 3. Presence of pyuria 4. Acute change in the nature of the urine <p>OR</p> <ul style="list-style-type: none"> 1. Presence of any of the following: <ul style="list-style-type: none"> Acute change in the nature of the urine Acute change in the nature of the urine Acute change in the nature of the urine Acute change in the nature of the urine Acute change in the nature of the urine 2. Presence of any of the following: <ul style="list-style-type: none"> Acute change in the nature of the urine Acute change in the nature of the urine Acute change in the nature of the urine Acute change in the nature of the urine Acute change in the nature of the urine

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Case Study 1: G Gertrude

Q: How would you complete the case definitions section of the resident questionnaire for G. Gertrude?

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Points to note

Q: If a resident is suspected of having a urinary tract infection, what steps should you take to determine whether it is present or not?

A: Establish if the resident has a urinary catheter or not; the signs and symptoms criteria differ for each

Check resident's notes for information on mid-stream urine (MSU) or catheter sample urine (CSU) collection and check whether the laboratory report has come back yet and what was on it

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How do I complete the section on 'isolated microorganisms'?

- This section is **only completed when a resident meets criteria for INFECTION CONFIRMATION**
- Go to the HALT protocol and follow the instructions on **pages 60 to 68**
- Your starting point is **Algorithm 1 on page 60**

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Algorithm 1 – HALT protocol page 60

Algorithm 1: Completion of Resident Questionnaire Section: 'Isolated Microorganisms' on bottom of page 2

