

Calving

Two weeks before calving to two weeks after

GUIDELINE

01

Reduce exposure to environmental mastitis bacteria

02

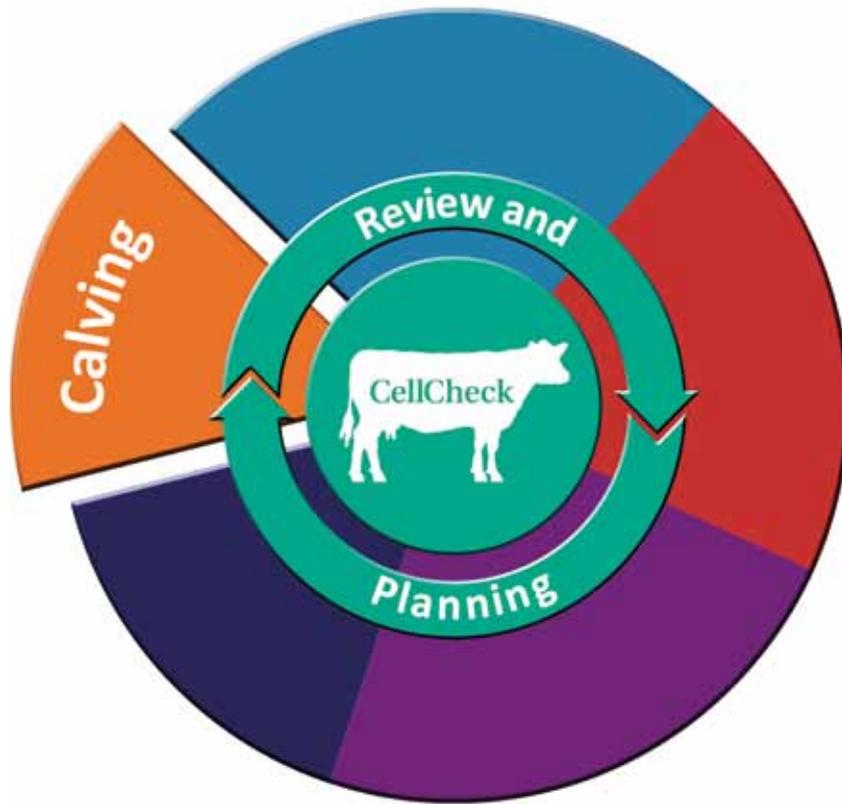
Take care with freshly calved heifers and cows

03

Check that milk is suitable to go in the bulk tank

04

Rapidly find, treat and record clinical cases in freshly calved cows



Two weeks before calving to two weeks after

The period around calving (from two weeks before calving until two weeks after calving) is the highest risk period for mastitis infections to occur. This period can be critical in determining the infection status of individual cows and the herd throughout the rest of the lactation. Therefore, milk quality for the whole season (or lactation) may depend on the success of mastitis control at calving. There are huge potential gains to be made by preventing new infections in the calving period and many of these infections can be prevented by implementing some relatively simple management changes.

Cows are very susceptible to infection around calving because their natural defence mechanisms are low. New infections occur, and subclinical infections which have persisted through the dry period may flare into clinical cases.

Around calving, the udder is often filled with milk for relatively long periods without the flushing effect of being milked. Bacteria may enter the end of the teat, particularly if high udder pressure opens the teat canals. They can then multiply and establish infections. High numbers of environmental mastitis bacteria may contaminate teats, especially if udders are wet and exposed to mud and manure.

Because of the high incidence of mastitis in the first month after calving, special care in this period will pay off.



GUIDELINE

01

Reduce exposure to environmental mastitis bacteria

- Calving environment
- Pre-milking preparation
- Clinical cases

Contagious and environmental mastitis

Mastitis is divided into two types; contagious and environmental. The bacteria causing contagious mastitis (e.g. *Staph. aureus*) usually reside in udder tissue and on teat skin and are most commonly spread at milking. The bacteria causing environmental mastitis survive in the cow's environment and, although milking may facilitate their entry through the teat canal, the environment is the primary source of infection. These bacteria include *Strep. uberis* and *E. coli*.

