Practical use of Veterinary CGM in diabetic care

ELLE HASKEY

BSC(HONS) PGCERTVETED RVN VTS(ECC) VPAC A1

WOODLEY EQUIPMENT COMPANY LTD.

RVC Royal Veterinary College University of London

Learning outcomes

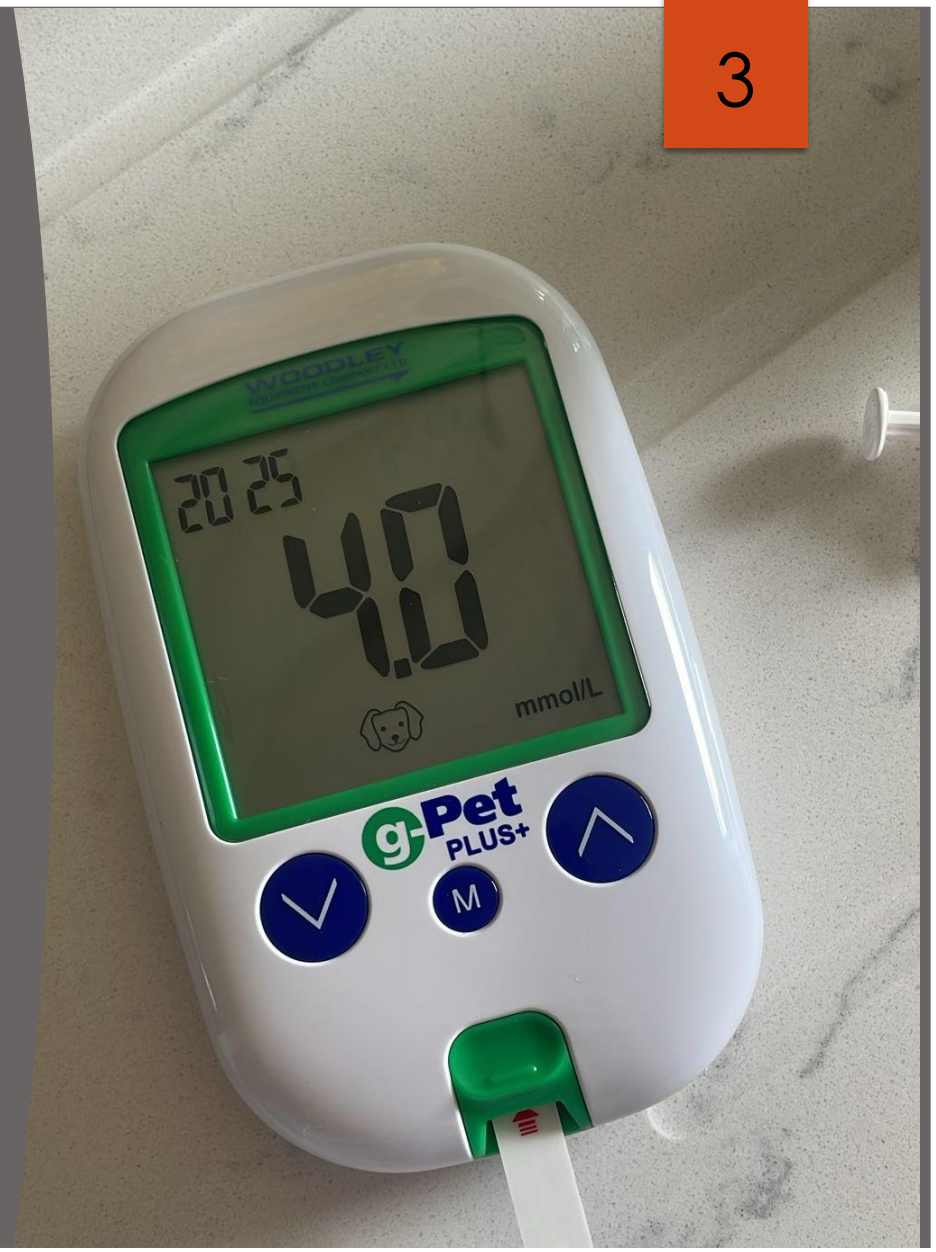
Understand the principles of CGM

