



NABSnet info

Hi all

The NABSnet SDI subsidy has now risen to 'up to \$2500'. This acknowledges the costs of doing a full workup on significant disease events. I know from talking to many of you during or after your SDIs that there's often a second visit involved (eg for a fresh PM, to look at new cases or get follow-up bloods). And it takes time to discuss the case and write up the report. Excellent to have the extra resources – keep up the good work that leads to great cases.

At the Masterclass in March, Shane Besier showed us 'mind maps' of differentials for a range of syndromes that he uses to guide sampling strategies. Based on his presentation we've built one to sit alongside the SDI featured this month – of cows showing nervous signs and dying after transport. I think this is a good visual memory jog – let us know what you think.

It's a pleasure to welcome Kate Usher to the team. Kate's filling in for Lil Stedman who is on maternity leave with young Rory – and this brings Kate back to the north (always a good move).

And it's a bit of a celebration - this newsletter is # 50 – feels good to have clocked up a 'half century' of communications across the north. Don't hesitate to drop a line to me or Teagan or Pauline if there are things you would like to see included in future newsletters, and if you've missed any, (or just want to reminisce!) – they are all on the website as PDFs.

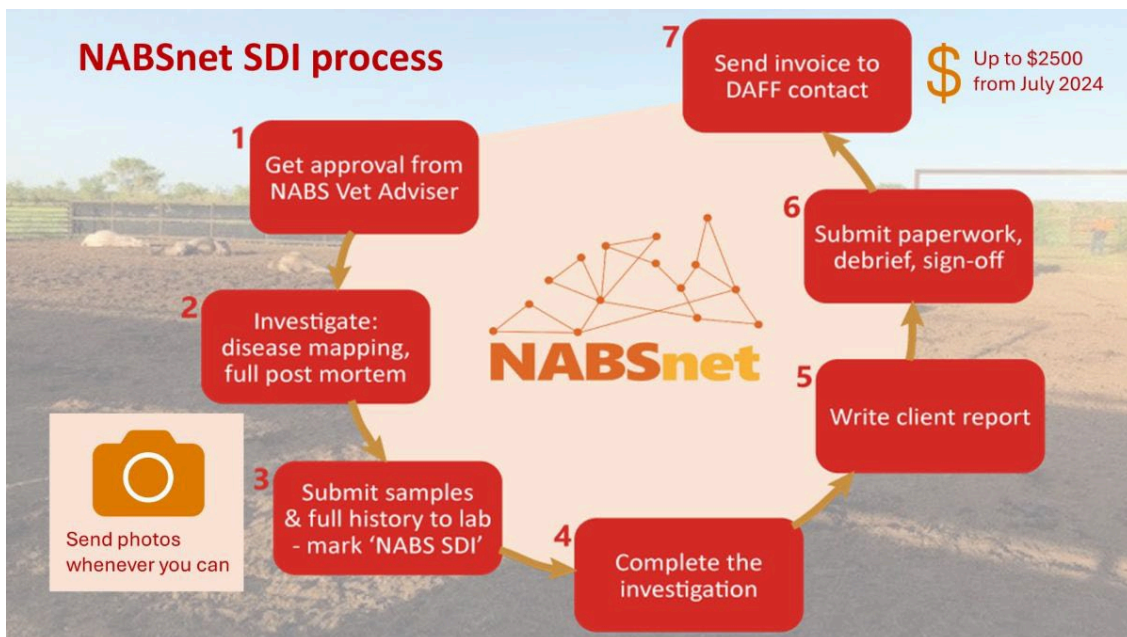
Cheers Kev



Is this a SDI?

Livestock inc ruminants, horses, pigs

- Multiple animals
- Serious or unusual morbidity or mortality
- Opportunity to rule out notifiable diseases



NABSnet SDI subsidy now up to \$2500

One of the key elements of NABSnet is the SDI process – where private vets in the north can investigate a significant disease event through to laboratory confirmation with the support of a financial subsidy and free lab tests.

From July 2024 the subsidy will increase by \$500 to 'up to \$2500 (including GST)'. This recognises the general increase in costs over this time, and reinforces the value to the overall livestock biosecurity effort that NABSnet SDIs contribute.