1.1 Calve in a clean environment.

INDOOR

Calving boxes, whether single or multiple, should be kept clean, with fresh, dry bedding. If your knees are wet after kneeling, it is not dry enough for calving cows.

There should be adequate space in the boxes. Calving on slats/in cubicles must be avoided.

OUTDOOR

Pasture or pads for calving must have minimal manure contamination.

The calving area should be sheltered and well drained. Avoid poaching and mud. If water is visible on the ground surface or in your wellie prints, it is not dry enough for calving cows.

1.2 Be alert to the number of cases of mastitis occurring, especially in freshly calved heifers.

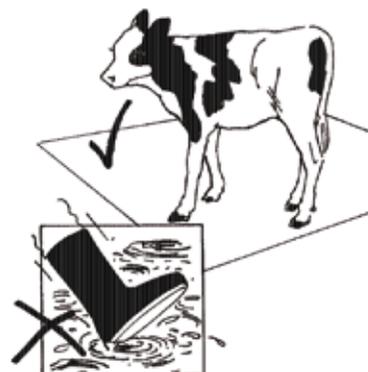
This is an indicator of the state of the calving and housing environment.

If > 5% of your cows have had mastitis in the first month of calving you should investigate and correct any problems.

1.3 Take care with pre-milking preparation of udders.

When freshly calved cows come into the parlour, their teats are tight and tender. Teat skin is often dry (the last teat spray emollient was usually weeks ago) with extra dirt and manure. For the first milkings, when the risk of new infection is highest, it's really worth an extra investment in teat preparation.

Refer to Management Note L:
The impact of housing on mastitis and SCC.



Refer to Guideline 5:
Use good milking technique and a consistent routine.



GUIDELINE

02

Take care with freshly calved heifers and cows

- Training heifers
- Gentle handling
- Udder oedema
- Dripping milk
- Milking out
- Milk fever
- Milk let-down



Diversion buckets (Test buckets) on fresh cows - a word of caution.

When using test buckets for a prolonged period at or below the height of the cluster, there is a risk of damaging teats from overmilking.

This is because the extra vacuum that usually lifts milk up into the milklime will be operating at the cluster.

To avoid this issue:

- only use test buckets for a short period of time (5 - 7 days) and avoid overmilking.

2.1

Consider training heifers in the milking area before calving.

Familiarise heifers with the surroundings of the milking area, and entry and exit routes. This is also an opportunity to teat spray heifers' teats. Studies have shown that teat disinfection twice weekly, in the 2 - 4 weeks before calving, will reduce the challenge from environmental bacteria.

2.2

Take your time moving and milking freshly calved heifers and cows.

This minimises injury to udders and teats, and contributes to cows being comfortable during milking. Encourage the cooperation of the animal by gentle husbandry. Don't rush.



2.3 Attend to heifers with severe udder oedema (flag).

If heifers are tight with udder oedema prior to calving, milk them out, freeze and use this saved colostrum for their own calves.

If they are very uncomfortable, seek veterinary advice. Prevention is better than cure, so discuss heifer nutrition with your advisor to ensure diet doesn't contribute to severe flagging.



Milk cows out fully on first milking - and freeze excess colostrum in bags for ease of thawing.

2.4 Bring cows into the dairy as soon as possible to milk out and check.

Do not leave cows dripping milk - bring them into the dairy, check udders, machine milk and disinfect teats (dip or spray).

Milk freshly calved cows out completely - do not use incomplete milking as a method of control of milk fever. Discuss appropriate milk fever prevention with your nutritionist or your vet.

2.5 Ensure all quarters of all cows are milked out.

Ensure there is milk let-down at each milking, particularly in heifers. A let-down hormone (Oxytocin) is available under veterinary direction. Stressed or agitated cows may have a disrupted oxytocin release.

Avoid both over and undermilking.



Udder oedema in newly calved heifers (photo courtesy of Roddy Webster, Merial).

Refer to AHI website www.animalhealthireland.ie for information on Calf Health and Colostrum Management.

Refer to Guideline 5:

Use good milking technique and a consistent routine.



Recently built parlours may have dumplines for milk but if relying on these to divert antibiotic milk ensure that this is happening correctly.