Identify clinical advantages and limitations in veterinary patients

Apply CGM technology effectively in both inpatient and outpatient settings

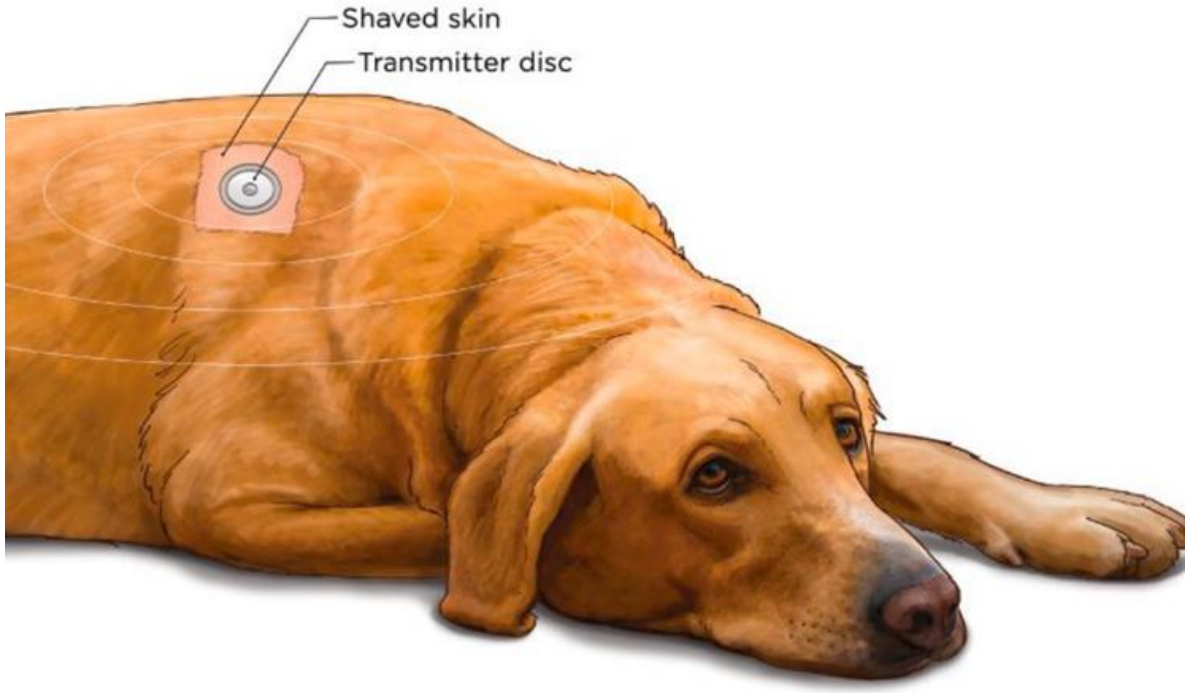
How can we measure glucose?

Indirect	Direct
• Fructosamine • HbA1c (glycated haemoglobin) • Clinical signs	• Blood glucose • Urine glucose • Interstitial glucose

