Case 200901408: Lothian NHS Board

Summary of Investigation

Category
Health: Hospitals; care of the elderly; treatment and diagnosis

Overview
The complainant (Mr C) was unhappy with the care provided to his late wife (Mrs C) by Lothian NHS Board (the Board). Mrs C was admitted to the Royal Infirmary of Edinburgh (Hospital 1) on 18 August 2008, but was transferred to Liberton Hospital (Hospital 2) on 19 August 2008. She was given a course of antibiotics, but these were subsequently discontinued. Mrs C's condition deteriorated and she died in Hospital 2 on 26 August 2008.

Specific complaints and conclusions
The complaints which have been investigated are that the Board failed to:
(a) provide appropriate treatment to Mrs C (*upheld*);
(b) provide the correct course of antibiotics to Mrs C (*upheld*); and
(c) communicate effectively with Mr C (*upheld*).

Redress and recommendations
The Ombudsman recommends that the Board:
(i) ensure that their transfer protocol includes a requirement to consult with appropriate available relatives prior to transfer, when a patient is unable to give consent;
(ii) provide guidance on documentation to all relevant staff at induction;
(iii) adhere to their Incident Management Policy when a significant adverse event review is initiated, by ensuring that consideration is given to the inclusion of members with appropriate objectivity to the event;
(iv) remind staff in Hospital 2 of the importance of assessing the competency of patients to make decisions to refuse treatment or medication where appropriate;
(v) undertake an external peer review of the nursing care in Ward 1 in Hospital 2;
(vi) provide him with details of the findings and action plan created as a result of the above recommendation and provide updates where relevant;

(vii) ensure that the findings in this report are communicated to the staff involved in Mrs C's care and treatment; and

(viii) issue an apology to Mr C for the failings identified in this report.

The Board have accepted the recommendations and will act on them accordingly.

Main Investigation Report

Introduction

1. The complainant (Mr C) was unhappy with the care provided to his late wife (Mrs C) by Lothian NHS Board (the Board). Mrs C was admitted to the Royal Infirmary of Edinburgh (Hospital 1) on 18 August 2008, but was transferred to Liberton Hospital (Hospital 2) on 19 August 2008. She was given a course of antibiotics, but these were subsequently discontinued. Mrs C's condition deteriorated and she died in Hospital 2 on 26 August 2008.

2. The complaints from Mr C which I have investigated are that the Board failed to:

(a) provide appropriate treatment to Mrs C;
(b) provide the correct course of antibiotics to Mrs C; and
(c) communicate effectively with Mr C.

Investigation

3. Investigation of Mr C's complaint involved reviewing Mrs C's clinical and nursing records relating to the events. I also sought the views of a specialist medical adviser (Adviser 1) and a specialist nursing adviser (Adviser 2).

4. I have not included in this report every detail investigated but I am satisfied that no matter of significance has been overlooked. An explanation of the abbreviations used in this report is contained in Annex 1. A glossary of terms used in this report can be found at Annex 2 and a list of the legislation and policies considered at Annex 3. Mr C and the Board were given an opportunity to comment on a draft of this report.

(a) The Board failed to provide appropriate treatment to Mrs C

5. Mrs C was a frail elderly woman with multiple problems. She had been receiving treatment at home before her admission to hospital, but had been deteriorating. Although she was receiving active treatment, she was not responding well.

6. Mrs C attended the Accident and Emergency Department of Hospital 1 on 18 August 2008 with increased confusion, reduced mobility and a general reduction in appetite. She had fallen four days earlier. Mrs C had a past history of dementia; myeloproliferative disorder; previous pulmonary embolism;

asthma; a stroke in 1984; a transient ischaemic attack in 2001; osteoporosis; and sensorineural deafness.

