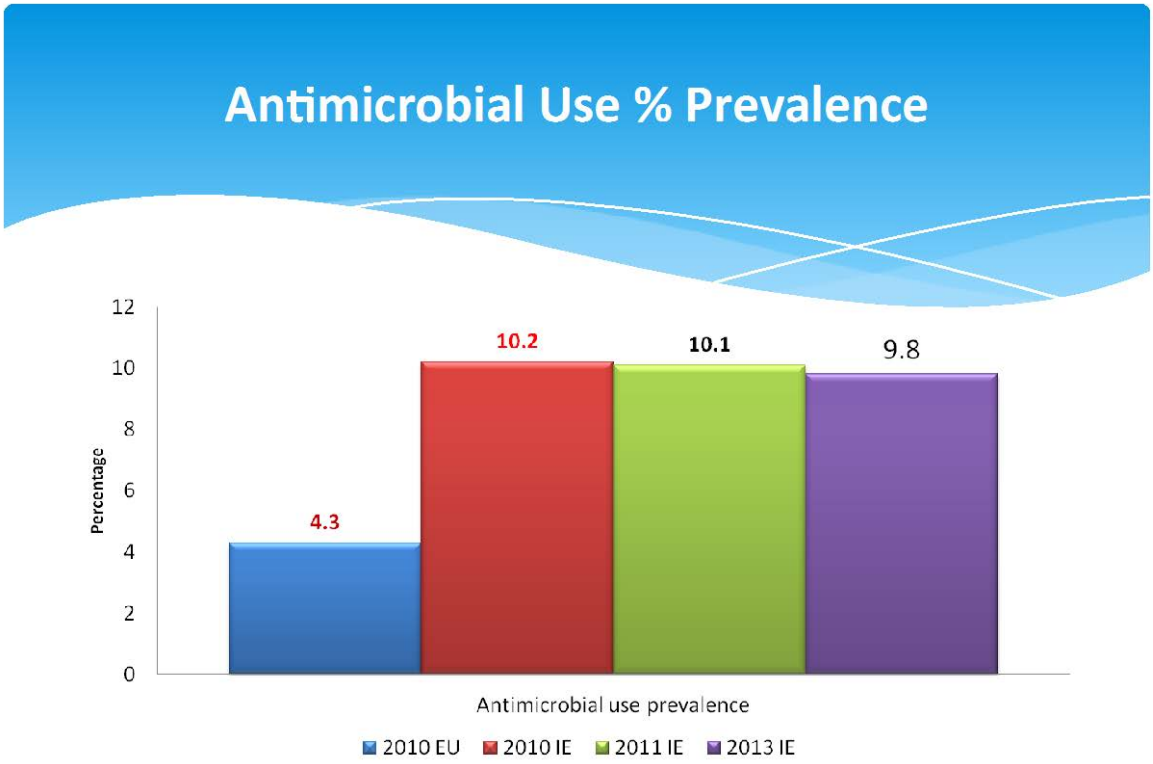
Drugs for bugs in long-term care residents – can we help prevent infection and optimise our antimicrobial prescribing?

In the European HALT survey conducted in 2010, the prevalence of antimicrobial use and prophylaxis in particular was high in Ireland. Residents in Irish long term care facilities are twice as likely to be on an antibiotic as their European counterparts. This article presents the results of the 2013 Halting Infections in Long-Term Care HALT study. Unfortunately, there are little signs of improvement. We can, should and need to do better.



What is the HALT survey and what did it set out to do?

In May 2013, 9,318 residents in 190 long-term care facilities (LTCF) were included in the third point prevalence survey (PPS) of healthcare-associated infections (HCAI) and antimicrobial use conducted in Ireland since 2010. The 2013 voluntary HALT survey was overseen by a multi-disciplinary steering subgroup of the HSE RCPI Clinical Advisory Group on HCAI and Antimicrobial Resistance. Ireland has also contributed data to the European Centre for Disease Prevention and Control (ECDC) European HALT survey in 2010 and 2013. The European HALT report for 2013 is expected to be published later in 2014.

The HALT survey had the following aims:

1. To calculate the prevalence of healthcare-associated infections (HCAI)
2. To calculate the prevalence of and indications for antimicrobial use
3. To provide policy-makers, funding agencies and professionals working in the long-term care sector with information for future action: to reduce the numbers of residents who develop HCAI and to influence positive antimicrobial prescribing practices in LTCF
4. To provide residents, their families and members of the public with more information about HCAI in Ireland, the types of infections most commonly seen in Irish LTCF and the reasons why antimicrobials are prescribed

What types of LTCF took part in HALT 2013?

