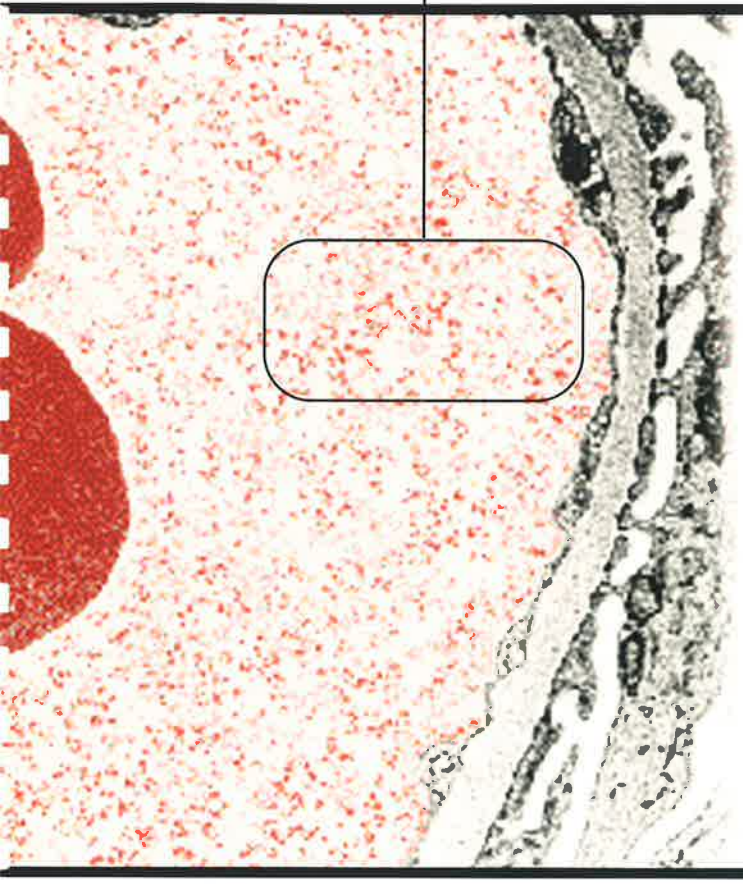
Oxyglobin® Solution

Case Listing Book II



Discover how your collegues are using Oxyglobin in a wide variety of cases.

Advantages of Oxyglobin

Convenience:

No typing or crossmatching
Standard IV set
Any size needle
Room temperature storage
3 year shelf life