7. In the Accident and Emergency Department, Mrs C had reduced oxygen saturations at 84 percent, which were described as 'normal for her' with a normal temperature and bibasal (both lung bases) crackles in the chest. Mrs C was orientated to place but not time. On arrival on the ward, she was noted to be cachectic with an abbreviated mental test score of 1/10. Mr C was her main carer and she usually mobilised with a walking stick. Initial investigations showed a raised white cell count. A chest x-ray showed a small left sided effusion and the notes state that this was not present on a previous admission in July 2008. Mrs C was commenced on treatment for pneumonia based on the chest signs detected on examination, chest x-ray findings and low oxygen saturations. Treatment with intravenous co-amoxiclav was commenced.

8. On the following day, Mrs C was seen by a doctor from the Department of Medicine of the Elderly in Hospital 1 and was transferred to Ward 1 in Hospital 2. She was reviewed at Hospital 2 and the management plan was documented as: antibiotics for seven days; intravenous fluids; blood transfusion; review of cognition following treatment of infection; referral to dietician; and monitoring of renal function.

9. The records state that a physiotherapist telephoned Mr C on 20 August 2008. Mr C said that Mrs C had deteriorated significantly since her discharge from hospital in July 2008. The physiotherapist documented that Mrs C was very drowsy and not suitable for physiotherapy assessment. Mrs C was reviewed by a dietician on 20 August 2008, who recommended nutritional supplements. On the following day, it was recorded in a physiotherapy entry that Mrs C remained medically unwell. She was also seen by a consultant (Doctor 1) who recorded that she needed active treatment of an acute chest infection. Doctor 1 also met Mr C on the same day and documented that they were very concerned about Mrs C. There are no entries in the notes for 23 August 2008 or 24 August 2008.

10. On 25 August 2008, it was recorded in the nursing notes that Mrs C had vomited and that cyclizine was given. It was also recorded that she was very agitated and that 0.5mg of haloperidol was given at 23:35 with no effect.

11. A further dose of haloperidol was administered at 03:35 on 26 August 2008. Mr C has told me that Mrs C was shouting out between 07:30 and 08:00. At 08:30, a doctor (Doctor 2) was called to review Mrs C, as she was crying out with each breath she took. Doctor 2 noted that Mrs C was being treated for pneumonia, but had refused antibiotics along with other medication. The management plan was to continue intravenous fluids and Doctor 2 queried whether further haloperidol should be given and the antibiotics changed to intravenous. The next entry in the medical records is at 11:00. By then, Mrs C had deteriorated and was reviewed by the registrar (Doctor 3). Doctor 3 changed the antibiotics to intravenous augmentin, gave further intravenous fluids, increased oxygen and prescribed morphine for respiratory distress. Doctor 1 was informed and agreed with the management plan. At 12:00, Doctor 3 explained to Mr C that Mrs C had deteriorated suddenly that morning, possibly secondary to infection. Doctor 3 said that Mrs C was on intravenous antibiotics, fluids and oxygen and that the limit of treatment had been reached. Mr C asked whether the antibiotics could be changed, but was advised that the prognosis was very poor. Doctor 1 saw Mrs C at 13:40. She explained to Mr C that his wife was very unwell and unlikely to improve. Doctor 3 recorded that management with antibiotics and fluids would continue, but morphine and midazolam would be used to control symptoms. Mrs C died later that day at 15:45.

12. I asked Adviser 1 for her comments on whether Mrs C received appropriate assessment and treatment from the Board. In her response, she said that following admission, Mrs C was commenced on intravenous co-amoxiclav for a diagnosis of pneumonia. Adviser 1 said that the diagnosis was made on the basis of the clinical findings, low oxygen saturations and the chest x-ray features. Adviser 1 commented that she would have expected blood gases and blood cultures to have been taken, but there was no evidence in the notes to suggest that these were taken. A urine culture was taken and proved negative. Adviser 1 commented that the initial assessment and management of Mrs C was appropriate, except for the failure to take blood cultures and blood gases.

13. Adviser 1 also commented that initial treatment with intravenous antibiotics would be appropriate in treating pneumonia in an immunocompromised patient on a cytotoxic agent. Guidelines from the Scottish Intercollegiate Guidelines Network (SIGN) suggest that hospitals should treat community-acquired pneumonia by prescribing aminopenicillin and macrolide antibiotic. The

reviewing pharmacist noted on the drug chart that Mrs C had only been prescribed co-amoxiclav and, according to the protocol, should be prescribed clarithromycin. This was added to Mrs C's treatment.