The majority of the 190 LTCF were owned by the Health Service Executive (HSE) (67%), followed by private (21%) and voluntary services (12%). Participating LTCF were stratified into the following care type categories, based on the characteristics and estimated length-of-stay (LOS) for the majority of the residents:

1. **General nursing homes >12 months (GN>12m):** 103 long-stay facilities with 5,807 residents
2. **Mixed care type facilities >12 months (Mixed>12m):** 26 long-stay facilities with 1,409 residents
3. **LTCF caring for residents with intellectual disabilities (intellectually disabled):** 24 facilities with 1,060 residents
4. **LTCF (either general nursing homes or mixed care type facilities) <12 months (LTCF <12m):** 15 short-stay facilities with 374 residents
5. **LTCF caring for residents with psychiatric conditions (psychiatric):** 11 facilities with 345 residents
6. **Other care types:** Facilities caring for residents with palliative care needs (4 facilities with 89 residents), rehabilitation needs (3 facilities with 139 residents), physical disabilities (2 facilities with 46 residents) and 'other' care types (2 facilities with 49 residents)

What structures are in place in Irish LTCF for the prevention of HCAI?

- The role of a designated coordinating doctor, with responsibility for the coordination and standardisation of policies/practices for the care of all residents within the LTCF, was not widespread, available in 45% of LTCF overall and in 26% of privately-owned LTCF. Where a coordinating doctor was in post, the reported roles undertaken infrequently included the development of local infection prevention and control (IPC) policies (16%)

- One third of LTCF reported having no active local infection prevention and control committee (IPCC)
- Access to a staff member with specialist IPC training, such as a community-based infection prevention and control nurse (IPCN) was not widespread, available in 62% of LTCF overall and just 10% of privately-owned LTCF
- In 2013, the estimated ratio of whole-time equivalent (WTE) community-based IPCNs per LTCF beds in Ireland was 1:496 overall, with marked regional variation in HSE-owned LTCF: 1:673 (HSE South), 1:659 (HSE West), 1:387 (Dublin-mid-Leinster) and 1:354 (Dublin-North-East)
- Although the vast majority of LTCF reported the presence of a written local hand hygiene policy (97%), the provision of regular staff hand hygiene training sessions was not universal, with only 88% of LTCF reporting that such a session had been arranged in the past 12 months. Medical and allied health professional staff were less likely to be invited to attend such training sessions than nursing and hygiene services staff. In addition, 19% of LTCF reported having no system in place for the organisation, control and feedback on hand hygiene
- The provision of seasonal influenza vaccination for residents was not universal, with 6% of LTCF overall reporting this was not routine local practice

What structures are in place in Irish LTCF to optimise antimicrobial prescribing practices?

- Where a coordinating doctor was in post, the reported roles undertaken infrequently included the development of local antimicrobial prescribing policies (14%)
- The vast majority (95%) of LTCF reported having no active local antimicrobial stewardship committee, with training on antimicrobial prescribing provided by just 5%
- Just over two thirds (68%) of LTCF reported having no local antimicrobial prescribing guidelines
- Prescriber feedback regarding local antimicrobial use and local microbiology laboratory antimicrobial susceptibility data for common pathogens causing infection was available in only a minority of LTCF (13% and 7%, respectively)
- LTCF with a designated coordinating doctor were significantly more likely to demonstrate positive local antimicrobial stewardship practices such as; an active stewardship committee, prescribing guidelines, restrictive prescribing policy and provision of antimicrobial consumption data

What were the characteristics of the residents in the participating LTCF?

- Female residents predominated across all care types and the proportion of residents aged ≥85 years was highest in GN>12m (47%), Mixed>12m (41%) and LTCF<12m (38%). In contrast, only 1% of intellectually disabled LTCF residents were aged ≥ 85 years
- Indicators of resident nursing care requirements (incontinence, disorientation and impaired mobility) were evident in all care types, but most prevalent in GN>12m, Mixed>12m and LTCF<12m
- Recognised risk factors for developing HCAI (e.g. presence of a urinary or vascular catheter, pressure sores or other wounds) were evident across all care types, but were most prevalent in residents of palliative care LTCF

How common were HCAI in Irish LTCF and what types of infections were reported?

- The overall median HCAI prevalence was 4.2%. It was higher in rehabilitation (7.8%), LTCF<12m (8.3%), Mixed>12m (6.1%) and the highest prevalence was reported in palliative care (18%), which may reflect the high prevalence of HCAI risk factors in those residents. The lowest median HCAI prevalence was reported from GN>12m (4.2%) psychiatric (4.3%) and physically disabled LTCF (no HCAI detected in 46 residents)
- The most prevalent HCAI types were respiratory tract infections (RTI), urinary tract infections (UTI) and skin infections; affecting 1.9%, 1.7% and 1.3% of all residents, respectively

How common was antimicrobial prescribing in Irish LTCF, who prescribes them and why were residents prescribed antimicrobials?