Many of the SDIs that have been submitted from the NABSnet network are now on the website - a great record of some complex investigations by you and your colleagues.

[Check out summaries of NABSnet SDIs](#)

7 cows die after transport

In June 2024, 860 cattle from one property were trucked to export yards in Western Australia with deaths occurring on the truck (2) and within 3 days of arrival (5). Cows showed signs of staggering, muscle tremors, hind limb knuckling, inability to rise and aggressive behaviour. 12 cows from the same mob had died during transport to the Northern Territory the week before. Approximately 8 cows which were affected were reported to recover without treatment. One aborted foetus of approximately 5 months gestation was observed in the yards.

A veterinary investigation was requested on day 3. Two severely affected cows had bloods collected and were euthanised by captive bolt for post-mortem examination.

Gross autopsy findings

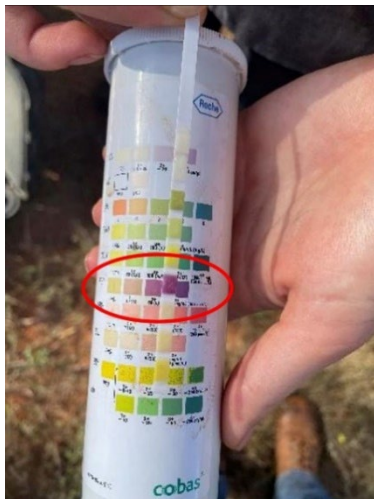
On post-mortem examination it was apparent that the cows were heavily pregnant (approx. 8 months in calf).



The liver appeared mildly yellow in colour and was a friable cheesy consistency. No other significant abnormalities were seen.



Gross appearance of the liver in each cow



A urine sample collected from the bladder indicated ketone levels of 3+ on urine dipstick test.

Field diagnosis

Pregnancy toxaemia was considered the most likely diagnosis. Other differentials included hypomagnesaemia, other mineral deficiency (hypophosphataemia, copper, vitamin A, cobalt, B12), plant toxicity (pyrrolizidine alkaloid) and botulism.

Samples submitted from both cows

- Fresh and fixed: liver, lung, heart, skeletal muscle, spleen, kidney, rumen, reticulum, abomasum, jejunum, brain
- EDTA, Lithium heparin and plain bloods, ocular fluids

Lab findings

Histopathology showed marked hepatic lipidosis in both cattle.

Biochemistry

- Elevated ketone bodies (Beta-hydroxybutyrate)
- Mildly elevated liver enzymes
- Elevated plasma vitamin B12
- Elevated muscle enzymes (likely due to transport)
- Adequate selenium (as GSHPx) and plasma copper

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***** BIOCHEMISTRY *****
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SAMPLE		AS-24-1825 -0015	AS-24-1825 -0016	AS-24-1825 -0017	AS-24-1825 -0018
GSH PX	40-300 U/gHb			228	318 H
GGT	0-35 U/L	21	40 H		
GLDH	0-30 U/L	43 H	144 H		
AST	0-120 U/L	2044 H	1285 H		
BIL	0.0-24.0 μ mol/L	7.2	6.0		
CK	0-300 U/L	47724 H	16925 H		
UREA	2.1-10.7 mmol/L	6.0	9.7		
CREAT	0-186 μ mol/L	184	241 H		
PHOS	0.80-2.80 mmol/L	1.08	1.36		
URE/CREA	0.00-0.07	0.03	0.04		
PROTEIN	60.0-85.0 g/L	72.2	83.5		
ALBUMIN	25.0-38.0 g/L	34.9	37.7		
GLOB	30.0-45.0 g/L	37.3	45.8 H		
ALB/GLOB	0.7-1.1	0.9	0.8		
BHB	0.00-0.80 mmol/L	1.93 H	4.92 H		
CA	2.00-2.75 mmol/L	2.40	2.47		
MG	0.74-1.44 mmol/L	0.85	0.76		
HAPTO	0.00-0.30 g/L	0.27	0.15		
SERUM HB	0.00-0.20 g/dL	0.07	0.15		
COPPER	9.0-20.0 μ mol/L	16.2	13.9		
VIT.B12	200-500 pmol/L	915 H	819 H		

Serology

- PCRs for Anaplasma and Babesia were both negative

Laboratory confirmed diagnosis - Pregnancy toxemia (ketosis, fatty liver syndrome)

Pregnancy toxemia usually occurs in cattle during the last 2 months of pregnancy where feed quality or quantity is deteriorating. Being yarded up and trucked had restricted feed for these cattle which probably precipitated the disease event.