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    graph TD
      Q1{Did the resident have a specimen sent to the microbiology laboratory?}
      Q1 -- No --> Q2{Did the resident have a specimen sent to the microbiology laboratory?}
      Q1 -- Yes --> Q3{A written report has been received from the microbiology laboratory?}
      Q3 -- No --> Q4{The report is not a written report?}
      Q4 -- Yes --> Q5{The report is not a written report?}
      Q4 -- No --> Q6{The report is not a written report?}
      Q3 -- Yes --> Q7{The report is not a written report?}
      Q7 -- Yes --> Q8{The report is not a written report?}
      Q7 -- No --> Q9{The report is not a written report?}
  
```


**Case Study 1: G Gertrude
If INFECTION CONFIRMED,
Don't forget to go back and finish Part B**

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Case Study 2: R Romeo

- R. Romeo, a 79 year old male (born in 1937) has been a full-time resident in the LTCF for two years
- He is present at 8am on the survey day
- His resident study number is A04
- He has general poor health, disorientated, bedridden, and incontinent (urinary)
- He has no urinary catheter/no vascular catheter/ no pressure sores / no wounds
- He was admitted to hospital electively 30 days ago for prostatectomy

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Case Study 2: R Romeo

- On day of the survey (8th May), his medical notes indicate that he had passed blood in his urine in the last 24 hours and his temperature is 37.9°C
- On 7th May, the LTCF medical officer prescribed oral trimethoprim 200mg twice daily (BD) for seven days
- Laboratory results on the mid-stream urine (MSU) sample were not available on 8th May

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Case Study 2 – R Romeo

- Does R Romeo need a resident questionnaire?

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What infection do you think R Romeo might have?

- If you're not sure – cast the net wide
- Record all of the signs and symptoms
- For chronic signs and symptoms – they need to be acutely worse
- **USE THE HALT PROTOCOL**
- If you think a resident might have signs or symptoms consistent with a urinary tract infection, check for a urinary catheter

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Case Study 2: R Romeo

Q: How would you complete the case definitions section of the resident questionnaire for R Romeo?

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Resident Questionnaire – UTI Section See HALT Protocol Section 2.3.3.10 (Page 43)

URINARY TRACT INFECTIONS

<p><input type="checkbox"/> Resident with a urinary catheter</p> <p>SECTION 1: ASYMPTOMATIC</p> <p><input type="checkbox"/> At least 3 days of continuous (24 hr. or 24 hr./day) urinary catheter use of acute onset/development of one or more symptoms, or pain.</p> <p>SECTION 2: ASYMPTOMATIC WITH NO DISSEMINATED INFECTIONS</p> <p><input type="checkbox"/> At least 1 episode of acute onset/development of one or more symptoms, or pain.</p> <p>SECTION 3: ASYMPTOMATIC WITH DISSEMINATED INFECTIONS</p> <p><input type="checkbox"/> At least 1 episode of acute onset/development of one or more symptoms, or pain, AND evidence of one or more of the following:</p> <p>SECTION 4: ASYMPTOMATIC WITH NO DISSEMINATED INFECTIONS AND NO URINARY CATHETER USE</p> <p><input type="checkbox"/> At least 3 days of continuous (24 hr. or 24 hr./day) urinary catheter use of acute onset/development of one or more symptoms, or pain.</p>	<p><input type="checkbox"/> Resident with no urinary catheter</p> <p>SECTION 5: ASYMPTOMATIC</p> <p><input type="checkbox"/> At least 3 days of continuous (24 hr. or 24 hr./day) urinary catheter use of acute onset/development of one or more symptoms, or pain.</p> <p>SECTION 6: ASYMPTOMATIC WITH NO DISSEMINATED INFECTIONS</p> <p><input type="checkbox"/> At least 1 episode of acute onset/development of one or more symptoms, or pain.</p> <p>SECTION 7: ASYMPTOMATIC WITH DISSEMINATED INFECTIONS</p> <p><input type="checkbox"/> At least 1 episode of acute onset/development of one or more symptoms, or pain, AND evidence of one or more of the following:</p> <p>SECTION 8: ASYMPTOMATIC WITH NO DISSEMINATED INFECTIONS AND NO URINARY CATHETER USE</p> <p><input type="checkbox"/> At least 3 days of continuous (24 hr. or 24 hr./day) urinary catheter use of acute onset/development of one or more symptoms, or pain.</p>
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How do I complete the section on 'isolated microorganisms'?

- This section is **only completed when a resident meets criteria for INFECTION CONFIRMATION**
- Go to the HALT protocol and follow the instructions on **pages 60 to 68**
- Your starting point is **Algorithm 1 on page 60**

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Algorithm 1 – HALT protocol page 60

Algorithm 1: Completion of Resident Questionnaire Section 'Isolated Microorganisms' on bottom of page 2

Did the resident have a specimen used in the lab for the following specimen type?

Yes / No

If YES, has the resident had a specimen used in the lab for the following specimen type?

A) YES / B) NO

If YES, has the resident had a specimen used in the lab for the following specimen type?

C) YES / D) NO

If YES, has the resident had a specimen used in the lab for the following specimen type?

E) YES / F) NO

If YES, has the resident had a specimen used in the lab for the following specimen type?

G) YES / H) NO

If YES, has the resident had a specimen used in the lab for the following specimen type?

I) YES / J) NO

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Case Study 2: R Romeo If INFECTION CONFIRMATION – Don't forget to go back and finish Part B on Page 2

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Points to note Isolated Microorganisms Section

- NOEXA EXAMINATION NOT DONE:** no diagnostic sample taken, no microbiological examination done