- The overall median antimicrobial use prevalence was 9.7%. It was higher in LTCF<12m (11.2%). At 24.5%, the prevalence in palliative care was more similar to antimicrobial use prevalence reported from acute hospitals
- The majority of antimicrobials were prescribed within the LTCF (81%), mainly by GPs and directly-employed doctors
- Whilst the majority of antimicrobials were prescribed to treat infection, the proportion of the total that was prescribed for infection prevention/prophylaxis was particularly high in intellectually disabled LTCF (49%), GN>12m (39%) and Mixed>12m (35%)
- During HALT 2013, 3.2% of all GN>12m, 2.9% of all Mixed>12m and 2% of all intellectually disabled LTCF residents were prescribed antimicrobials for UTI prophylaxis. Prophylaxis against RTI (1.9%) and skin infection (1.4%) was most prevalent in intellectually disabled LTCF

What are the trends arising from the three HALT surveys completed since 2010?

There was a welcomed increase in participation in the HALT survey between 2010 and 2013, from 69 to 190 LTCF. In 2013, over half of the LTCF performed the HALT survey for the first time (53%).

In November 2013, each LTCF was provided with a HALT report displaying the local results and enabling comparison with the collective results for LTCF of the same care type. For prior HALT participants, review of the LTCF's performance over time was also provided.

The HCAI surveillance definitions for LTCF were updated in 2012 and the methodology of the 2013 HALT survey for HCAI differed from that of previous surveys. These changes mean that the HCAI prevalence and HCAI types reported in 2013 cannot be directly compared with those reported in 2011 and 2010.

What are the trends in antimicrobial prescribing in Irish LTCF?

The methodology for collection of antimicrobial use data in the HALT survey has not changed significantly over time. Therefore, these results may be compared across the HALT surveys.

In 2010, Ireland was one of 25 European countries that contributed data to the European HALT survey. Data from 61,392 residents in general nursing home and mixed care type LTCF was included in the European analysis. In 2010, the median prevalence of antimicrobial use in general nursing homes and mixed care type LTCF in Ireland was one of the highest in Europe (11.1%) and considerably higher than the median European prevalence of 3.4%. Additionally, the proportion of antimicrobials prescribed for prevention of infection/prophylaxis in Ireland was the third highest of all European countries (Source: HALT 2010 European Scientific Report).

Of the three HALT surveys conducted in Ireland, the overall median prevalence of antimicrobial use has not really changed over time (Table 1). Whilst the prevalence of antimicrobials for treatment of infection has remained relatively stable, there has been a welcomed downward trend in the prevalence of antimicrobial use for prevention of infection/prophylaxis from 4.3% (2010) to 3.8% (2013) as displayed in Figure 1 and specifically for UTI prophylaxis from 3.8% (2010) to 2.8% (2013).

Table 1: Antimicrobial use prevalence in Irish LTCF: HALT 2010, 2011 & 2013

	Year		
National antimicrobial prevalence data	**2010**	**2011**	**2013**
Number of residents surveyed	4170	5922	9318
Number of residents on antimicrobials	426	601	913
Number of antimicrobials prescribed	453	636	971
Number of residents on more than one antimicrobial, (%)	25 (0.6)	34 (0.6)	55 (0.6)
Crude prevalence of residents on antimicrobials, %	**10.2**	**10.2**	**9.8**
National median prevalence, %	9.5	10	9.7
National interquartile range, %	5.3 - 14.3	7.4 - 14.2	5 - 14.5