Safety

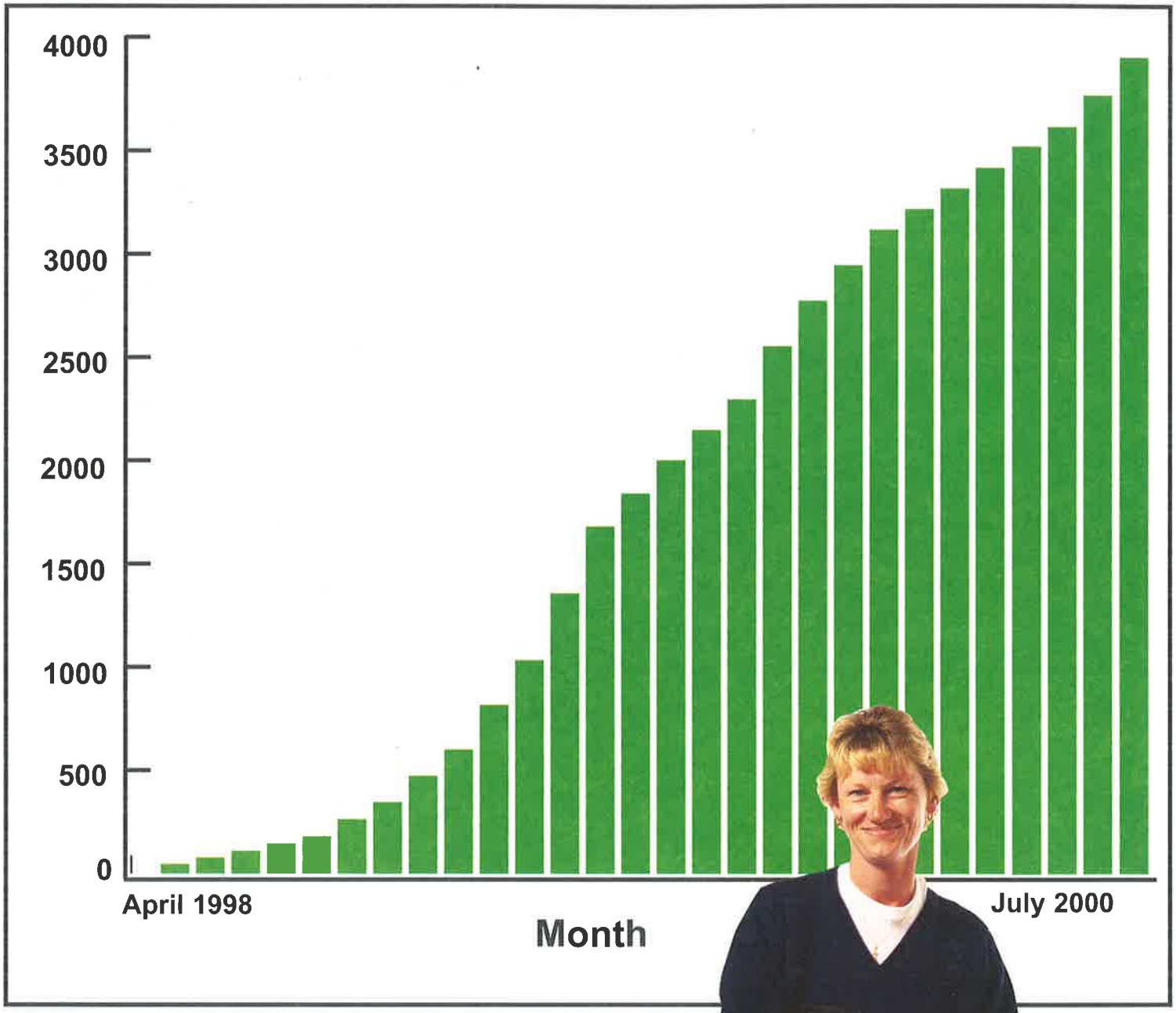
No transfusion reactions
No disease transmission

Efficacy

Delivers 3X more oxygen than blood on a gram for gram basis of hemoglobin.
Rapid improvement of clinical signs
Improves O_2 offloading from RBCs
No red cell membrane
Small size and low viscosity

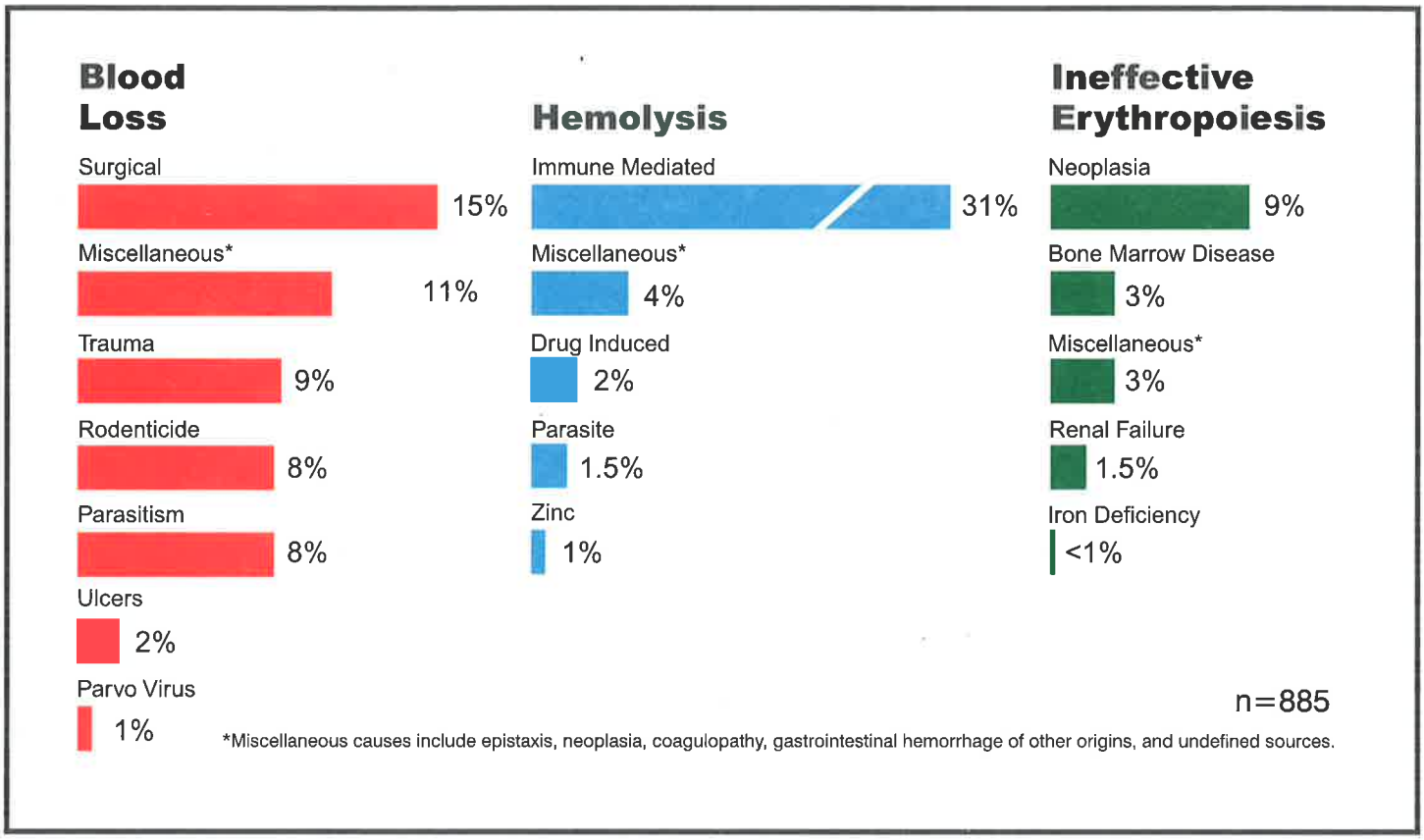
For full prescribing information, please refer to pages 42-43.

