



GUIDELINES AND AUDIT  
IMPLEMENTATION NETWORK

# AUDIT OF THE REGIONAL GUIDELINES ON THE TREATMENT, MANAGEMENT AND PREVENTION OF MASTITIS

July 2011



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## BACKGROUND TO AUDIT

Mastitis is a common complication of breastfeeding. It may affect one in five women who breastfeed. In Northern Ireland (NI) there are 25,000 births per year and information from the Infant Survey in 2005 shows the prevalence of breastfeeding at birth is 63%, at six weeks is 32% and at six months is 14% (Bolling et al 2007). Consequently the number of women who may develop mastitis each year could range from 700 to 1600.

The main reasons why women stop breastfeeding in the first few weeks include pain and breast engorgement, both of which may be complicated by mastitis. Following two maternal deaths associated with mastitis in NI the Regulation and Quality Improvement Authority (RQIA) and the Guidelines and Audit Implementation Network (GAIN) commissioned the development of regional guidelines on the prevention, treatment and management of mastitis. Non-infectious and infectious mastitis can be difficult to differentiate on initial clinical presentation. Appropriate and timely use of antibiotics is important when treating infectious mastitis. Conversely, over use of antibiotics may contribute to the problem of antibiotic resistance in the community and hospitals.

The GAIN guidelines on the treatment, management and prevention of mastitis were launched in September 2009. Appropriate and timely use of the guidelines in the management of women with lactational mastitis may enable women to breastfeed for longer. The aim of the audit was to assess if best practice in the management of mastitis as recommended by the guidelines was being carried out and whether antibiotics were used appropriately and if mastitis complicated by breast abscess was due to resistant organisms such as methicillin resistant *Staphylococcus aureus* (MRSA).

## AIM

The aim of this clinical audit was to ascertain if the guidelines were being used appropriately to diagnose and manage non-infectious and infectious mastitis which develops in the post partum period.

## OBJECTIVES

### Health Care Professionals

- a) To assess if information on self-management of mastitis was provided to women and if effective self-management for lactational mastitis was undertaken.
- b) To ascertain if antibiotics were prescribed appropriately (timing of antibiotics from the onset of symptoms, duration of antibiotic course and type of antibiotic, results of microbiology samples).
- c) To investigate if complications such as breast abscess were managed appropriately.
- d) To monitor the number of breast milk cultures undertaken in severe and persistent cases.

### Women with mastitis

- e) To check timing and provision of the GAIN leaflet "Mothers' Guide to Mastitis and Breastfeeding" and whether women found the leaflet useful.

## STANDARDS

Guidelines on the treatment, management and prevention of mastitis Aug 2009

<http://www.gain-ni.org/Guidelines/GAIN%20Mastitis%20Guidelines.pdf>

Criteria	Target (%)	Exceptions
1 All breastfeeding women should have access to information on effective self-management of lactational mastitis.	80%	Women who give birth outside Northern Ireland
2 Cases of mastitis that are severe or not resolving within 12- 24 hours from onset of symptoms should be prescribed antibiotics/antifungals as listed in Appendix 5 of the guideline for 10-14 days.	80%	Allergy to recommended antibiotics/ antifungals
3 All women who develop breast abscess or complications are referred to a specialist for further investigations, treatment and management.	100%	None
4 Breast milk cultures should be sent if there is no response to antibiotics within 2 days or recurrent mastitis or hospital acquired infection or severe or unusual cases.	80%	Other relevant investigations have already been carried out e.g positive blood cultures with causative organism
5 All breastfeeding women should have access to the GAIN leaflet "Mothers' Guide to mastitis and breastfeeding".	80%	Women who give birth outside Northern Ireland

## METHODS

Refer to Appendix 1.

## AUDIT

The project and steering group members met in February 2010 to plan the audit project and to begin project awareness initiatives. Data collection of the cases of mastitis was planned for May 2010 to January 2011 following recruitment of the midwife auditor. Using the Raosoft sample size calculator, for 700-1600 cases of mastitis per year the project needed a sample size of 85-91 cases



(95% confidence level, 10% margin of error) and it was hoped to obtain at least a 100 cases of mastitis for the audit. Healthcare professionals and breastfeeding voluntary supporters were encouraged to refer retrospectively and prospectively any cases of mastitis that occurred between February 2010 to January 2011.

## DATA COLLECTION METHOD

Two questionnaires were used; one for HealthCare Professionals (HCP) and one for women with mastitis (refer [http://www.gain-ni.org/Tools/Audit\\_Tools/index.asp](http://www.gain-ni.org/Tools/Audit_Tools/index.asp))

## AUDIT INTERVIEWS

The audit took the form of interviews (telephone or face to face) with the HCP involved in managing the episode of mastitis and with the woman who had mastitis. When a diagnosis of mastitis was made the HCP was asked to obtain consent from the woman to participate in the regional mastitis audit using the designated consent form. The questionnaire used in the interview with the HCP focused on history of mastitis, predisposing factors, assessment and diagnosis, management both conservative and pharmacological, complications, and milk culture results if indicated. The questionnaire used with the woman aimed to obtain information about the usefulness and timeliness of the GAIN leaflet. The auditor completed the audit forms with information provided by the woman and the health care professional. An additional 2 months was factored into the audit for follow-up of women who went on to develop recurrent mastitis or other complications.

## REFERRAL AND CONSENT FOR PARTICIPATION

Healthcare professionals were asked to obtain consent from the woman to take part in the audit using the referral and consent form when a diagnosis of mastitis was made. The referral and consent form was distributed widely to all relevant healthcare professionals and was made available on the GAIN website at [http://www.gain-ni.org/Tools/Audit\\_Tools/index.asp](http://www.gain-ni.org/Tools/Audit_Tools/index.asp)

## PILOT

While awaiting the recruitment of the midwife auditor, a pilot of the audit tools (HCP and woman questionnaires) was carried out in March/April 2010. All project and steering group members were asked to help in the pilot. As a result of the pilot (10 cases), modifications were made to the audit tools in April 2010.

## OUTREACH

An extensive outreach to the various professional groups was carried out in March 2010 to raise awareness among healthcare professionals regarding the audit.