Recommendations

Pregnancy toxemia results when cattle don't have sufficient quantity or quality feed in the rumen for the liver to make enough glucose to utilize incoming fat which is mobilized during late pregnancy as an energy source (as feed itself is not enough to maintain the cow and the calf). Negative energy balance causes ketones to build up in the blood affecting the nervous system of the animal.

-
- Immediately - keep these cattle on feed for the next 5-7 days, pregnancy test the mob and remove the heavy pregnant cattle. Pregnancy test cattle on the station before sending them to the export yards.
 - In the future - have cattle in a positive energy balance leading into calving by ensuring pasture feed is adequate or supplementary feeding. Do not transport cattle when they are heavily pregnant (over 7 months in calf) as this places excessive stress on their bodies which can deplete their energy stores and lead to pregnancy toxaemia. Pregnancy testing should be performed prior to sale.

Clin path quiz (results below)

High plasma B12 in cattle can be associated with..... ?

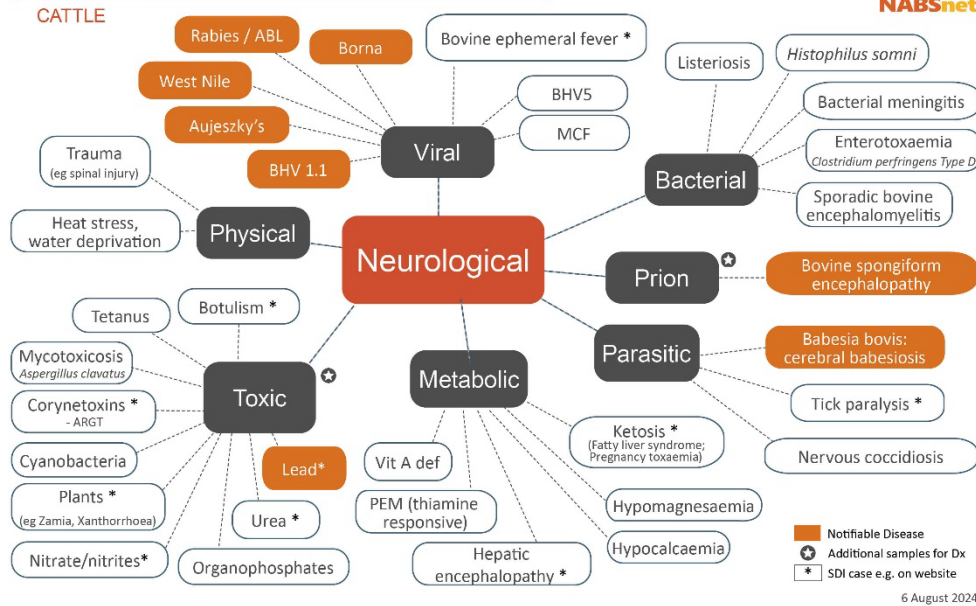
Mind map for neurological syndrome

At the NABSnet Masterclass in March, Shane Besier (DPIRD pathologist) presented his 'mind maps' to guide syndrome sampling and there was general agreement that these could be a good guide in the field. An easy reference to expand DDx options and get the appropriate sample sets.

We've developed one for neurological syndrome sampling to complement the SDI in this newsletter.

We've followed the usual NABSnet approach - keeping things as easy and simple as possible - to cover the major bases - but not trying to be absolutely comprehensive.