Customers Reordering Oxyglobin® Solution



For full prescribing information, please refer to pages 42-43.

Where Oxyglobin is Used



Introduction

The Oxyglobin Case Summary Book was produced in response to veterinarians asking "when" and "how" to use Oxyglobin. This book includes descriptions of the clinical applications of Oxyglobin for the treatment of anemia in dogs due to any cause. The booklet is divided into four sections: Blood Loss, Hemolysis, Ineffective Erythropoiesis and a Q&A section. Case summary reports were received from 885 veterinary clinics nationwide from December 1998 to August 1999 in response to the Biopure Free Replacement Bag Offer. The cases presented within this book are representative of the cases received.

This book contains information as it was received from the veterinarian and as a result, some of the information may be incomplete. Note that some cases are duplicated. When two categories of anemia were identified (i.e. surgery and neoplasia), the case was reported under both categories. Also note that certain practitioners have granted Biopure permission to use their names and addresses. The remaining practitioners' names and addresses have been omitted for confidentiality.

Oxyglobin is being used to treat canine anemia due to a variety of causes to increase arterial oxygen content and improve the clinical signs of anemia. The clinical

Note Regarding Graph:
Cases were collected via the Biopure Free Replacement Bag Offer (December 1998 - August 1999). See enclosed cases for details. This book contains information as it was transferred by the veterinarian. As a result, in certain cases, information may be incomplete. Data on file. ©2000 Biopure Corporation.

For full prescribing information, please refer to pages 42-43.

parameters that were commonly monitored in these cases include heart rate, respiratory rate, body temperature, mucous membrane color, capillary refill time, and physical activity. Clinicians have monitored the clinical signs related to decreased oxygenation or perfusion and have seen improvement following administration of Oxyglobin. A brief summary from each case is included.

From the 885 reports submitted to Biopure, the most common clinical condition treated with Oxyglobin was immune mediated hemolytic anemia (IMHA) (n= 306). Prior to administration of Oxyglobin, the average hematocrit of the dogs with IMHA was 14% (range 2% - 32%). Seventy-eight percent of these dogs did not require additional oxygen carrying support within 72 hours following administration of Oxyglobin.

The second largest population of dogs received Oxyglobin either prior to surgery for hemodynamic stabilization or during surgery for intra-operative blood loss. Before surgery, the average hematocrit was 23% (range 8% - 50%). Following administration of Oxyglobin, 83% of the dogs in this population did not require additional oxygen carrying support within 72 hours.

Some of the other clinical conditions that were treated with Oxyglobin included traumatic blood loss, neoplasia, rodenticide toxicity, and parasitism.