Among the actions taken were:

1. The audit project lead and co-lead presented a talk on the mastitis guidelines and audit at the Regional Annual Breast Feeding Seminar organised by the Public Health Agency on the 10th March 2010. This was well attended by healthcare professionals and voluntary support groups who are actively involved in supporting women to breastfeed and managing complications such as mastitis.
2. A letter regarding the audit and the referral/consent form was cascaded to all relevant HCPs through the representatives of the project and steering group.
3. The referral/consent form was made available on the GAIN website and the GP intranet. All GPs in NI were sent an e-mail via the health boards and NIMDTA regarding the audit with the referral and consent form attached. Information about the audit in the form of a flyer and the algorithm of antibiotic and antifungal treatment for mastitis (appendix 5 of the GAIN guidelines) was also sent to Dr. Gerry Burns (NIMDTA) to include in information packs for GP CPD days which occur at regular times of the year throughout the region. GPs were encouraged to refer any cases directly to the audit or to the community midwife or health visitor for follow-up and to obtain consent to participate in the audit.

4. Health visitors and midwives on the project and steering group helped raise awareness of the audit through regular established educational sessions in their respective trusts in the hospital and community. Breastfeeding coordinators linked up with other HCPs e.g. health visitors at combined team meetings to raise awareness and ascertain cases. They also regularly communicated with breastfeeding lay supporters to highlight the audit and encourage referrals.
5. The co-lead of the project team, the midwife auditor and breastfeeding coordinators were invited to give talks on the guidelines and the audit at various midwife and health visitor meetings in the region.
6. A letter of communication regarding the audit and the referral/consent form was also sent out by the Public Health Agency (PHA) to the network of breastfeeding lay support workers to inform and encourage referrals of any women with mastitis to their local breastfeeding coordinators for follow-up.
7. Posters were designed by PHA and disseminated by the breastfeeding coordinators of each trust and health visitors on the project and steering group to the emergency departments, breast clinics, maternity units, health visitors, GP surgeries and GP 'out-of-hours' centres in each trust area.
8. The audit was highlighted through the intranet sites of each trust.
9. The audit was included in the GAIN newsletter which was distributed to HCPs regionally.
10. GAIN redistributed the mothers' leaflets and the guidelines to A&E departments, breast clinics and GP 'out-of-hours' centres in Northern Ireland.

11. A midpoint audit report (September 2010) in poster format was designed with the help of PHA and disseminated by e-mail to all HCPs via the project and steering group to thank them for their participation to date and to remind them of the audit and encourage referrals. Health visitors and community midwives were reminded to ask at each home visit whether the breastfeeding mother had symptoms of mastitis. This report was also placed on the GAIN website for reference by HCPs and the general public (<http://gain-ni.org/Library/Leaflet/index.asp>).



## RECRUITMENT OF MIDWIFE AUDITOR

The recruitment process for the auditor began in January 2010. This process took longer than expected as the post had to be approved by the Trust's scrutiny committee. The post was advertised on the 16 March 2010 with interviews held on the 19 April 2010. Following appointment, access NI and honorary contracts in the other 4 trusts had to be arranged during the month of May. The auditor commenced her post at the beginning of June 2010. The project and steering group members helped to raise awareness of the audit and encouraged referrals from their colleagues so that cases of mastitis were obtained prior to the auditor starting.

## DATA COLLECTION, ANALYSIS, REPORT AND RECOMMENDATIONS

Belfast Trust audit department helped to design and set up the Excel spreadsheet for data entry. The midwife auditor collected and entered the data into the Excel spreadsheet and analysed the data with help from the audit department and project team. Initial analysis of the results was commenced in January 2011. The project and steering group members contributed to the report and the recommendations and assisted with the dissemination of the results. A re-audit is recommended for 2012-2013 pending availability of funding.

## PROGRESS MONITORING

The project lead and co-lead met with the auditor weekly to monitor the progress of the audit. The Project team met monthly to review the results and the progress of the audit. The steering group met 4 times during the audit period and were involved with the final recommendations and action plan and dissemination of results.



## SUMMARY OF TIME-LINE FOR AUDIT

Month/ Year	Activity	Project Team	Steering Group
Feb-Mar 2010	Planning Outreach Awareness sessions	Meeting monthly	Meeting
Mid Mar - Apr 2010	Pilot audit + review of questionnaire		
May 2010 - Jan 2011	Recruit and train auditor		Meeting
	Audit		
Feb 2011	Analysis		Meeting
Mar 2011	Report Recommendations + Action Plan		Meeting

## RESULTS (124 CASES: 112 MOTHERS)

112 women were referred to the audit and from these 112 women there were 124 cases of mastitis. Eight mothers had two episodes of mastitis and two mothers had three episodes of mastitis. After the first episode of mastitis, second and subsequent episodes were defined as mastitis occurring after initial symptoms had resolved, usually on completion of antibiotic therapy.

The percentages have been rounded up in this audit.



## REFERRALS

Source of referral	Total N=112	%
Midwives	58	52%
Health visitor	44	39%
GP	5	4%
Breast feeding advocate	3	3%
Hospital Doctor	2	2%

Over 90% (102/112) of referrals were received from midwives and health visitors. These two groups of HCPs have the most contact with women in the first four weeks post partum, when the majority (87/124, 70%) of cases of mastitis were reported. Six of the midwives and one of the health visitors are employed as Breast Feeding Co-ordinators.