Mind map Neurological syndrome



Ante mortem		
Bloods *3		
Blood smear		
Faeces		
Post mortem		
	Fresh Individual, labelled, chilled	Fixed Pooled, formalin
Vitreous humour	<input checked="" type="checkbox"/> frozen	
Brain	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Brain squash	<input checked="" type="checkbox"/> dried	
Spinal cord (x2-3)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Liver	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Lung	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Kidney	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Spleen	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Heart	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Skeletal muscle	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Any lesions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Abomasum /fore		<input checked="" type="checkbox"/>
SI / LI / IC valve	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Neurological Sampling

Sampling considerations

- Several significant EADs and zoonoses.
- Need thorough history. Videos are helpful to show signs.
- CNS samples required for full investigation.
- Some causes do not have gross or histological signs.
- Brain/brainstem swabs needed for culture and PCR. Liquid Amies swabs (e-swabs) are suitable for both. Or send swabs in solid agar for culture, and in VTM for PCR and viral culture.
- Vitreous humour for some toxicoses and metabolic diseases.
- Take bloods from live cohorts in metabolic disease.

Additional samples

- ✳ BSE: intact fixed brainstem required.
- ✳ Rabies: **zoonosis**, fresh and fixed brain and salivary gland.
- ✳ Suspect plant poisoning: (1) submit plant sample, where access is clear (2) suspect plant fragments from rumen.
- ✳ Suspect feed (eg mycotoxicoses): send feed sample, batch label and date, note batch details when problem started.
- ✳ Suspect enterotoxaemia: 5-10ml of ileal content.
- ✳ Suspect toxins e.g. botulism, ARGT: 50-100ml rumen fluid.

6 August 2024

[Download the mind map and sampling guide](#)

Post mortem sampling consumables available



A range of post mortem sampling consumables are now available for clinics who have been actively participating in completing SDIs.

Your state representative will organise getting kits sent out to your clinic. Please contact your state representative to arrange this or if you have any questions.

Welcome Kate Usher

Kate Usher is currently filling Lil Stedman's role in the Office of the Chief Veterinary Officer – Northern Australia, while Lil is on maternity leave. Kate says it's been a great opportunity for her to 'get back north' – and we welcome her onto the NABSnet team.

Kate grew up on a beef cattle property west of Townsville and was in the first vet cohort to graduate from JCU in 2010. She spent five years in the field with Biosecurity Queensland and then joined DAFF to work on trade and market access for primary products – a job she really enjoyed.

"Some people don't like the tension of trade negotiations, but I found it really engaging – when there was tension it meant we were closing in on an agreement – which always meant more for our producers".



Kate describes her current role as “basically being the eyes and ears for the Australian Chief Veterinary Officer – Beth Cookson – across northern Australia, especially around animal biosecurity. There’s a small northern team who are busy connecting with stakeholders – getting to know them, hearing their issues and helping to build capacity. Beth needs to know what’s happening to do her job well and she’s very keen to keep her focus on the north.”

“I’m learning a lot from meeting people. At the recent Indigenous Rangers biosecurity roundtable in Darwin it was great to hear about the number of Indigenous Rangers who have had training on how to collect a key sample set on post mortem and how to get samples to the lab in good shape. Having rangers with these skills on Country will really complement our vet network investigations across the north”.

“And often the people I meet want to know more about what DAFF does – for example beef producers asked about our activities in neighbouring countries – not just that we are there, but what things are happening that will benefit them as producers, and how they can tap into resources we might have – so the messaging goes two ways”.

“As someone who's grown up in the north, I've always been a very big advocate and keen to promote just how important the north is as a community and a source of revenue for the greater Australian population. So if anyone has a query or something they want to promote, connect and I'll be there to discuss it and help wherever I can.”

Kate.Usher@aff.gov.au

Office of the Australian Chief Veterinary Officer – Northern Australia

The Office of the Australian Chief Veterinary Officer (OCVO) is a team of scientists and policy makers who support the Australian Chief Veterinary Officer (ACVO), Dr Beth Cookson in the delivery of her role and responsibilities.

The ACVO is the primary representative of, and advisor to, the Australian Government on all matters relating to the maintenance and improvement of Australia's animal health status and the systems that support it. The ACVO addresses major animal health issues of national interest, such as the threat of antimicrobial resistance (AMR) and enhancing trade and market access for animals and animal products.