Calve heifers separately.

If possible, heifers should be calved separately from the adult herd. Heifers are more likely to be bullied and forced to calve in the less suitable areas of the calving pad or calving pen.



GUIDELINE

03

Check that milk is suitable to go in the bulk tank

- Dry cow treatment (DCT) withholding period
- Teat sealer
- Colostrum and transition milk

For milk quality reasons, all cows should have their colostrum and transition milk withheld from the bulk tank for at least eight milkings after calving.

For cows that have received an antibiotic dry cow treatment (DCT), a withholding period for milk after calving is specified for each product. This is to ensure that there is no antibiotic residue in milk supplied for sale. All DCT products are registered with a specified Minimum Dry Period as well as a Milk Withholding Time after treatment. If a cow calves in less than this time, check the datasheet of the product for the correct withholding periods or clarify with your vet. You can also check the IMB website www.imb.ie for up-to-date information on dry cow treatment products.

Refer to Management Note F:
Guide to withholding periods after use of dry cow treatment.



The Irish Medicines Board is responsible for the authorising of veterinary medicines. If in doubt, you can check their website www.imb.ie for up-to-date information on dry cow treatment products.

Refer to Management Note E:
Using teat sealers in your herd.

3.1 Ensure each cow has exceeded her DCT Minimum Dry Period before putting her milk in the bulk tank.

3.2 Ensure that milk from the colostrum and transition phase (first 8 milkings) is not included in the bulk tank.

It is not possible to accurately assess colostrum levels by visually checking milk. Withhold milk for at least the first eight milkings after calving, and ensure udders are completely milked out.

3.3 Minimise residual teat sealer.

Internal teat sealers provide a non-antibiotic approach to protecting cows from environmental mastitis during the dry period and at calving. Milk from cows treated with teat sealers must still be omitted for the first 8 milkings to minimise the amount of residual product entering the milk tank, and also to comply with colostrum management requirements. In particular, if milk contaminated with teat sealer is used in cheese manufacture, this can lead to black spot blemishes in maturing cheese.

It is vitally important to ensure that all sealant is milked out.



Rapidly find, treat and record clinical cases in freshly calved cows

- Swollen quarters
- Colostrum milk
- Milk culture samples
- Marking cows
- Stripping
- Clinical records
- Withholding times
- Antibiotic contamination
- Bacterial spread
- Veterinary advice

Clinical cases of mastitis are costly and severely disrupt the flow of milking. Clinical cases which are missed can markedly increase the bulk tank SCC because they produce very high numbers of somatic cells. Early detection and treatment of clinical mastitis cases in the calving period reduces the risk of severe cases developing. It also reduces the likelihood of infection being passed to other cows, and the development of chronic infections.

By recording cow identity and drugs used for all cases, numbers of clinical cases and responses to treatment can be monitored. Your herd has a significant problem if there are more than 5 clinical cases per 100 cows in the first month of lactation or 2 clinical cases per 100 cows in subsequent months of lactation. CellCheck Farm Reports (Summary and Analysis) will enable you to track mastitis management at calving and alert you to emerging problems.

4.1 Look for swollen quarters and check for heat and pain in all freshly calved cows.

A swollen quarter will appear larger than other quarters on the same cow.



Checking a quarter of a freshly calved cow.



Refer to Guideline 5.2:
Forestrip all cows, for early detection of clinical mastitis.

4.2 Carefully check milk from all quarters of freshly calved cows every milking while they are in the colostrum and transition phase (first 8 milkings).

Changes can be hard to assess in milk in the first few days after calving. Look for watery milk, clots or flecks. Sometimes with severe mastitis, such as mastitis caused by *E. coli*, visible changes are not obvious in the milk.

Comparison between quarters is often helpful. Check the quarters you think are normal first. Milk containing infection may be spread during this procedure, so avoid carrying milk from one quarter to another. Good milkers learn to avoid getting milk on their gloves.

Gloves should always be used when checking for mastitis and disinfected after handling each clinical case.

4.3 Consider collecting milk samples for culture to identify the bacteria involved.

Refer to Management Note A:
Milk cultures.

It is good practice to take a milk sample in a sterile fashion from all clinical mastitis cases before you start treatment.