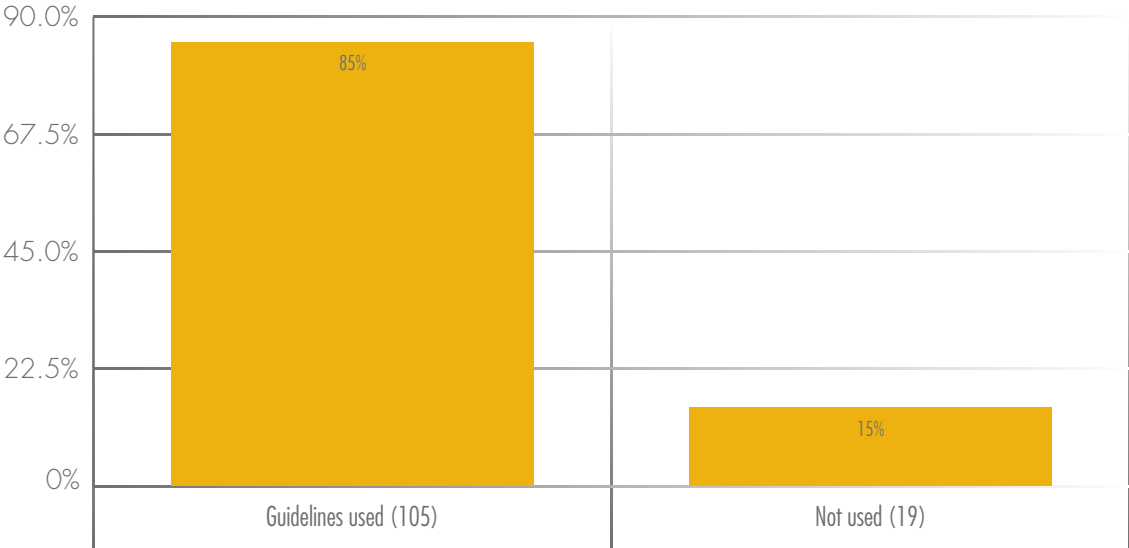
## HEALTHCARE PROFESSIONALS (HCP) INTERVIEWED

Interviewee	Total N=124	%
Midwife	52	42%
Health visitor	30	24%
GP	36	29%
Hospital Doctor/Records	6	5%

As far as possible the HCP who diagnosed the episode of mastitis was interviewed to obtain the necessary information for the audit. If the HCP could not be contacted because for example the mastitis was diagnosed by a locum or out of hour's doctor, then the medical records were used to obtain the information.

## USE OF GAIN GUIDELINES

Health Professionals were asked 'are the GAIN Guidelines on the treatment, management and prevention of mastitis used within your Trust or Practice?' The results indicate that 105/124 (85%) of HCPs use the guidelines. Of the 19/124 (15%) who did not use the guidelines all except one were GPs.



## AGE OF MOTHERS

Age of mother	Total N=112	%
< 20	0	0%
21 - 30	32	29%
31 - 40	76	68%
> 40	4	4%

Just over two thirds (76/112, 68%) of the women referred with mastitis were in the 31-40 age group. This may reflect the fact that it is women in this age group who are more likely to breastfeed.

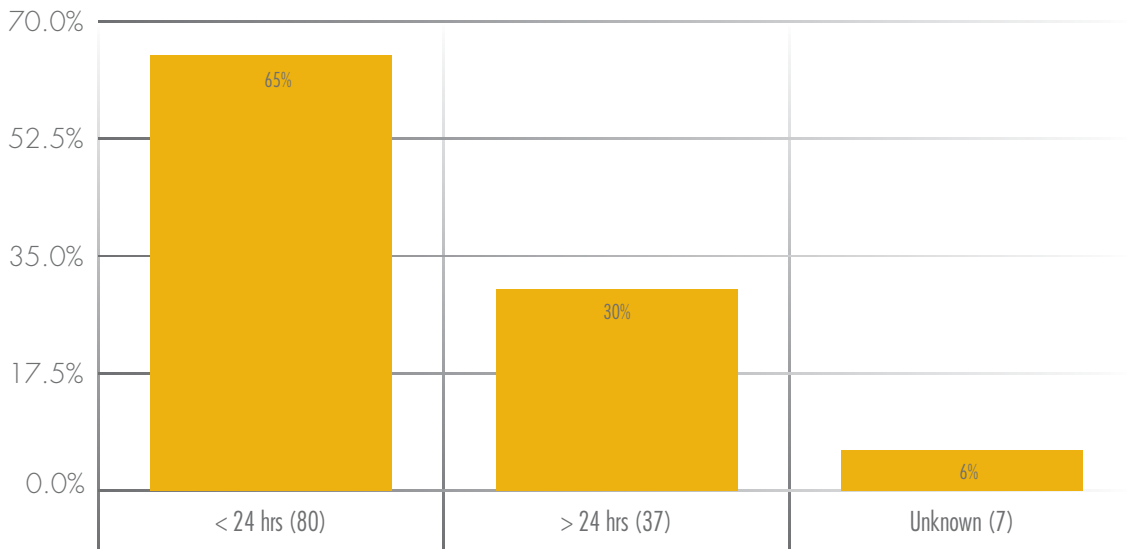
## AGE OF INFANT

Age of Infant	Total N=124	%
< 2 weeks	43	35
2 - 4 weeks (inc)	44	35
> 4 weeks	37	30

The age of the infant ranged from 4 days to 40 weeks. Over two thirds of the reported cases of mastitis occurred when the infant was less than 4 weeks old.



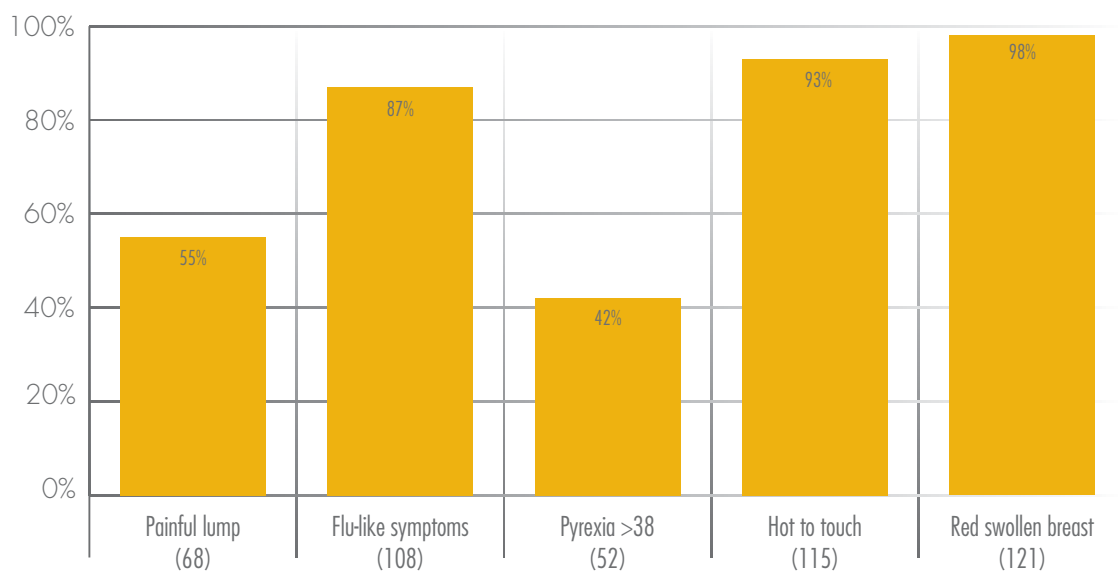
## TIMING OF WOMEN'S CONTACT WITH HCP



The majority of women made contact either by phone or in person with an appropriate healthcare professional in 24 hours or less (80/124, 65%), with 39/124 (31%) of these cases having contact in 12 hours or less. In 37/124 (30%) cases contact was not made with a HCP until more than 24 hours.