In the majority of cases which were regenerative anemias, Oxyglobin provided the sole means of oxygen carrying support (i.e. a subsequent blood transfusion was not necessary). The average hematocrit at which Oxyglobin was administered was comparable to that for a blood transfusion as recommended by a panel of experts[1]. These cases show that Oxyglobin is being used in a wide variety of cases as an effective "bridge" of oxygen carrying support.

If you have any questions regarding this information please contact Biopure Technical Services at (888) 400-0030.

1 Crystal M, Kirby R, Muir W, et al: Tissue in Desperate Need of Oxygen. Veterinary Forum, pp. 50-57, April 1999.

For full prescribing information, please refer to pages 42-43.

When to Infuse

Historical Problem:

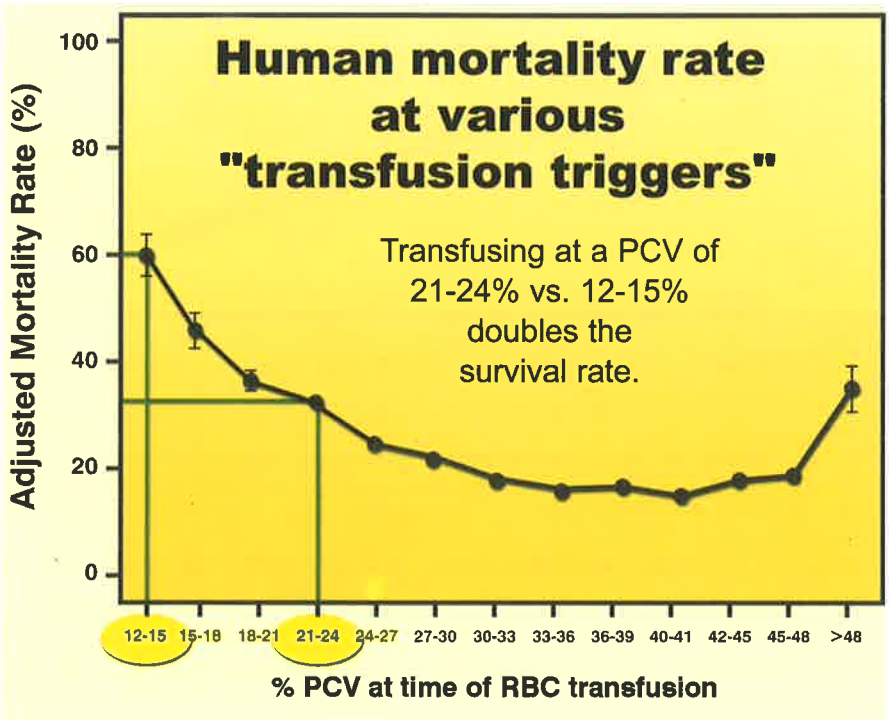
Waiting too long to administer blood.

Issues Associated With Blood

- Not readily available
- Inconvenient
- Typing / crossmatching
- Transfusion reaction
- Disease transmission

The Result:

High mortality rates.



"Does Transfusion Practice Affect Mortality in Critically Ill Patients?" American Journal of Respiratory and Critical Care Medicine, Volume 155, pp. 1618-1623, 1997. N=4,470 critically ill humans.

The Solution: Oxyglobin

Oxyglobin's ability to deliver oxygen rapidly, combined with its "off-the-shelf" convenience, enable you to practice better medicine sooner.

- ✔ Immediately increases systemic oxygen content
- ✔ "Off-the-shelf" convenience
- ✔ Ready-to-use
- ✔ Room temperature storage
- ✔ 3-year shelf life
- ✔ No typing or crossmatching
- ✔ No transfusion reaction
- ✔ No disease transmission

Infuse Earlier

Similar results observed in canine trial.