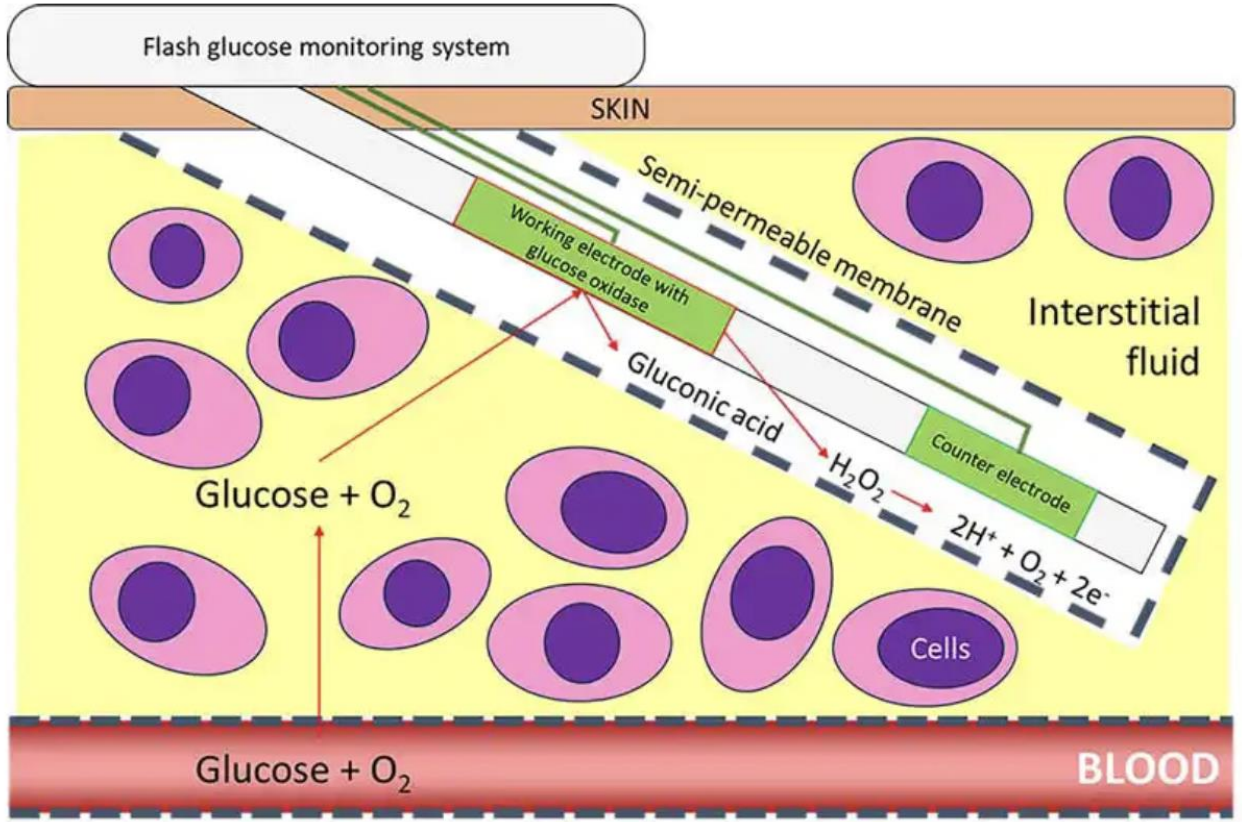


What are CGMs?

- Minimally invasive device
- Measure interstitial glucose every 1–5 minutes
  - Provide trends, rate-of-change arrows
  - Reduce reliance on spot-checks
  - Data accessible through reader or app



How do they work?



- The sensor consists of:
  - platinum electrode
  - a glucose diffusion, limiting membrane containing glucose oxidase
- In the presence of oxygen and interstitial glucose, an oxidative process leads to a current
- Current is proportional to the glucose concentration in the interstitial space

https://www.vettimes.com/clinical/small-animal/diabetes-mellitus-update-on-treatment-and-management - I Ramsey and A Kraemer

History

1970s - 1990s

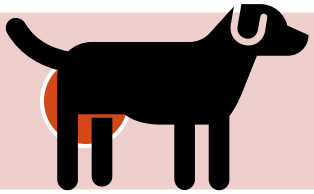
- 1st sensors developed - IG tracks BG with a 10minute lag

1999

- 1st commercial FDA approved sensor released - provided retrospective data for 72h