## DIAGNOSIS OF MASTITIS

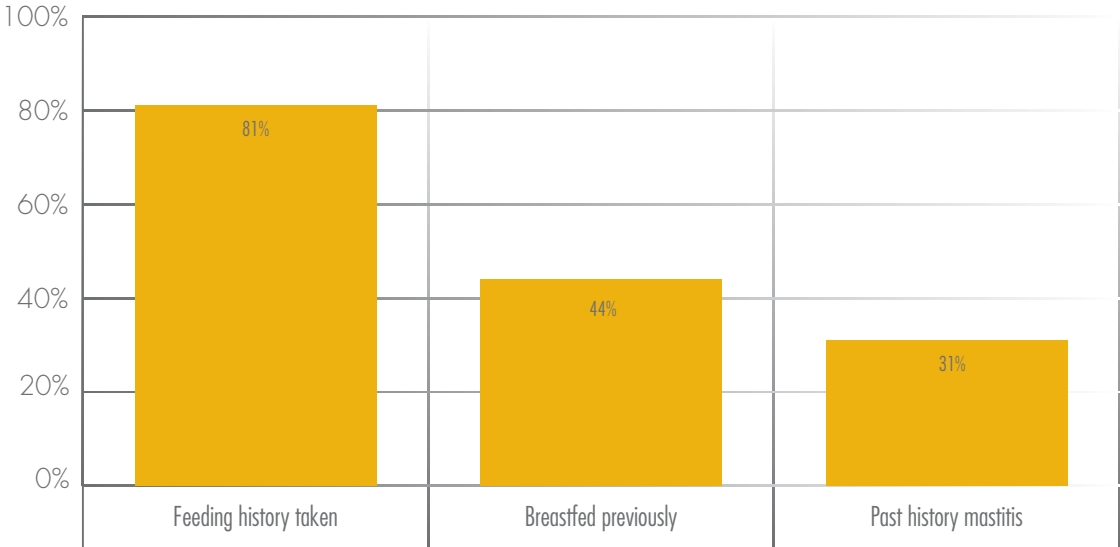
### *Clinical Features*



The HCP diagnosing mastitis was asked what clinical features were present. The diagnosis of mastitis was confirmed if two or more of the clinical features were confirmed (see graph). The majority of women had 'flu-like' symptoms (108/124, 87%) with red, swollen breast(s) (121/124, 98%), that were hot to touch (115/124, 93%). In 52 cases (42%) a temperature greater than 38oC was recorded. More than half (68/124, 55%) of the women complained of a painful lump.

INFORMATION TAKING

*Feeding History*



Taking a feeding history can help identify the cause of mastitis. The history taking should include whether the woman had breast fed before and/or had a previous history of mastitis. In just under half (54/124, 44%) of the cases there was a history of breastfeeding previously and of these 38/124 (31%) reported having a history of mastitis. In 100 cases (81%) a feeding history was taken by a healthcare professional.



## SELF MANAGEMENT

Self Management N=124	Yes	No	N/A
Check for breastfeeding technique	68	45	11
Frequent effective feeding from affected breast	115	7	2
Breast massage	89	33	2
Hand expression of milk	103	19	2
Analgesia/anti-inflammatory	114	10	-

Out of the 124 cases of mastitis there were 11 cases where it was not applicable to check for breast feeding technique; 9/124 (7%) cases were exclusively expressing breast milk and 2/124 (2%) cases where the women had stopped breast feeding. In the remaining 113 cases where the mother was breast feeding 60% (68/113) had breast feeding technique checked by either a midwife or health visitor. Where the breast feeding technique was not checked, 27/45 (60%) of the babies were more than 4 weeks old. In the latter cases the potential causes of mastitis are more varied and less likely to be due to incorrect positioning and attachment.

In the 2 cases where the women had already stopped breastfeeding the advice regarding frequent effective feeding was not applicable. In 115/122 (94 %) frequent effective feeding from the affected breast was advised. Of the remaining 7 /122 (6 %) cases, advice regarding frequent effective feeding was either not given or there was no record of the advice having been given. In some cases the incorrect advice was given for example to express and discard breast milk when this was not indicated. Apart from the 2 women who had stopped breastfeeding, breast massage (89/122, 73%) and hand expression of milk (103/122, 84 %) was recommended in most cases. Women who expressed using hand or electric pumps are included in the hand expressing results.

The guidelines recommend the use of oral anti-inflammatory and analgesic medication providing there are no contraindications. Ibuprofen and/or paracetamol are the recommended medications for use. In the majority of cases (114/124, 92%) women were advised regarding the use of anti inflammatory/analgesic medication.



## ANTIBIOTICS

Total no women prescribed antibiotics=110

Correct antibiotic?	Total
Yes (Flucloxacillin 500mgs)	76
Yes (Erythromycin 500mgs)	6
No (Other)	28
N/A	14

In 110/124 (89%) cases an antibiotic was prescribed. In 14/124 (11%) cases antibiotic therapy was not required as mastitis resolved with the use of self management alone. When antibiotic therapy was required for the treatment of mastitis the majority of women 82/110 (75%) were prescribed the appropriate antibiotic. Of the 10 women who had mastitis more than once, 8 were given the appropriate antibiotic but only half (4 cases) of these received it for the correct duration.

## ANTIBIOTIC DURATION

Total no women prescribed antibiotics=110

Correct antibiotic & duration?	Total
Yes	29
No	81
N/A	14

In the 110 cases where antibiotics were required only a quarter (29/110, 26%) received the appropriate antibiotic for the correct duration. Three of these cases had the antibiotic duration extended from an initial 7 days to the recommended 10-14 days, following advice from the midwife or health visitor. Of the 81/110 (74%) cases that did not receive either the correct antibiotic or for the appropriate duration,



nearly one fifth (15/81, 16%) required further antibiotics as the mastitis did not improve or recurred within a few days.