- NA RESULTS NOT AVAILABLE:** the results of the microbiological examination are not yet available or cannot be found
- NONID MICROORGANISM NOT IDENTIFIED:** evidence exists that a microbiological examination has been done and microorganisms were detected, but they have not been named – e.g., mixed growth
- STERI STERILE EXAMINATION:** a microbiological examination has been done, but the result was sterile (e.g. culture negative/pathogens not isolated)

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Case Study 3: P Polonius

- P. Polonius is a 92 year-old male (born in 1924), who has been living in the LTCF for past three years
- He is bedridden but continent
- He was admitted to hospital two weeks previously for a cholecystectomy, from which he has recovered well and he returned to your LTCF yesterday (7th May)
- He has no history of heart or breathing problems
- He has a urinary catheter
- His surgical wound is healing well
- He does not have a vascular catheter or pressure sores and is fully orientated

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Case Study 3: P Polonius

- On the day of the survey (8th May), P. Polonius is in the LTCF at 8am and his resident study number is A10
- He has cough that was not present the day before and an O₂ saturation of 92%
- His temperature on the day is 38.3°C
- He is not on any antimicrobials – the GP is due to review him later that day and he has not yet produced any sputum to send to the laboratory for culture

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Case Study 3 – P Polonius

- Does P Polonius need a resident questionnaire?

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Case Study 3: P Polonius

Q: How would you complete the case definition of infection section of the resident questionnaire for P Polonius?

A: Cast the net wide and record all signs and symptoms
Chronic signs and symptoms must be acutely worse
USE THE HALT PROTOCOL

If you suspect a resident has a lower respiratory tract infection, check whether a chest x-ray has been done, around the time the symptoms started and what was on the report

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Resident Questionnaire Respiratory Tract Infection Sections

See HALT Protocol Section 2.3.3.11 & 2.3.3.12 (Page 44) & 2.3.3.13 (Page 45)

2.3.3.11 Common cold or pharyngitis

AT LEAST TWO OF THE FOLLOWING CRITERIA MUST BE MET:

- Runny nose or sneezing
- Stuffy nose (i.e. congestion)
- Sore throat or hoarseness or difficulty in swallowing
- Dry cough
- Swollen or tender glands in the neck (or viral lymphadenopathy)

INFECTION CONFIRMATION

- Infection criteria fully met: **INFECTION CONFIRMED (+COLD-C)**
- Infection treated on PPS day but no documentation of signs/symptoms: **INFECTION SUSPECTED (+COLD-S)** (Hospital or other LTCF only)

2.3.3.12 Flu or influenza virus infection

FLU diagnosis can be made also under the flu section

BOTH OF THE FOLLOWING CRITERIA MUST BE MET:

- Fever (see definition see top of page 3)
- AND
- At least three of the following:
 - Cough
 - Headache/ache or eye pain
 - Myalgia or body aches
 - Malaise or loss of appetite
 - Sore throat
 - Nose or increased dry cough

INFECTION CONFIRMATION

- Infection criteria fully met: **INFECTION CONFIRMED (+FLU-C)**
- Infection treated on PPS day but no documentation of signs/symptoms: **INFECTION SUSPECTED (+FLU-S)** (Hospital or other LTCF only)

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Resident Questionnaire Respiratory Tract Infection Sections

See HALT Protocol Section 2.3.3.11 & 2.3.3.12 (Page 44) & 2.3.3.13 (Page 45)

LOWER RESPIRATORY TRACT INFECTIONS

Algorithm A

Resident with a POSITIVE chest x-ray for pneumonia or a new infiltrate

AT LEAST ONE OF THE FOLLOWING CRITERIA MUST BE MET:

- At least one of lower respiratory signs or symptoms
- At least one of the following:
 - Wheeze or increased cough
 - Hyperinflated chest on auscultation
 - Hyperinflation of ribs or increased ribcage circumference
 - Increased lung expansion on chest x-ray
 - Increased chest dullness
 - Respiratory rate > 20 breaths/minute
- One or more acute lower respiratory signs, symptoms, or findings were first noted on the day the chest x-ray was done (see top of page 44)

INFECTION CONFIRMATION

- Infection criteria fully met: **INFECTION CONFIRMED (+PNEU-C)**
- Infection treated on PPS day but no documentation of signs/symptoms: **INFECTION SUSPECTED (+PNEU-S)** (Hospital or other LTCF only)

Algorithm B

Resident without a POSITIVE chest x-ray for pneumonia or a new infiltrate

AT LEAST TWO OF THE FOLLOWING CRITERIA MUST BE MET:

- At least one of lower respiratory signs or symptoms
- Wheeze or increased cough
- Hyperinflated chest on auscultation
- Hyperinflation of ribs or increased ribcage circumference
- Increased lung expansion on chest x-ray
- Increased chest dullness
- Respiratory rate > 20 breaths/minute
- One or more acute lower respiratory signs, symptoms, or findings were first noted on the day the chest x-ray was done (see top of page 44)

INFECTION CONFIRMATION

- Infection criteria fully met: **INFECTION CONFIRMED (+PNEU-C)**
- Infection treated on PPS day but no documentation of signs/symptoms: **INFECTION SUSPECTED (+PNEU-S)** (Hospital or other LTCF only)

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Case Study 3: P Polonius

If INFECTION CONFIRMATION – Don't forget to go back and finish Part B on Page 2

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Points to note

Q: What are constitutional signs and symptoms?

A: Constitutional signs and symptoms include:

1. Fever
2. Leucocytosis
3. Acute change in mental status from baseline
4. Acute functional decline

- See HALT protocol and resident questionnaire page 3 for definitions
- Definitions must be strictly adhered to

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Constitutional signs and symptoms

* Fever: 1) single > 37.8°C oral, tympanic membrane ≥ 2 ; re-aetted > 37.2°C oral or > 37.5°C rectal ≥ 3 ; > 1.1°C over baseline from any site (oral, tympanic, axillary)