2004

- 1st real-time CGM with live results and alarms



2012

- 1st CGM to link to smartphone

2017

- CGMs linked to insulin pumps for automated delivery

2020s

- Real time, smarter technology, smaller profile

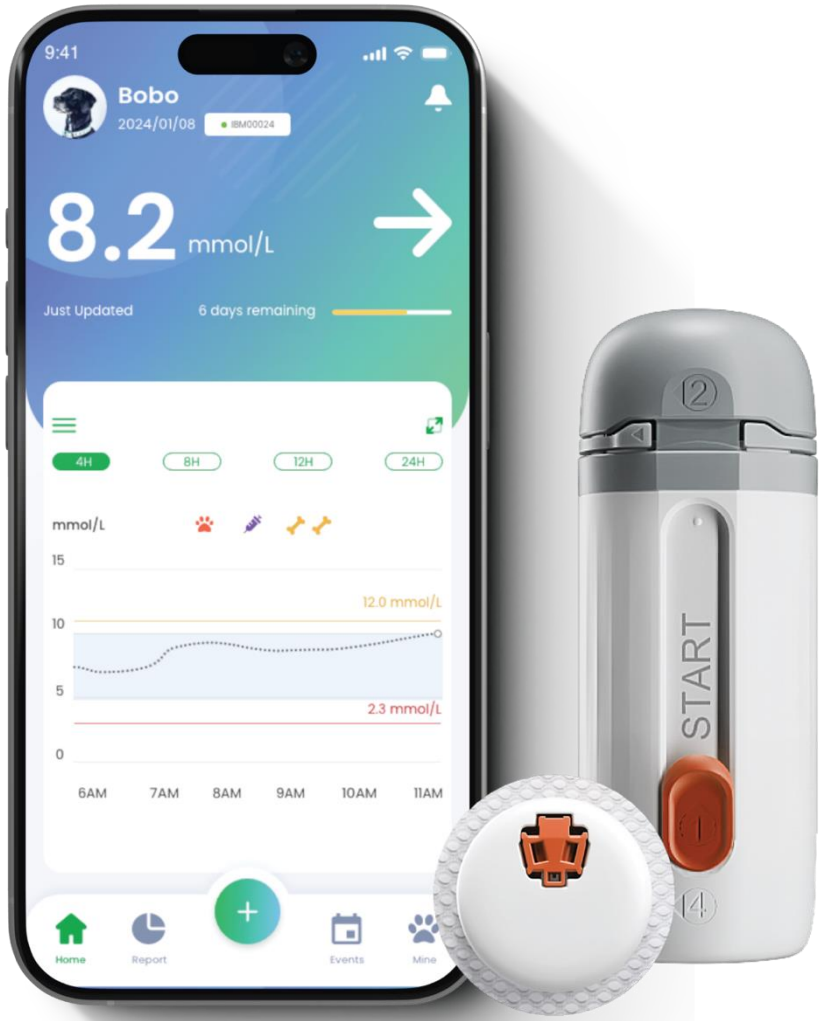
Uses in human healthcare

- Integeral part of Type 1 & Type 2 diabetes management
- Improves glucose control & reduces hypoglycaemia
- Strong evidence base for trend-based dosing decisions
- Newer technology linked directly to pumps or pens for accurate real time dosing

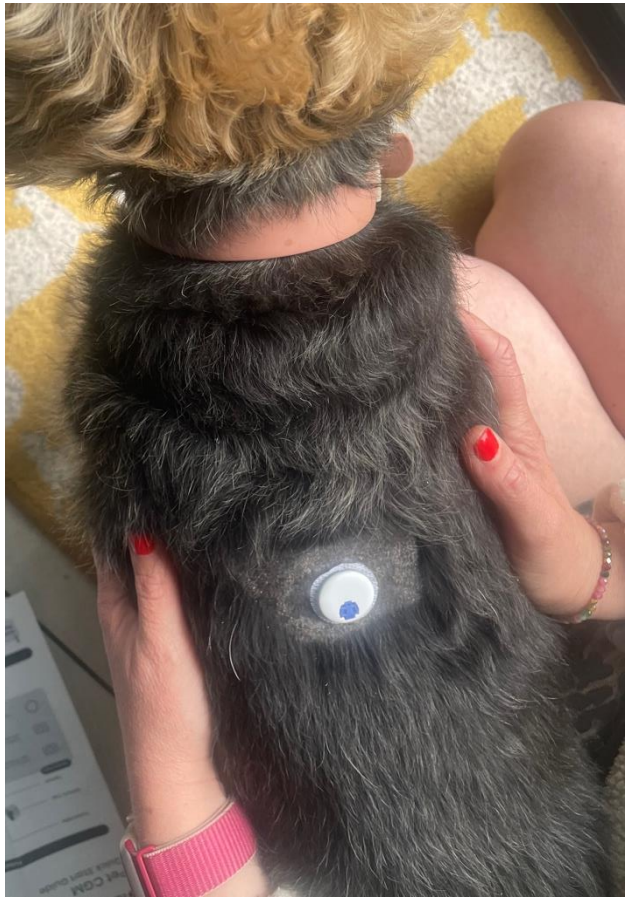
✓ICU/critical illness
✓ Anaesthesia & surgery
✓ Cystic fibrosis
✓ Pancreatitis/pancreatic disease
✓ Bariatric surgery
✓ Pregnancy & gestational diabetes
✓ Athletic performance
✓ Endocrine/metabolic research
✓ Medication-induced dysglycaemia
✓ Hypoglycaemia syndromes (insulinoma, reactive hypo)