## BREAST MILK CULTURES

Breast milk cultures sent?	Total
Yes	11
No	113

Organisms (N=11)	Total
S. Aureus	5
K.pneumoniae + S.epidermidis	1
S.epidermidis + S. aureus	1
MRSA	1
S.Hominis	1
No growth	2

Criteria for breast milk culture Cases = 124	No. of cases that met criteria for breast milk culture	Sent to lab	Not sent
No response to antibiotic treatment within 2 days	2	2	0
Recurrent mastitis	12	5	7
Hospital acquired infection	1	1	0
Severe and unusual cases	6	3	3
Total	21	11	10

Breast milk cultures were sent in 11/124 (9%) cases, and meticillin sensitive *Staphylococcus aureus* was the most common organism found (6/11, 55%). In the one case that MRSA was found the woman had already stopped breast feeding and had antibiotics therapy modified according to the antibiotic sensitivity result. Coagulase negative staphylococci that grew in 3 specimens were not considered



to be clinically significant. The current empirical antibiotic regime covers *S. aureus* which was the most common organism isolated.

The guidelines give advice on when it may be desirable to obtain a milk culture to help target further medical therapy. The audit identified 10/21 (48%) cases where it may have been desirable to have milk cultures sent but this did not happen. In 7 of these 10 cases the women required several courses of antibiotics for recurrence of mastitis symptoms and in 3 cases the women were admitted to hospital but recovered after receiving 24-48 hours of intravenous antibiotics and were discharged on oral antibiotics. Breast milk cultures especially in the recurrent cases may have guided antibiotic therapy and possibly prevented recurrences.

## COMPLICATIONS

Complications (N=124)	Total	%
Breast engorgement	39	31
Cracked nipples	42	34
Candida infection	16	13
Chronic breast pain	10	8
Breast abscess	8	7
Severe life threatening mastitis	1	1

The most common complication associated with mastitis was cracked nipples which occurred in 42/124 (34%) cases. In 36/42 (86%) cases with cracked nipples the babies were less than 4 weeks old. These 36 cases received help with positioning and attachment. Of the remaining 6 women with cracked nipples who did not receive help with positioning and attachment the babies were more than 4 weeks old.

Breast engorgement was associated with 39/124 (31%) cases of mastitis. Candida infection was reported in 16/124 (13%) cases and of these only 5/16 (31%) cases received the correct antifungal treatment as recommended in the guidelines. Chronic



breast pain was noted in 6/112 (5%) women, who accounted for 10/124 (8%) mastitis cases. Breast abscess occurred in 8/124 (7%) mastitis cases.

There was one severe case of mastitis which required admission to a high dependency unit.

*Staphylococcus aureus* was cultured in the breast milk and the woman recovered with supportive measures and appropriate antibiotics.

### BREAST ABSCESS

Breast Abscess Organisms	Total
<i>Staphylococcus aureus</i>	5
No growth	1
Untraceable	1
Sample not sent	1

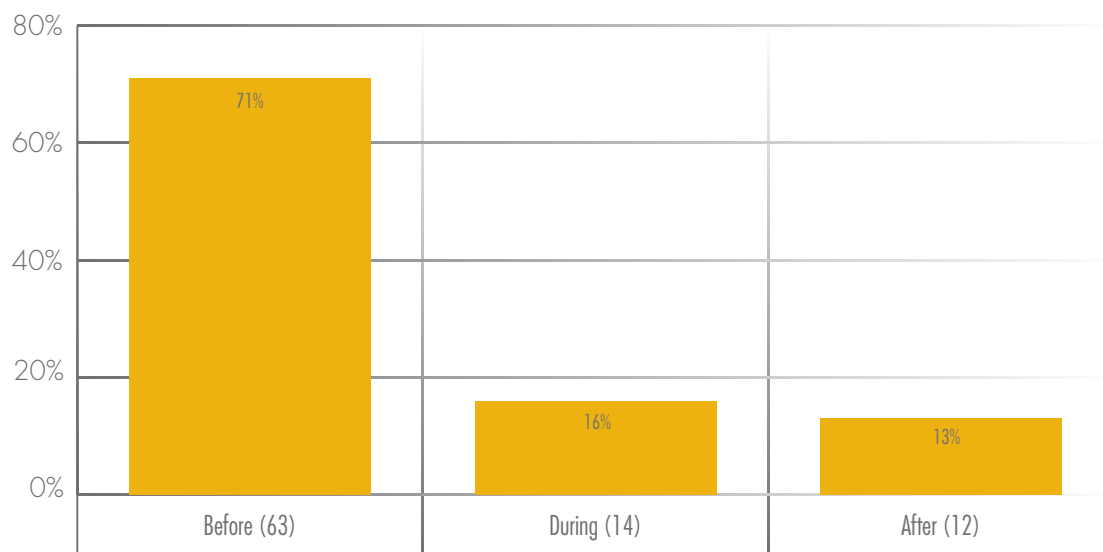
In total 12/112 (11%) women were referred to a breast clinic either from their General Practitioner or Accident and Emergency department. Eight (8/112; 7%) of these women were confirmed to have a breast abscess as a complication of mastitis. *S. aureus* was found in five of the six specimens obtained. MRSA was not detected in any of the cases of breast abscess. All had several courses of antibiotics prior to the abscesses being diagnosed. If prescribed the appropriate antibiotic it was not always given for the recommended duration (6/8, 75% given Flucloxacillin 500mg for 7 days). Three (3/8, 38%) of these women were admitted to hospital for intravenous antibiotic therapy. In more than one case the abscess required to be aspirated several times before resolution occurred. In at least two cases referral to the breast clinic could have been expedited to enable timely diagnosis of the abscess.



## MASTITIS AND BREASTFEEDING LEAFLET

Total No of Mothers = 112 Total leaflets = 89

*When was leaflet received (N=89)*



In total 112 women were interviewed regarding the GAIN leaflet, 'Mothers' Guide to Mastitis and breastfeeding', in order to determine the timing and provision of this leaflet. Of the women interviewed 89/112 (79%) received the leaflet. The majority of the leaflets 83/89 (93%) were provided by a HCP. Six mothers obtained the GAIN mastitis leaflet from other sources such as a breast feeding lay supporter (1/6), friends (2/6), website (1/6), GP Surgery (1/6) and hospital display (1/6). Just over one fifth of the mothers 23/112 (21%) never received a leaflet.