14. A decision was then made to transfer Mrs C to Hospital 2. Adviser 1 commented that the assessment completed in Hospital 1 stated that Mrs C had increased confusion, reduced mobility with falls and probable pneumonia. The notes then state, '[D]ementia, continue present treatment and transfer' to Hospital 2. Adviser 1 said that there does not appear to be adequate documentation of the rationale for moving a frail, ill, elderly woman. She said that Mrs C was quickly transferred to Hospital 2 without due consideration of the appropriateness of the move. Adviser 1 said that Mrs C had significant co-morbities and was having active treatment for pneumonia. She said that if Mrs C was transferred to Hospital 2 because she was not expected to recover, then it might have been appropriate to move her, but only after discussion with her husband about supportive management and end of life care. Adviser 1 said that Mr C's wishes for his wife's care are not documented, but his subsequent complaint makes it clear he expected full and active treatment. She said that this did not appear to have been adequately provided at Hospital 2. Mr C has made it clear that, had he been consulted at the time, he would not have agreed to the transfer, as his wife had previously had a bad experience in Hospital 2.

15. Mrs C was described as too drowsy for assessment by the physiotherapist on 20 August 2008. The medical entry on 21 August 2008 does not give a clear picture of her clinical state, but she was described as 'still quite unwell' in the multi-disciplinary team meeting on the following day. There are no medical entries on 23, 24 or 25 August 2008. This implies that Mrs C was seen infrequently despite undergoing active treatment for pneumonia. Adviser 1 commented that she would have expected daily review of an unwell patient with pneumonia who did not appear to be improving.

16. Adviser 1 also commented that the nursing plan stated that Mrs C was not agitated on 19 August 2008 or on 23 August 2008. Mr C has stated that his wife became unwell on the evening of 25 August 2008 and that he was concerned about her condition. He called a doctor to see Mrs C. Although there is no entry in the notes about the doctor’s examination, details of this were subsequently documented in the record of a significant event analysis. An entry in the nursing notes states that Mrs C was agitated and calling out and there was, therefore, a clear change in her condition. The response to this was the

administration of haloperidol, however, this appears to have been given without adequate assessment of why her condition had changed.

17. Adviser 1 stated that the national guidelines on the Prevention, Diagnosis and Management of Delirium in Older People from the Royal College of Physicians state, 'the most important action for the management of delirium is the identification and treatment of the underlying cause' and that the use of sedatives and major tranquilisers should be kept to a minimum. They state that drug sedation may be necessary to carry out essential investigations or treatment; to prevent the patient endangering themselves or others; or to relieve distress in a highly agitated or hallucinating patient.

18. Adviser 1 has stated that Mrs C became agitated, but in her opinion, she was not adequately assessed. She said that the medical notes show that Mrs C was not seen by a doctor until the following morning. By then, she had received two doses of haloperidol. Adviser 1 said that the haloperidol may have been given to relieve her distress, but was given without appropriate assessment. She said that it was not clear from the notes whether any other measures were taken to manage Mrs C's agitation, as there is no documentation in the medical notes describing her clinical state between 22 and 25 August 2008. Adviser 1 stated that she did not consider that Mrs C's acute deterioration and agitation were appropriately managed.

19. In October 2008, the Board carried out a significant event analysis of the care and treatment provided to Mrs C. This found that there were areas where care could have been improved, particularly surrounding communication with Mr C. An action plan was completed to try to address the failings. Adviser 2 said that whilst the significant event analysis completed by the medical team at Hospital 2 was welcome, it failed to address a number of issues. She also noted that it was carried out by Doctor 1, the consultant responsible for the care of Mrs C. She stated that her expectation would be that the significant event analysis or similar review should be carried out by someone outside Hospital 2. I have considered the Board's Incident Management Policy and, in particular, the section on significant adverse events. This states that in agreeing the membership of the team for the review of a significant adverse event, 'consideration needs to be given to inclusion of members with appropriate objectivity to the event'.