Veterinary CGM

- Purpose-built sensors for pets
- Calibration algorithm for cats and dogs
- The glucose thresholds, parameters and alert ranges are suitable for cats and dogs
- InSight Vet CGM App allows vets account to monitor data for multiple diabetic pets
- Customer support



Benefits in Veterinary Diabetic Care



- ✔ Improved safety when adjusting insulin
- ✔ Better detection of hypoglycaemia
- ✔ Reduced stress vs repeated blood sampling
- ✔ Owners empowered with at-home monitoring
- ✔ Assessing treatment effectiveness
- ✔ Improving patient understanding of food, activity and insulin effects
- ✔ Identification of rebound hyperglycaemia

Inpatient Applications

- Monitoring unstable diabetic patients
  - Trend monitoring during hospitalisation
  - Reducing staff handling for fractious animals
  - Spotting rapid drops or rises in real time

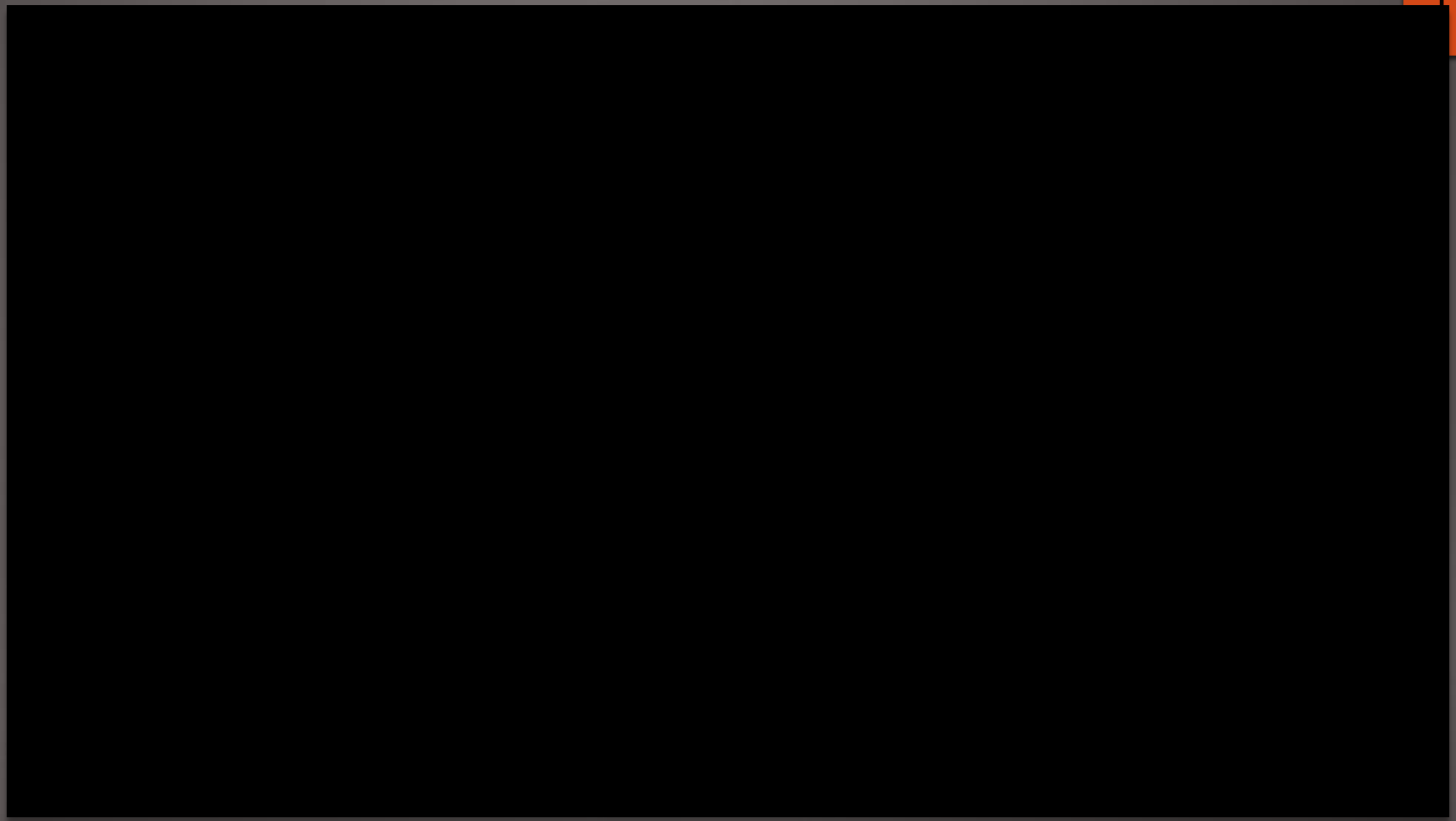
✓ICU/critical illness
✓ Anaesthesia & surgery
✓ Pancreatitis/post-pancreatic disease
✓ Hypoglycaemia syndromes (insulinoma, reactive hypo)