Sixty-three women (63/89; 71%) received the leaflet before the mastitis symptoms began as part of the post-birth information. 14/89 (16%) women were given the leaflet during assessment of mastitis symptoms and the remainder received the leaflet after the diagnosis of mastitis. Four women (4/62; 7%) received the leaflet from more than one HCP. One woman downloaded it from the GAIN website. Several mothers did not realise they had the GAIN leaflet until asked by the midwife auditor and they looked in the information packs they had received on discharge from hospital.



## INFORMATION IN LEAFLET (N=86)

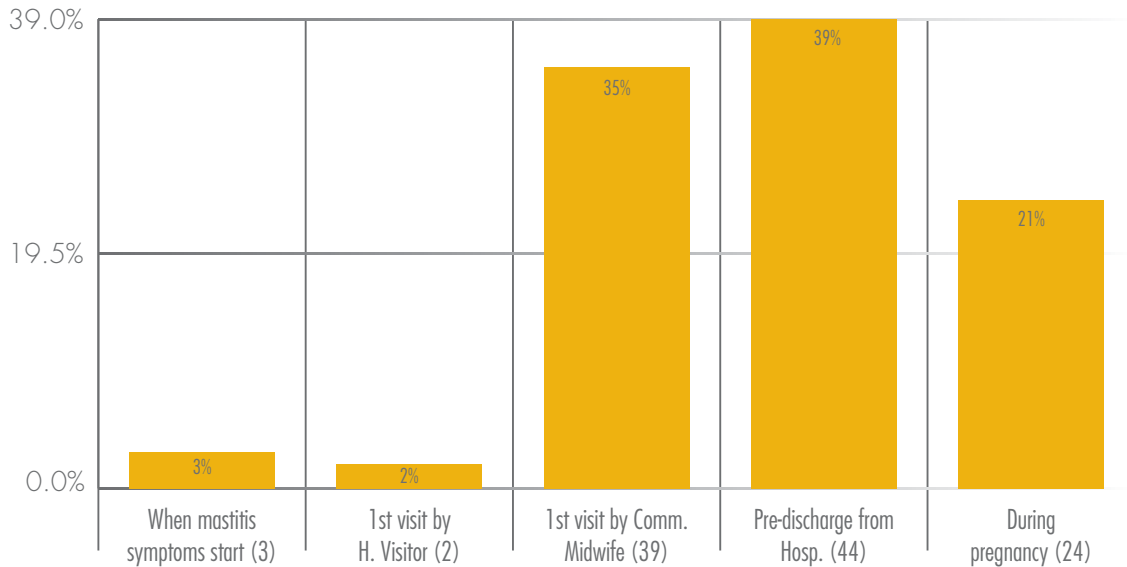
Information in leaflet - rated	Strongly agree	Agree	Neither	Disagree	Strongly disagree
Easy to understand	55	31	0	0	0
Advice was helpful	51	32	1	1	1
Contacts/links useful	14	34	37	1	0

The women were asked what they thought of the information in the GAIN leaflet 'Mothers' Guide to Mastitis and breastfeeding'. The majority of mothers (86/89, 97%) who got the GAIN leaflet read it. Three women did not read the leaflet (3/89, 3%), (one did not know she had the leaflet until asked by the auditor, one was too busy to read it and one mother could not remember if she had read it or not). All the women who read the leaflet either agreed or strongly agreed that the information was easy to understand. Eighty-three mothers (83/86, 97%) stated that the advice in the leaflet was helpful. Just over half (47/86, 55%) found the contacts/links for breastfeeding support information useful. Over a third of the women interviewed (37/86, 43%) felt that they were unable to comment (indicated by "neither") on how useful the contacts links were as they had not used them themselves.



## TIMING OF LEAFLET

### *Best time to receive leaflet*



Women were asked “when do you think would be the best time to receive the GAIN leaflet?” Nearly all women 109/112 (97%) indicated that they wished to receive the leaflet prior to getting mastitis, with nearly three quarters (83/112, 74%) indicating it should be before discharge from hospital ie given by the hospital midwife (44/112, 39%) or by the community midwife on the first visit (39/112, 35%).

## COMMENTS

Women were asked if they had any comments regarding the GAIN leaflet or the information provided. Positive comments included: useful; informative; liked the way it was laid out; well written.

Suggested comments included: ‘information on mastitis should be reinforced both antenatally and postnatally’; a diagram of the breast may be useful, dissected to show milk ducts (this lady had mastitis under her breast where she thought she had no milk ducts); more information on blocked ducts and that they can lead to mastitis.



## OUTCOMES

### GENERAL POINTS

- 68% of women were in the 31-40 age group
- 58% were breastfeeding for the first time with almost 70% having no previous history of mastitis
- 70% of babies were less than 4 weeks old when mastitis occurred. This is more than the expected 50% reported in the literature (GAIN Mastitis guidelines). It was felt that this could be because 91% of our referrals were from midwives or health visitors who visit mothers during the first month post-natally
- 85% of HCPs used the guidelines
- 65% of women in this audit presented within 24 hours of onset of symptoms
- 60% of women had breast feeding technique checked
- Cracked nipples occurred in 34% of cases and breast engorgement was associated with 31% of cases
- 11% cases resolved with self management. This number is less than might be expected and this may be because mothers whose symptoms resolved with self management may not consider themselves to have had mastitis and would be unlikely to seek further help
- 79% of women received the GAIN leaflet 'Mothers' Guide to Mastitis and breastfeeding'. 71% of women who were given the leaflet received the leaflet prior to symptoms developing



- 74% of women thought the best time to receive the GAIN leaflet was prior to discharge from hospital or on the 1st visit by community midwife. 100% of mothers agreed the information leaflet was easy to understand and 97% found the advice in the mother's leaflet useful. 55 % mothers found the contact /links for breast feeding support useful