(a) Conclusion

20. The initial assessment and treatment of Mrs C at Hospital 1 was appropriate, except for the failure to take blood cultures and blood gases. Adviser 1 has stated that the transfer to Hospital 2 was rapid and that the notes suggest that Hospital 2 was not the appropriate environment to give optimal care to Mrs C. I agree with Adviser 1's comments and consider that the Board failed to provide appropriate treatment to Mrs C during the time that she spent in Hospital 2 in the form of regular medical review, reassessment following a failure to respond to treatment and in the face of a deteriorating clinical state. Mrs C also received sedative medication without appropriate assessment. In addition, I consider that the significant event analysis should have been carried out by someone who was not involved in Mrs C's care and treatment. I, therefore, uphold the complaint.

(a) Recommendations

21. The Ombudsman recommends that the Board:

(i) ensure that their transfer protocol includes a requirement to consult with appropriate available relatives prior to transfer, when a patient is unable to give consent;

(ii) provide guidance on documentation to all relevant staff at induction (for example the Generic Medical Record Keeping Standards developed by the Health Informatics Unit of the Royal College of Physicians); and

(iii) adhere to their Incident Management Policy when a significant adverse event review is initiated, by ensuring that consideration is given to the inclusion of members with appropriate objectivity to the event.

(b) The Board failed to provide the correct course of antibiotics to Mrs C

22. I also asked Adviser 1 if Mrs C received the correct combination of antibiotics specifically for the pneumonia. Adviser 1 said that Mrs C received the correct combination of antibiotics co-amoxiclav and clarithromycin following the intervention of the ward pharmacist. She received the first dose intravenously and was then converted to oral medication. Mrs C also had some risk factors for severe pneumonia, namely increased confusion, co-existing myeloproliferative disorder and older age. However, Adviser 1 said that there is no clear evidence to suggest that intravenous administration of the antibiotics would have been better.

23. Adviser 1 said that the SIGN guidelines state that there is no evidence to guide the optimum length of antibiotic course, but the British Thoracic Society

guidelines, referenced by the SIGN guidance, recommend seven days' treatment or ten days' treatment for severe cases. Mrs C received antibiotics between 19 and 23 August 2008, but following this, doses were missed. In addition, Mrs C was described as 'quite unwell' by Doctor 1 on 22 August 2008. This suggests that she had not responded well to the antibiotics. She refused to take the morning dose of both antibiotics on 24 August 2008. On the following day, she only took the morning dose and missed the remaining doses for that day. There is no documentation in the notes concerning her refusal to take the medication nor that Mr C was informed or requested to assist in administration of the drugs to his wife. Adviser 1 said that it would have been appropriate to ask Mr C for his assistance when Mrs C refused her medication, as he may have been able to persuade her to take the antibiotics.

24. Adviser 1 said that the adequacy of treatment depends on the severity of the infection. For non-severe illness, five days' treatment would be sufficient. She said that Mrs C was initially treated with the correct antibiotics and an adequate course for a non-severe pneumonia. Adviser 1 said that it was not clear from the notes how ill Mrs C was, but by 22 August 2008, she remained unwell and had not made a good response to the antibiotics. She said that it would have been appropriate to review the prescription and route of administration, especially in light of Mrs C's subsequent deterioration.

25. I also asked Adviser 1 for her comments on whether there was evidence to suggest that Mrs C was competent to make a decision to discontinue the antibiotics. She said that Mrs C had a diagnosis of cognitive impairment made during an earlier hospital admission in March 2008. Comments on the discharge summary for this admission suggest moderate impairment. She was also deemed to be unable to give consent to the procedure on the grounds of dementia and a doctor completed a Certificate of Incapacity under section 47 of the Adults with Incapacity (Scotland) Act 2000.