Outpatient Applications

- Home curves with minimal stress
  - Fine-tuning insulin types/intervals
  - Monitoring diet response
  - Assessing exercise-related glucose variability

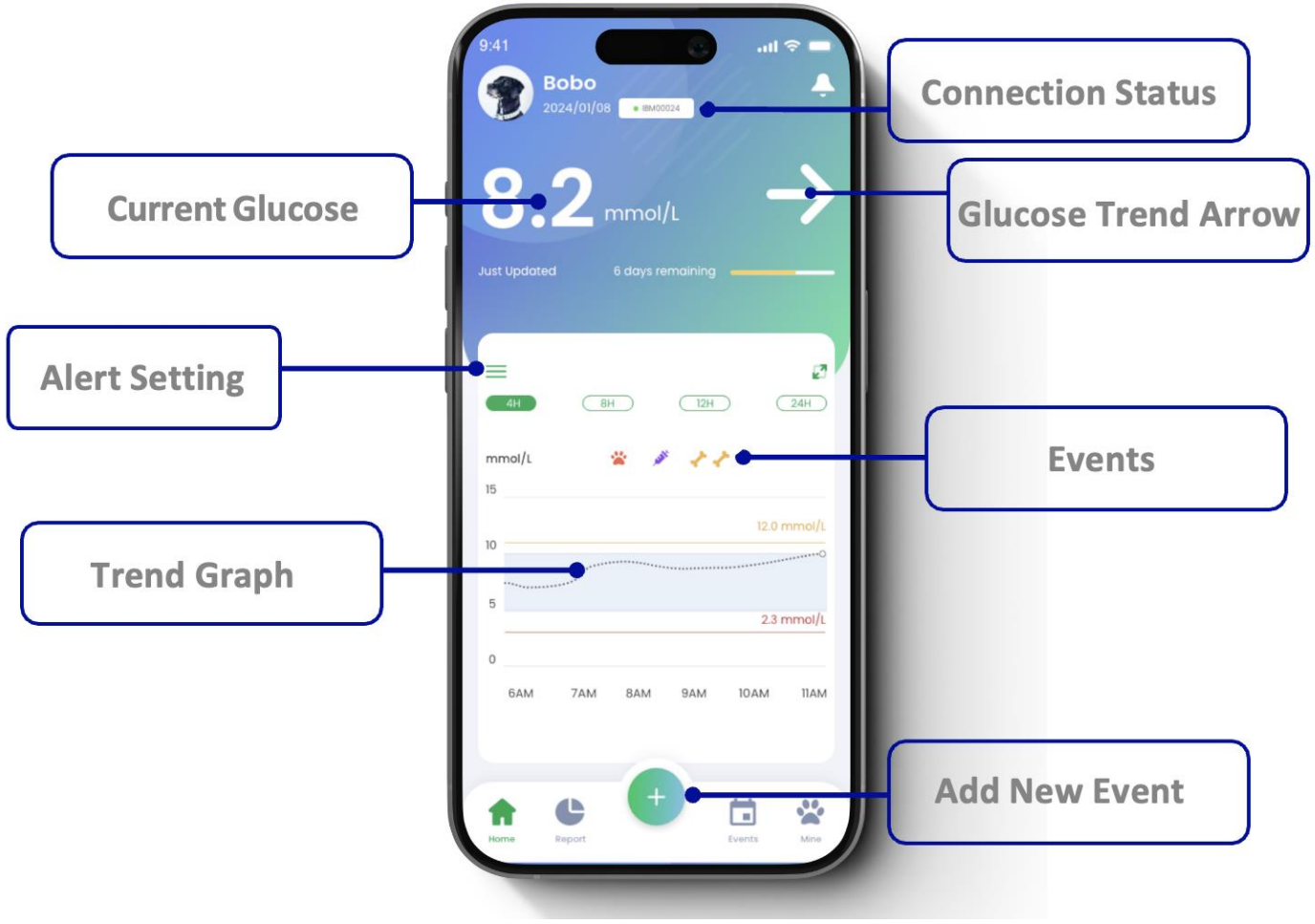
Placement & Practical Tips

- Common sites: lateral thorax, dorsal neck, lumbar region
  - Clip & clean skin; avoid tension areas
  - Light bandage for secure attachment
  - Counsel owners about sensor life (10–14 days)
  - Demo app
  - Set patient specific parameters



Interpreting CGM Data

- Focus on trends, not single points
  - Arrows guide immediate action
  - Look for patterns over 24–72 hours
  - Overlay curves with insulin, meals, activity



Practice Implementation

1. Review current practice and consider caseload for implementation
2. Establish nurse clinics - Train nurses for placement & data review
3. Create standard operating procedures
4. Use shared digital dashboards

Client Communication Tips

- Explain benefits clearly
  - Show simple app/reader interface
  - Set expectations about sensor wear
  - Provide printed troubleshooting sheet
- Some owners can become fixated so communication is key!

Troubleshooting and limitations