Criteria (standards)	Target (%)	Exceptions	Outcomes from audit 2010-2011
All breastfeeding women should have access to information on effective self-management of lactational mastitis	80%	Women who give birth outside Northern Ireland	60% breast feeding technique checked 94% frequent feeding advised
Cases of mastitis that are severe or not resolving within 12-24 hours from onset of symptoms should be prescribed antibiotics/antifungals as listed in Appendix 5 of the guideline for 10-14 days	80%	Allergy to recommended antibiotics and /or antifungals	26% were prescribed appropriate antibiotic for duration of 10-14 days  Almost 20% of cases who did not receive appropriate antibiotics for the correct duration failed to improve or developed recurrent mastitis
All women who develop breast abscess or complications are referred to a specialist for further investigations, treatment and management	100%	None	Rate of breast abscess post mastitis was 7% of which 100% were referred to specialist for appropriate management
Breast milk cultures should be sent if: there is no response to antibiotics within 2 days or recurrent mastitis or hospital acquired infection or severe or unusual case	80%	Other relevant investigations have already been carried out e.g positive blood cultures with causative organism	48% breast milk cultures were not sent as indicated by the guideline criteria. Most common cause was meticillin sensitive S. Aureus (MSSA 55%). MRSA occurred in 1 case
All breastfeeding women should have access to the GAIN leaflet 'Mothers' Guide to mastitis and breastfeeding'	80%	Women who give birth outside Northern Ireland	79% of women received the leaflet 71% before episode of mastitis



## RECOMMENDATIONS

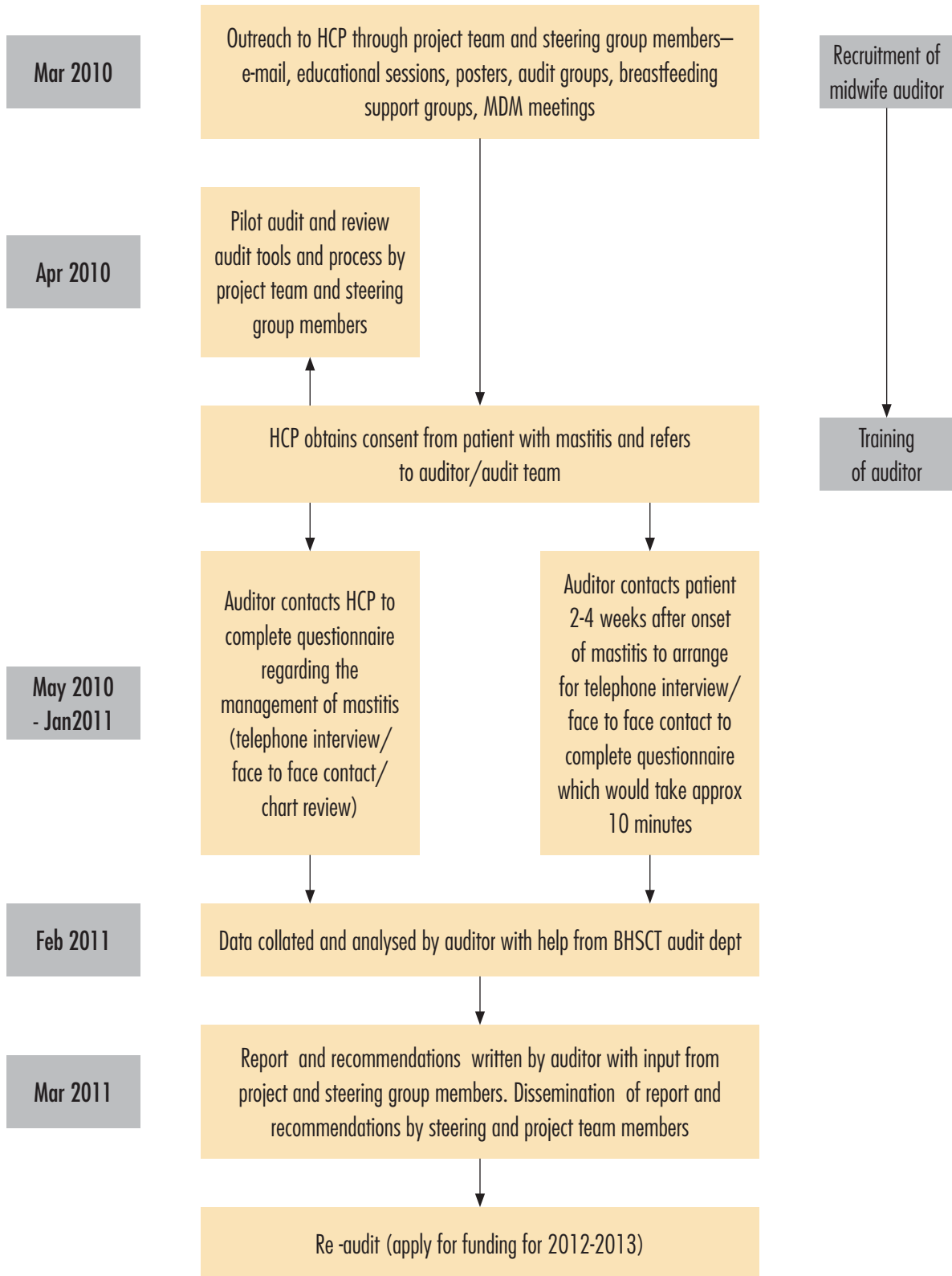
1. Increase awareness of the GAIN mastitis guidelines among health care professionals.
2. Ensure all relevant staff are aware of the importance of continued breastfeeding and the need to encourage and support women to continue to breastfeed with a diagnosis of mastitis.
3. For midwives and health visitors
  - a) An effective mechanism should be developed to ensure the GAIN leaflet is provided to all breastfeeding women prior to discharge from hospital. At the first visit the community midwife and health visitor should check that the GAIN leaflet has been received by and discussed with the woman.
  - b) All breastfeeding women should be told where to get help with mastitis with appropriate contacts/links for breastfeeding support being highlighted to them before discharge from hospital.
  - c) Women with mastitis should be provided with practical support to achieve and recognise effective positioning and attachment for breastfeeding from an appropriately trained health professional or volunteer.
  - d) A feeding history and assessment should be undertaken for all women with mastitis using the UNICEF UK Baby Friendly Initiative feeding assessment form with the aim of identifying the cause of mastitis.
  - e) After birth all breastfeeding women should be routinely taught hand expression of breastmilk. When discharged home from hospital this should be revisited by the community midwife and health visitor and the reasons why hand expression is useful to relieve breast engorgement and prevent mastitis should be explained.