These samples for mastitis culture can be frozen and stored. If you have had more than two clinical cases in the past 30 calvings, or are concerned about the number of clinical cases of mastitis as the year progresses, these frozen samples can be submitted for laboratory examination. Samples can be stored for up to 4 months without any negative effect on most major mastitis pathogens.



Foremilk stripping is an excellent way of checking for clots.

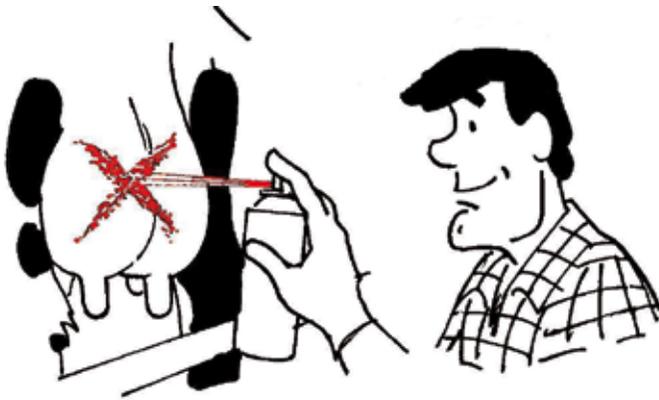


4.4 Clearly mark cows being treated.

Systems for temporary identification of treated cows should be highly visible, easy to apply and to remove. The mark should be durable enough to last for the full treatment and withholding period of the drug.

Different colours or marking codes may be used to signify when withholding periods are complete.

Set up a system that works for you and ensure that all regular and relief milking staff are familiar with it. Have a written procedure on the wall of the dairy for all staff to see. This will help avoid confusion and costly mistakes.



4.5 Select the antibiotic to be used - consult your vet.

Set up a treatment protocol with your vet, deciding which drugs you will use. Issues to be assessed include:

- bacteria cultured previously, and antibiotic responses in your herd
- assessment of likely bacteria in this particular case
- published cure rates of the products available
- withholding periods of the products available.

Review the effectiveness of the protocol on a regular basis. If more than 20% of cases require a second course, reassess your protocol with your vet. CellCheck Farm Reports will provide a report on treatment effectiveness when you enter clinical case records.

In some circumstances, treatment with injectable antibiotic may be beneficial. Seek veterinary advice.

NEVER use dry cow treatment for clinical cases.

Always read the label on the antibiotic product.



Clearly identify cows that are being treated.

Marking animals before you prepare the teats and administer antibiotic will minimise the risk of mistakes later.

Examples of marking systems:

- insulation tape on the tail
- bands above the hocks or on the legs (Velcro or ratchet-type)
- paint (tail paint, enamel or non-scourable spray paint) on the udder or legs.

A visible method should still be used in herds with electronic ID/computerised recording.



Clinical mastitis.

A case of clinical mastitis which requires treatment is when there is heat, swelling or pain in the udder, or there are changes in the milk (wateriness or clots) that persist for more than three squirts of milk.



Refer to Management Note B:
The correct way to give lactating cow intramammary treatments.

4.6 Administer the treatment as recommended.

Ensure that teats and gloves are clean.

Strip out the quarter fully before infusing antibiotic into the quarter.

Scrub the end of the teat with medicated teat wipes (or a mixture of 70% alcohol) before inserting the tube.

Teat disinfect afterwards.

4.7 Use the full course of antibiotics (as specified on the label).

Only treat the quarters that are affected.

Check all quarters every milking during the full course.

4.8 Milk the quarter out fully at least every milking.

Stripping out infected milk from clinical quarters improves cure rates. Frequent stripping (three or four times per day if practical) removes infected milk from the quarter.

4.9 Record all details.

Clinical case records are essential to track mastitis control in your herd, and for good management. Keeping a record of mastitis cases can be simply done in a notebook, or farm diary. On-farm computer systems make record-keeping easy. CellCheck recommends recording details on the ICBF system www.icbf.com.