The small team supporting the OCVO's work in Northern Australia includes program, policy and veterinary officers based in Cairns, Darwin and Canberra who focus on regional engagement and influence around animal biosecurity issues unique to the north and the neighbouring region.

This includes strengthening engagement with Northern Australia's animal industry stakeholders to build capacity around prevention, preparedness, detection and response to, emergency animal disease (EAD) threats such as foot-and-mouth disease (FMD) and lumpy skin disease (LSD).

The Northern office also works closely with OCVO teams who partner with our regional near-neighbours such as PNG, Timor-Leste and Indonesia to strengthen and enhance regional animal biosecurity systems to protect livelihoods and limit the impact and spread of EADs.

For the latest updates on the work of the Office of the Chief Veterinary Officer, you can follow the X (formerly Twitter) channel @ChiefVetAus and/or get updates from Dr Beth Cookson on LinkedIn.



Sampling for Avian Influenza on remote northern beaches

AI update

Flu season is upon us, and no one is more aware of it this year than a Victorian poultry farmer – or perhaps also Ag Victoria – as they tackle another outbreak of highly pathogenic avian influenza (HPAI). At the time of writing in early July 2024 there were 8 poultry farms affected in Victoria, 2 in NSW and one farm and a residential flock in ACT. These are actually three separate outbreak events, all likely linked to introduction from wild birds. More information can be found at [H7 high pathogenicity avian influenza | Outbreak](#)

These current Australian outbreaks (thankfully) aren't related to the worldwide spread of a particular strain of avian influenza, HPAI H5N1, but are an Australian low pathogenic virus that circulates in wild birds without consequence and has spilled over into a high-density poultry shed, mutating into HPAI with a high mortality rate. The H5N1 variant that has been spreading across the rest of the world is of a particularly concerning genetic line that has spilled over to cattle and over twenty other mammal species, with dairy cattle in the United States under scrutiny for spread of the virus to dairy workers, thus far causing only mild disease in four people.

We shared information in NABSnet Newsletter #48 on targeted and general avian influenza surveillance efforts. The surveillance campaign has now increased monitoring in the Torres Strait, Indian Ocean (IOTS), the Coral Sea, Ashmore Reef and Norfolk Island territories.

Indigenous ranger groups across northern Australia have also been trained to collect samples from remote areas where birds are known to congregate, in addition to the sites already targeted by NAQS and state jurisdictions for data contributing to the National Avian Influenza in Wild Birds program.

Whilst you are mostly focused on busy day to day livestock practice, please keep in mind to report any unusual numbers of sick or dead wild birds or poultry, and take care to ensure you don't put yourself at risk of zoonotic disease.

Northern biosecurity

- Aquatic pest biosecurity community awareness
- Biosecurity-it's everyone's business virtual reality experience
- Country Handle with Care - Costa and dirtgirl Tackle Biosecurity
- Frontline-northern biosecurity's community song
- Avian influenza awareness - Keep a TopWatch!**
- Rabies Awareness-Keep a Top Watch! in your community animation
- Report a pest, weed or disease in Northern Australia
- You can be a Biosecurity Champion tool

Avian influenza awareness – Keep a TopWatch!

As part of our work under the Northern Australia Biosecurity Strategy (NABS), we have developed an animation to increase awareness and encourage early detection and reporting of the disease.

Keep a TopWatch!



The group soon notices more sick birds, some wobbling, others already lying down.

Download

NAQS have produced a short animation to spread the word - you may like to share it with your networks.

DAFF website - [Avian influenza awareness – Keep a TopWatch!](#)

Facebook <https://fb.watch/rxq1tLD5UD/>

Clin path quiz

High plasma B12 in cattle can be associated with.....

1. Contamination with faecal material during tail vein bleeding
2. Certain forms of acute liver damage
3. Treatment with injectable B12 preparations just prior to sampling
4. Colostrum intake in neonatal ruminants.



Key NABS SDI network contacts

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Missed earlier NABSnet newsletters? [read them here](#)

To subscribe: [join here](#)

Newsletter sent on Kevin's behalf from the team at Harris Park Group

Let us know any topics you'd like to see covered here.