- f) Mothers who are exclusively pumping breast milk should be assessed for the correct use of the pump and fit of attachment.
4. Midwives and health visitors should ensure all breastfeeding mothers are aware that they should contact their GP if symptoms are severe or not resolving within 24 hours despite conservative management.
  5. GPs to be reminded of appropriate prescribing of antibiotics for women with mastitis and ensure the course is 10-14 days duration.
  6. GPs, midwives, health visitors and A& E staff should be reminded of the need to undertake breast milk cultures in any one of the following: recurrent mastitis or no response to antibiotics within 2 days or hospital acquired infection or severe or unusual cases. NB: Milk should not be sent for culture on the basis of colour alone and no signs of mastitis.
  7. In cases of recurrent mastitis a breast abscess should be suspected.
  8. Where breast abscess is considered, timely referral to the breast clinic should be actioned by a medical practitioner.
  9. Further information on the diagnosis and referral of a breast abscess will be made available on the GAIN website.



## APPENDIX 1 - PATHWAY OF THE MASTITIS AUDIT PROCESS



## APPENDIX 2 - ACTIONS

Actions	By whom	Dateline
<p>1. Summary of final report to be circulated via e-mail and by post to all relevant HCPs and breastfeeding lay support groups highlighting:-</p> <ul style="list-style-type: none"> <li>a. Accessibility of guidelines on GAIN website</li> <li>b. The importance of self-management including positioning and attachment and hand expression of milk</li> <li>c. Highlight recommended antibiotic as per guideline and duration of 10-14days</li> <li>d. If recurrent mastitis suspect breast abscess</li> <li>e. If breast abscess suspected prompt referral to breast clinic</li> <li>f. Breast milk culture to be sent if: recurrent mastitis or not responding to antibiotic therapy after 2 days or hospital acquired infection or severe and unusual case.</li> </ul>	<p>Project and steering group representatives of HCP groups</p> <p>Lay/peer support groups informed via PHA contact list</p> <p>Poster designed with help of PHA</p>	<p>April - July 2011</p>
<p>2. Redistribution of guidelines and GAIN mothers' leaflets to contacts in all five trusts</p>	<p>GAIN</p>	<p>April - May 2011</p>
<p>3. Through GP intranet sites and via e-mail to</p> <ul style="list-style-type: none"> <li>• Highlight guidelines</li> <li>• Antibiotic dose &amp; duration for mastitis</li> <li>• Encourage referral of mothers to appropriately trained practitioner for advice regarding effective technique for breastfeeding</li> <li>• If breast abscess suspected, early referral to breast clinic or A+E if out of hours.</li> </ul>	<p>GP on steering group (Mary Donnelly)</p>	<p>April - June 2011</p>
<p>4. Reminder to all midwives and health visitors on the GAIN contact list to obtain the mothers' leaflet from GAIN. Midwives and health visitors to distribute and highlight GAIN mothers' leaflet to all breastfeeding women prior to discharge from hospital and on the first visit in community by both midwife and health visitor.</p>	<p>Project and steering group representatives for midwives and health visitors through respective trust managers to cascade information to all midwives and health visitors in the region.</p>	<p>April - June 2011</p>



Actions	By whom	Dateline
5. Remind community midwives and health visitors to check with breastfeeding mothers regarding symptoms of mastitis at each visit and advise contacting medical practitioner early if after 12-24 hours from the onset of symptoms there is no improvement or the symptoms are severe or worsening despite the recommended self-management.	Project and steering group representatives to communicate to community midwife managers, breastfeeding coordinators and health visitor managers of the 5 trusts for cascading information to all community midwives and health visitors.	April - June 2011
6. Remind HCPs who provide care to breast feeding women to seek training and regular updates as part of professional development on prevention, management and treatment of mastitis and fully implement the GAIN guidelines on Mastitis. Ensure that breastfeeding training programmes adequately cover the recommendations of the audit. Regular communication to be provided at trust level, steering group meetings and at the Regional breastfeeding coordinators forum.	Regional breastfeeding coordinator (Janet Calvert), Breastfeeding coordinators of project team and steering group representatives for midwives and health visitors to communicate with their colleagues in the region.	Ongoing
7. Power point presentation on the GAIN mastitis guidelines and audit report to be placed on the GAIN website.	Clare Jennings Helen McLroy Janet Calvert Grace Ong	July 2011
8. Disseminate audit report to all relevant pre- & postgraduate educational providers.	Janet Calvert	April - July 2011
9. Interim fact sheet on recurrent mastitis and breast abscess to be developed and circulated.	Janet Calvert Helen McLroy Mary Donnelly	April - Aug 2011



## APPENDIX 3 - MEMBERSHIP OF THE REGIONAL MASTITIS AUDIT

### Chairs

Name	Job Title
Dr Grace Ong	Consultant Microbiologist, Belfast HSC Trust
Helen McIlroy	Co-Lead - Breast feeding Coordinator, Belfast HSC Trust

### Membership

Name	Job Title
Gillian Anderson	Breast feeding Coordinator, Northern HSC Trust
Blanaid Bruce	Breastfeeding Counsellor
Janet Calvert	Regional Breast feeding Coordinator
Angela Carragher	Consultant Surgeon, Associate Postgraduate Dean for NIMDTA
Jacqueline Cathcart	Midwife Auditor, Belfast HSC Trust
Mary Donnelly	General Practitioner with interest in Breast Feeding Education
Ann Harper	Consultant Obstetrics and Gynaecology, Belfast HSC Trust
Esther Hyland	Community Midwife Manager, South Eastern Trust
Catherine Irvine	Breast feeding Coordinator, South Eastern HSC Trust
Ann McCrea	Human Milk Bank Coordinator, Western HSC Trust
Ruth McGowan	Breast feeding Coordinator, Southern HSC Trust
Elaine McHenry	Consultant Microbiologist, Belfast HSC Trust
Audrey Moore	Breast feeding Coordinator, Western HSC Trust
Carol Murphy	Health Visitor Manager, Southern HSC Trust
Samantha Sloan	Consultant Breast Surgeon, Southern HSC Trust
Jill Stafford	Consultant in Emergency Medicine, South Eastern HSC Trust





Further copies of this guideline can be obtained  
by logging on to the GAIN Website.

[www.gain-ni.org](http://www.gain-ni.org)

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