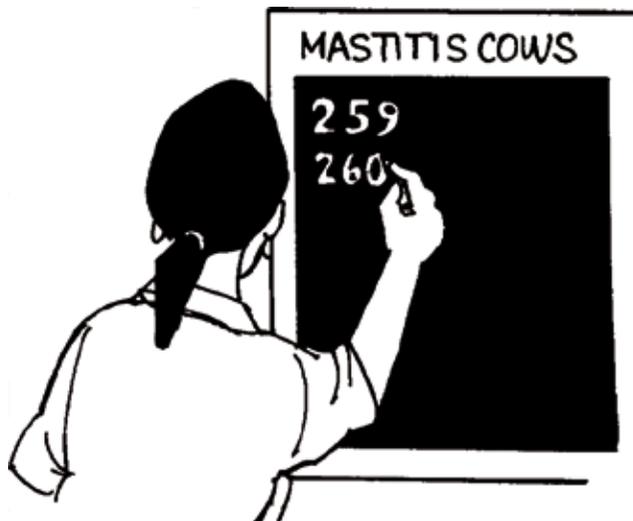
Under the Animal Remedies Regulation, farmers are obliged to record all antibiotic treatments administered in The Herd Register.

A clear, easily seen record should be kept in the parlour for quick reference during milking. A whiteboard is ideal.



CellCheck recommends recording details on the ICBF system www.icbf.com.

Refer to Management Note G:
Records to keep on clinical cases of mastitis.



4.10 Observe withholding times for milk and meat.

Read the label of the drug used and calculate the correct withholding period for each treatment.

4.11 Discard milk from all quarters of cows that receive treatment.

Some antibiotic will be absorbed into the bloodstream and passed out in the milk from the normal quarters. The risk of antibiotic contamination is too great to include any of it in the bulk tank.

4.12 Make a particular effort to minimise the spread of bacteria from infected cows to other cows.

Separate out clinical cases and milk them last. It may be feasible and more time efficient to run a separate mastitis herd.

Use gloves when milking mastitis cows. Ensure you change your gloves after handling mastitis cows.

If mastitis cows are not milked last as a separate group, use a separate, good quality cluster for mastitis cows on the diversion (or test) bucket. Mark the cluster with some red tape to remind all people milking that it is only to be used for mastitis cows.

Rinse and then sanitise the cluster after milking each mastitis cow. Remove the long milk tube and run water through the clusters and claw bowl for 30 seconds. Then dip the cluster and your hands in a disinfecting solution such as peracetic acid. Disinfectants take time to kill bacteria, so ensure sufficient contact time with the solution (as per manufacturer's recommendations). For the same reason, don't touch any other cluster or cow for at least 20 seconds. Drying hands on paper towel after this will also help reduce the bacteria that still remain.

**Administration of intramuscular antibiotics.**

To prevent carcass downgrades and chemical residue problems:

- injections should be given in no more than 20 mL doses at any one site. For example, when giving a 30 mL dose, inject 15 mL into each of two different sites.
- this is especially important for dairy cattle that may be culled within 12 months of treatment. Individual antibiotic treatments will have specific administration guidelines. Refer to these guidelines before injecting.

Refer to Management Note M:
Dealing with high SCC cows.

**Sanitising clusters.**

Do not dip the cluster into a bucket unless you have rinsed it first because progressive contamination of the bucket leads to a 'soup' of bacteria.



4.13 Consult your vet for advice about the following options if the milk from a clinical quarter is not visibly normal by the end of a full course of treatment (as listed on the label):



- repeating the same treatment
- trying a different antibiotic
- drying-off the quarter (provided it is not hot or swollen)
- drying-off the cow
- culling the cow, after the withholding period for meat has expired
- culturing the pre-treatment sample or re-sampling the quarter (after a minimum of 30 days after treatment).



If drying-off a quarter, just stop milking it and monitor the quarter to ensure it does not become hot and swollen. If it does, strip it out again.

Do not use dry cow treatment in a quarter when you are continuing to milk the other quarters.

Dry cow treatments are not registered for use in lactating cows. Some antibiotic will be absorbed into the bloodstream and passed out in the milk from the normal quarters, so there is a high risk of antibiotic contamination of the bulk tank.

If culling the cow, check that the withholding period for meat has elapsed for all drugs used.