26. When Mrs C was admitted to Hospital 1 on 18 August 2008, it was documented that she had a mental test score of 1/10. The test was not repeated during the admission, although it was suggested by a doctor at Hospital 2 (Doctor 4) that this should be repeated following treatment of the infection. Adviser 1 commented that this suggested that Mrs C was acutely confused on a background of cognitive impairment and would not have been competent to refuse the antibiotics. She said that there were no medical notes for 23 or 24 August 2008, which covered the period when Mrs C started to

refuse her medication. Other than the drug chart, there is no documentation that medication had not been received by Mrs C. Adviser 1 said that it was, therefore, not possible to say whether Mrs C was well enough to take any decision related to her treatment. She concluded that it was unlikely that Mrs C was competent to make a decision to refuse her medication and may well have been confused due to her medical condition.

27. I asked Adviser 1 to comment on whether Mrs C's chances of survival would have been greater had she continued taking the antibiotics. In her response, she said that Mrs C was a frail elderly woman who had not been eating well for a period of time prior to admission. She said that she was described in the notes as cachectic and weighed 36 kilograms. Adviser 1 said that Mrs C had a number of pre-existing conditions including myeloproliferative disorder for which she was taking a cytotoxic agent, which would have made her more susceptible to infection.

28. Adviser 1 commented that the initial treatment was appropriate, but when Mrs C failed to improve by 22 August 2008, she should have been assessed and consideration given to a change in antibiotic. She said that Mrs C should have been fully re-assessed and not just given haloperidol for sedation when her condition deteriorated on 25 August 2008. She said that she would have expected her full blood count, urea and electrolytes to be rechecked. Adviser 1 also commented that consideration should have been given to prescribing antibiotics intravenously, especially following Mrs C's non-compliance with taking medication over the previous two days. Adviser 1 said that Mrs C deteriorated rapidly the following day. Although she considered that there was an opportunity to improve Mrs C's management on 25 August 2008, she said that it was unlikely that continuing the antibiotics prescribed would have improved her chances of survival.

29. I also asked Adviser 2 for her comments on this aspect of the complaint. In her response, she said that in terms of administering the antibiotics, the drug record sheet is clear. However, she commented that there was no record of any action being taken to ask medical staff to review the delivery of the medication or to inform Mr C that Mrs C had refused her medication. She said that Mr C should have been much more involved in any decision-making about his wife. Adviser 2 stated that whilst she agreed that it was unlikely to have changed the outcome for Mrs C, she was critical of the nurses' failure to be more proactive in the management of medicines.

(b) Conclusion

30. When Mrs C failed to improve by 22 August 2008, it would have been appropriate to review the prescription of antibiotics. It would also have been appropriate to consider prescribing them intravenously when Mrs C started to refuse her medication. The lack of documentation in the notes for 23 and 24 August 2008 is of particular concern, as is the fact that there is no evidence that there was any attempt to assess Mrs C's mental capacity. Having fully examined the matter, I do not consider that Mrs C was competent to make a decision to refuse her medication. Staff also failed to inform Mr C that Mrs C had refused her medication and I am critical of the failure by nurses to be more proactive in the management of Mrs C's care and medication. Although I consider that it was unlikely that continuing the antibiotics would have improved Mrs C's chances of survival, in view of all of the above, I uphold this complaint.

(b) Recommendations

31. The Ombudsman recommends that the Board remind staff in Hospital 2 of the importance of assessing the competency of patients to make decisions to refuse treatment or medication where appropriate. Please see paragraph 42 for further recommendations in relation to this complaint.

(c) The Board failed to communicate effectively with Mr C

32. The medical records include documentation of a conversation between Doctor 4 and Mr C, which took place when Mrs C was transferred to Hospital 2 on 19 August 2008. Doctor 4 documented Mr C's comments about Mrs C's gradual decline over a period of months prior to admission. Mr C then met Doctor 1 on 22 August 2009. Doctor 1 recorded that they were very concerned about Mrs C, but agreed to continue active treatment. Mr C has disputed the content of this conversation and I cannot determine exactly what was said. He considers that it was optimistic, as Mrs C was doing well up to that point.