- Allow 12 – 24 hours to settle in
- Lag time between interstitial & blood glucose (5–10 min)
- Occasional compression artefacts
- If reading seems off check BG
- Pet shirt or dressing
- Sensor loss in active dogs
- Cost & owner learning curve

Summary

- CGMs transform diabetic monitoring and management
- Reduce stress, improve safety & outcomes
- Useful in both inpatient & outpatient settings
- Valuable beyond diabetes alone
- Future AI advancements

Resources

- https://diabeteswise.org/device-finder/
- https://www.vettimes.com/clinical/small-animal/diabetes-mellitus-update-on-treatment-and-management
- https://www.woodleyequipment.com/product/925/InSight-Vet-CGM-Continuous-Glucose-Monitoring-System-for-Dogs---Cats
- https://www.aaha.org/resources/2018-aaha-diabetes-management-guideline-for-dogs-and-cats/
- https://www.caninsulin.co.uk/
- https://bi-animalhealth.com/pets/prozinc-portfolio
- APP store

Any questions?

WOODLEY
EQUIPMENT COMPANY LTD.

VISIT THE STAND AT M04 & K30

Ian Ramsey
Friday at 12:30-13:30 in Gallery Suite 22.

'An introduction to Continuous Glucose Monitoring (CGM), highlighting why a veterinary-specific system offers clear advantages over adapting human devices'