** Leucocytosis: 1) Neutrophils > 14,000 leucocytes/mm³ ≥ 2 ; left shift (>6% bands or a 1500 bands/mm³)

§ Acute change in mental status from baseline: Acute onset + Fluctuating course + Inattention AND either: disorganized thinking ≥ 1 ; altered eye of consciousness

§§ Acute functional decline: New 3 point increase in total ADL score (Range 0-28) from baseline based on 7 ADL items (bed mobility, transfer, locomotion, dressing, toilet use, personal hygiene, eating), each scored from 0 (independent) - 4 (total dependence) OR increased dependency defined by scales other than ADL

These definitions found on resident questionnaire Page 3 must be used for HALT 2016

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Case Study 4: H Horatio

- H. Horatio is a 59 year old male (born in 1957), who has been living in the LTCF for the last 25 days
- His resident study number is A08
- He was transferred to the LTCF from an acute hospital following surgery as a result of a road traffic accident
- Due to a spinal injury he currently requires a wheelchair and has a suprapubic catheter
- He underwent surgery two months previously and his surgical wound is fully healed and he has a pressure sore at the base of his spine

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Case Study 4: H Horatio

- On the survey day (8th May), he is present at 8am and is complaining of a dry cough, stuffy nose and sore throat. He tells you that he has had these symptoms for the last two days
- He has no vascular catheters *in situ*
- He is prescribed no antimicrobials
- His temperature is normal and he is fully orientated and incontinent of faeces

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Case Study 4 – H Horatio

- Does H Horatio need a resident questionnaire?



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Point to note

Q: For the purposes of the HALT survey, is a suprapubic catheter the same as a urinary catheter?

A: Yes. According to the HALT protocol, a urinary catheter is defined as “any tube system placed in the body to drain and collect urine from the bladder (e.g. indwelling urethral catheter, suprapubic catheter)

A condom catheter is **not a urinary catheter** – it is not placed in the body





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Point to note

A suprapubic catheter insertion site is also classified as an “other wound” as per HALT protocol. The definition of “other wounds” is:

- All wounds, other than a pressure sore
- This includes: leg ulcers, traumatic or surgical wounds, insertion sites for percutaneous endoscopic gastrostomy (PEG tubes), tracheostomy, urostomy, colostomy or suprapubic and peritoneal catheters





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Case Study 4 - H Horatio



Q: How would you complete the signs and symptoms of infection section of the resident questionnaire for H Horatio?



A: Cast the net wide and record all signs and symptoms
Chronic signs and symptoms must be acutely worse
USE THE HALT PROTOCOL



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Case Study 4: H Horatio If INFECTION CONFIRMATION – Don't forget to go back and finish Part B on Page 2





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Influenza



- LTCF residents are especially vulnerable to influenza infection:
 - Older age
 - Chronic underlying illnesses
 - Living in close proximity to each other
- Influenza is a major cause of death in vulnerable residents and patients
- Influenza outbreaks in LTCF are common in Ireland





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Influenza



- Annual seasonal influenza vaccine is recommended for residents of LTCF **AND** for healthcare workers
- 2014/15 season: Just 25% of LTCF staff took the opportunity to receive influenza vaccine!
- The vaccine is not 100% effective and its effect may be even less in elderly or immunocompromised residents
- Healthcare workers are much more likely to have a better protective response to vaccination





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Influenza



- Where influenza outbreaks have occurred in LTCF settings – consistently, uptake of vaccine by healthcare workers has been poor
- **Annual vaccination protects you, your residents and your family**
- Remember that up to one-third of influenza infections may be asymptomatic – you could unknowingly have influenza and transmit it to others – **vaccination is your only protection**





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Case Study 5: M Macbeth



- M. Macbeth is an 83 year-old male (born in 1943), who has been living in the LTCF for the last two years
- He uses a wheelchair and requires oxygen at night for emphysema, for which he also regularly uses an albuterol inhaler
- He has returned to the LTCF at lunchtime on May 8th, following a week-long home visit with family
- During this visit he had a suspected respiratory tract infection and the local GP prescribed po amoxicillin four days ago





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Case Study 5: M Macbeth



- On the day of the survey (May 8th) he has:
 - No pressure sores or wounds
 - No vascular or urinary catheters and is fully continent
 - Had no recent admissions to hospital
 - A normal temperature, is fully orientated and on his last day of antimicrobial treatment





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Case Study 5 – M Macbeth



- Does M Macbeth need a resident questionnaire?





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Point to note

Q: If M Macbeth had come back from holidays last night (7th May) prior to the survey day, would he be an eligible resident?



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Well done!

Thank you for your attention

Any questions?

Don't forget to contact us if you need help during HALT

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