33. Doctor 3 met Mr C on 26 August 2009 and explained that Mrs C had suddenly deteriorated that morning. She said that Mrs C was on intravenous antibiotics, fluids and oxygen. The records state that she said that they were at the limit of what they 'can and should do' and that the priority was to ensure comfort. Mr C asked if the antibiotics could be altered, but Doctor 3 told him that this would not affect the outcome.

34. Doctor 1 spoke to Mr C later that day. The records state that she told him that Mrs C was very unwell and they were worried that she would not 'pull through'. Doctor 1 said that small doses of morphine and midazolam would be prescribed to control the symptoms.

35. Adviser 1 commented that Mr C does not appear to have been informed when Mrs C refused her antibiotics. She has stated that Mr C could have assisted in persuading his wife to take the antibiotics. Adviser 1 said that Mr C was aware that Mrs C had become unwell and agitated on 25 August 2008, but was only advised that his wife had significantly deteriorated by Doctor 3 after her assessment at 11:00 on 26 August 2009. Adviser 1 also commented that there was limited documentation detailing Mrs C's care.

36. Mr C also considered that he could not come back after visiting time because the gates were locked. In the Board's action plan, they said that the deputy ward manager should discuss the matter with nursing staff on the ward and remind them to ensure that the relatives of unwell patients are aware of arrangements outwith visiting times, and where appropriate, make it clear how to contact the ward or return outwith these times. Adviser 1 commented that Mrs C's agitation might have been ameliorated by allowing her husband to stay with her.

37. Adviser 1 said that Mrs C was a frail elderly woman with multiple problems and that Mr C had stated that she had been deteriorating at home. Adviser 1 commented that although Mrs C was receiving treatment, she was not responding well and it would have been appropriate to discuss this fully with Mr C, including introducing the topic of end of life care, in preparation for any deterioration that may occur.

38. Adviser 2 said that she agreed that there was a failure in communication between Mr C and the medical and nursing staff. She said that the requirements for record-keeping for healthcare professionals are set by the Nursing and Midwifery Council, General Medical Council and Health Professions Council standards. However, the nursing documentation in Mrs C's records was scant and lacking in any detail. There were no nursing notes written from admission on the 19 August 2008 until 25 August 2008, when Mrs C's condition deteriorated. Adviser 2 also commented that the nursing care plan was poor, with very little specific information that would enable individualised care.

(c) Conclusion

39. In view of the above, I consider that the Board failed to communicate effectively with Mr C and failed to inform him about significant events in his wife's care. There is some dispute about the conversation on 22 August 2008 and I cannot determine exactly what was said during this conversation. However, the Board failed to inform Mr C when his wife remained agitated throughout the night despite two doses of haloperidol. In addition, Mr C was not told why Mrs C was given haloperidol. The Board's action plan stated that the deputy ward manager and Doctor 1 were to highlight this matter to staff, as part of ongoing education and feedback.

40. The Board also failed to inform Mr C that Mrs C had refused her antibiotics. The action plan states that the Board's policy was that it should be brought to the attention of the patient's family if a patient who is confused refuses medication and that Doctor 1 was to discuss this with senior nursing staff.

41. The Board failed to discuss that Mrs C was not responding to treatment and end of life care with Mr C. They failed to tell him of the arrangements outwith visiting times. In addition, there is insufficient information about Mrs C's care, and communication with Mr C in the clinical and nursing documentation. I, therefore, uphold this complaint.

(c) Recommendations

42. The Ombudsman recommends that the Board:

(i) undertake an external peer review of the nursing care in Ward 1 in Hospital 2 to include the following: standards of record-keeping, including the recording of communication with relatives; the care and treatment of Adults with Incapacity; preparation and planning for the discharge of patients; the visiting policy, including the openness and culture for relatives and carers; and the standards of the administration of medicines, using the Nursing and Midwifery Council's *Standards for medicines management.* In undertaking the review, consideration should be given to robust quality indicators such as the Clinical Quality Indicators, improvement methodology such as Releasing Time to Care, and evidence from local audits;

(ii) provide him with details of the findings and action plan created as a result of the above recommendation and provide updates where relevant. The

action plan should be specific, measurable, achievable, realistic and timely (SMART);

(iii) ensure that the findings in this report are communicated to the staff involved in Mrs C's care and treatment; and

(iv) issue an apology to Mr C for the failings identified in this report.