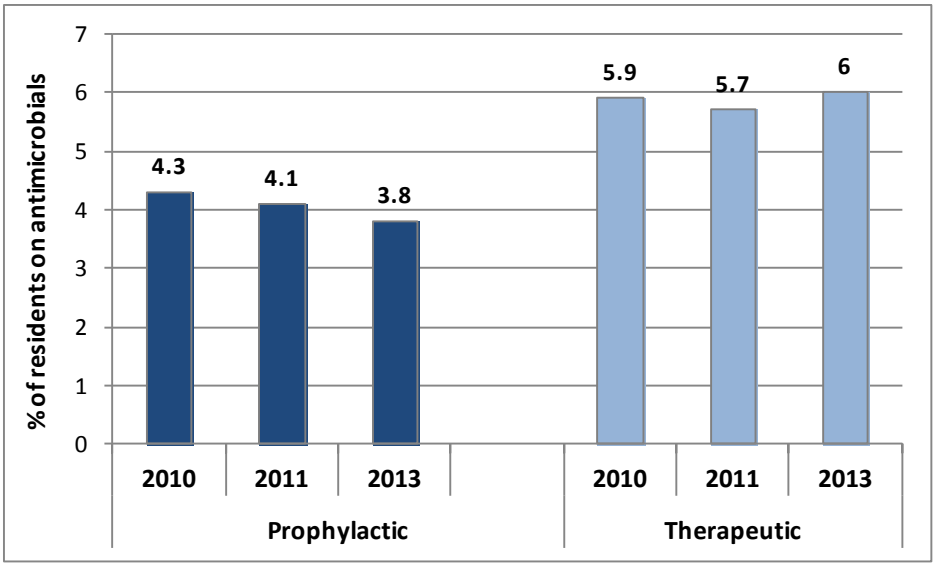


Figure 1: Trends in prevalence of antimicrobial prescribing in Irish LTCF: HALT 2010, 2011 & 2013

What actions can general practitioners take arising from the results of the HALT survey?

In the European HALT survey conducted in 2010, the prevalence of antimicrobial use and prophylaxis in particular was particularly high in Ireland. The 2013 HALT survey results clearly demonstrate that HCAI and antimicrobial prescribing remain prevalent issues for residents of Irish LTCF and we await the publication of the 2013 European HALT survey results later this year.

In Ireland's 2013 HALT survey, the majority of antimicrobials were prescribed within the LTCF, either by GPs or directly-employed doctors. Based on the findings of the HALT survey, the national steering group has made some key recommendations, including those for improving antimicrobial prescribing in Irish LTCF.

- **Use the guidelines for antimicrobial prescribing in primary care in Ireland:** These were published in 2010 and updated in 2011. The updated version is available as a web version at www.antibioticprescribing.ie and is suitable for use on mobile devices. The guidelines are endorsed by the RCPI Clinical Advisory Group for HCAI and Antimicrobial Resistance and by the ICGP
- **Implement other existing national guidelines** such as, management of suspected urinary tract infection, urinary catheter management, resident and staff immunisation etc
- **Promote and avail of the seasonal influenza vaccine:** LTCF residents are likely to come into contact with the influenza virus via infected healthcare workers and visitors. The protective effect of the seasonal influenza vaccine is diminished in elderly or immunocompromised patients. It is for these reasons that the vaccination of all healthcare workers is recommended in Irish immunisation guidelines. However, a survey of influenza vaccine uptake in healthcare workers employed in HSE-owned Irish LTCF, with 89% of LTCF providing data, reported that only 15% availed of the opportunity to receive the annual seasonal

influenza vaccine during the 2012-13 influenza season. A recent systematic review of the effect of the influenza vaccination of healthcare personnel on morbidity and mortality among patients concluded that this intervention can enhance patient safety as there is evidence that it reduces the rate of hospitalisation and death due to influenza. GPs are important role models in promoting healthcare and resident uptake of the seasonal influenza vaccine in LTCF

- **Review any resident who is currently prescribed antimicrobial prophylaxis and immediately discontinue UTI prophylaxis in any catheterised resident.** Limit the duration of antimicrobial prophylaxis prescribing and ensure that the risks and benefits of prophylaxis are discussed with the resident
- **Explore methods of obtaining antimicrobial prescribing feedback for individual prescribers and for each LTCF**, such as a periodic summary report of antimicrobial consumption and expenditure by the LTCF (i.e. quarterly or biannually) by mutual agreement between the LTCF and community pharmacy, with monitoring of trends over time. With new developments in information technology being utilised in general practice, GPs may also be able to obtain electronic summary reports of their individual antimicrobial prescribing practices. The ability to further stratify prescribing by patient/resident location and by indication should be sought. It is recommended that the future provision of prescriber-level feedback to GPs on antimicrobial use be explored via existing mechanisms, such as the Irish Primary Care Research Network.
- **Ensure that GPs in practice and in training have access to relevant ongoing education regarding HCAI prevention and antimicrobial stewardship** linked to continuing professional development credits, as part of the annual requirements of clinical professional competence schemes. Educational materials should be available via a variety of routes, including e-learning, publications and face-to-face educational workshops. The development of specific educational 'toolkits' for HCAI prevention and antimicrobial prescribing for use by trainee GPs and GPs should be progressed nationally, in conjunction with the ICGP.

The full HALT 2013 report for Ireland and additional educational materials of relevance to Irish LTCF are available on the HPSC website: **http://www.hpsc.ie/hpsc/A-Z/MicrobiologyAntimicrobialResistance/InfectionControlandHAI/Surveillance/HCAIinlongtermcarefacilities/**

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