General recommendation

43. The Ombudsman recommends that the Board issue an apology to Mr C for the failings identified in this report.

44. The Board have accepted the recommendations and will act on them accordingly. The Ombudsman asks that the Board notify him when the recommendations have been implemented.

Annex 1

Explanation of abbreviations used

Mr C	The complainant
Mrs C	The aggrieved, Mr C's late wife
The Board	Lothian NHS Board
Hospital 1	The Royal Infirmary of Edinburgh
Hospital 2	Liberton Hospital
Adviser 1	Specialist medical adviser
Adviser 2	Specialist nursing adviser
Doctor 1	The consultant in Hospital 2
Doctor 2	A doctor in Hospital 2
Doctor 3	The registrar in Hospital 2
SIGN	Scottish Intercollegiate Guidelines Network
Doctor 4	A doctor in Hospital 2

Annex 2

Glossary of terms

Aminopenicillin	A class of penicillin-like antibiotics
Augmentin	A commonly prescribed antibiotic
Blood culture	A test which involves the incubation of a blood specimen overnight to determine if bacteria are present
Cachectic	Suffering from a profound and marked state of constitutional disorder, general ill health and malnutrition
Clarithromycin	An antibiotic
Co-amoxiclav	A combination antibiotic
Co-morbities	The presence of coexisting or additional diseases with reference to an initial diagnosis or with reference to the index condition that is the subject of study
Cyclizine	An antihistamine drug
Cytotoxic	Chemicals that are directly toxic to cells, preventing their reproduction or growth
Dementia	An organic mental disorder characterised by a general loss of intellectual abilities
Electrolyte	A substance that dissociates into ions when fused or in solution and thus becomes capable of conducting electricity, an ionic solute
Haloperidol	Anti-psychotic medication

Immunocompromised	A condition in which the immune system is not functioning normally
Macrolide antibiotic	A group of antibiotics that have a complex macrocyclic structure
Midazolam	An injectable form of benzodiazepine useful for sedation and for reducing pain during uncomfortable medical procedures
Myeloproliferative Disorder	A group of disease states which primarily involve the bone marrow and the production blood cells
Osteoporosis	A reduction in the amount of bone mass, leading to fractures after minimal trauma
Pulmonary embolism	The lodgement of a blood clot in the lumen of a pulmonary artery, causing a severe dysfunction in respiratory function
Sensorineural deafness	Hearing impairment due to disorders of the cochlear division of the 9th cranial nerve (auditory nerve), the cochlea, or the retrocochlear nerve tracts, as opposed to conductive deafness
Transient ischaemic attack	A temporary loss of neurological function as paralysis, numbness, speech difficulty or other neurologic symptoms that start suddenly and recovers within 24 hours
Urea	The final nitrogenous excretion product of many organisms
Urine culture	A urine culture is a diagnostic laboratory test performed to detect the presence of bacteria in urine

Annex 3

List of legislation and policies considered

SIGN Publication No. 59: Community Management of Lower Respiratory Tract Infection in Adults (ISBN 1899893 08 3: Published June 2002)

The prevention, diagnosis and management of delirium in older people. Concise guidance to good practice series number 6. London: Royal College of Physicians, June 2006.

Lothian NHS Board: Incident Management Policy

British Thoracic Society guidelines for the management of community-acquired pneumonia in adults. Thorax 2001;56 (suppl. IV)

Generic Medical Record Keeping Standards developed by the Health Informatics Unit of the Royal College of Physicians (2007)

The Nursing and Midwifery Council: Standards for medicines management: Published February 2008 (reprinted August 2008)

NHS Scotland: Releasing Time to Care Programme