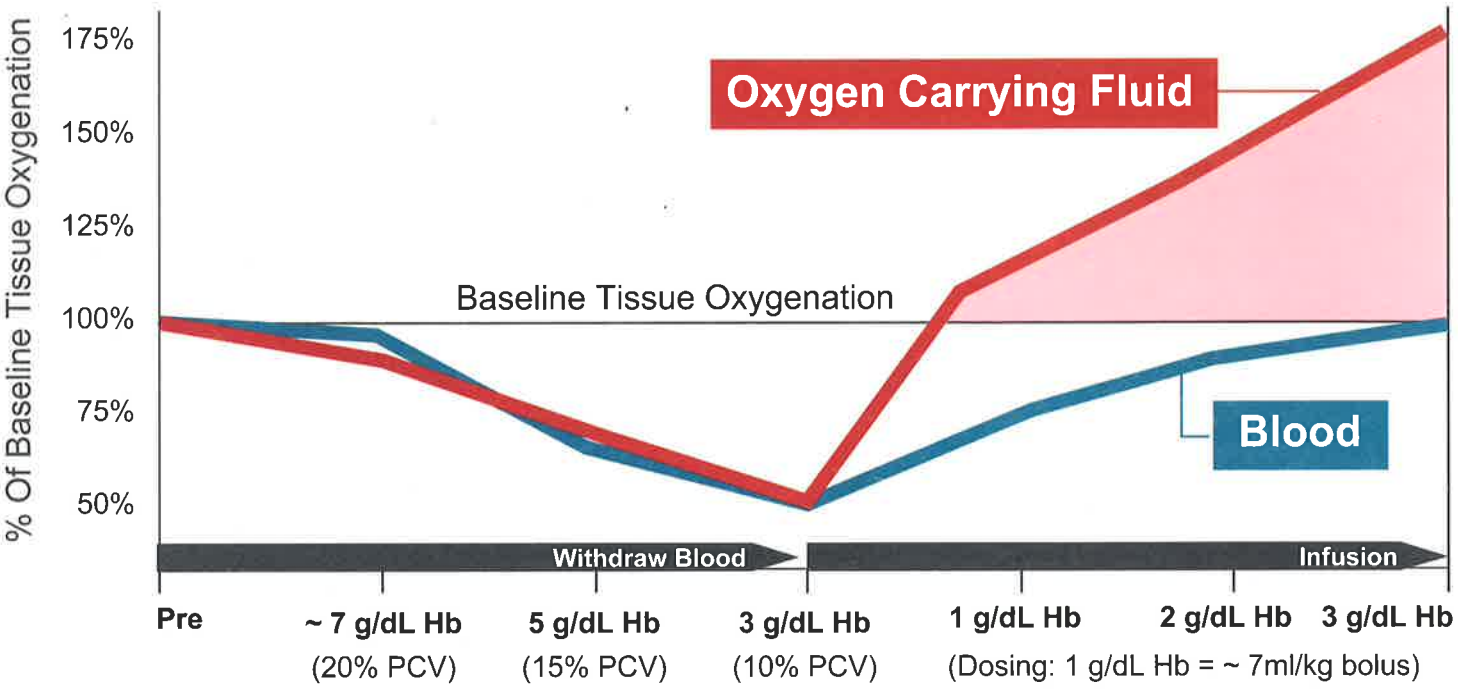
4.5x more likely to survive!

In a clinical trial, dogs with a PCV>15 that received Oxyglobin were 4.5 times more likely to survive than those with a PCV≤10 that received Oxyglobin.

*Oxyglobin clinical data on file at Biopure Corporation, Cambridge, MA, 02141.

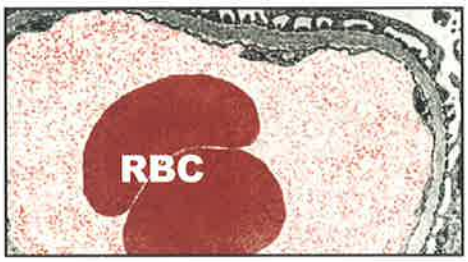
For full prescribing information, please refer to pages 42-43.

Immediate Tissue Oxygenation



Standl TG, et al. Bovine hemoglobin is more potent than autologous red blood cells in restoring muscular tissue oxygenation after profound isovolemic hemodilution in dogs. Can J Anaesth. 43(7): 714-723, 1996.

This graph presents data from a laboratory study in anemic dogs. The study was designed to compare the ability of a hemoglobin solution versus whole blood to improve tissue oxygenation in skeletal muscle. Dogs underwent isovolemic hemodilution with hetastarch to a PCV of 10%. During this period of blood withdrawal, tissue oxygenation decreased to 50% of baseline (red and blue lines). Following hemodilution, stepwise additions (1g/dl) of either fresh whole blood (blue line) or a hemoglobin solution (red line) were administered to the dogs. The graph indicates that augmentation of total hemoglobin by .7g/dL with a hemoglobin solution was required to return tissue oxygenation to baseline levels. In contrast, augmentation of total hemoglobin by 3.0 g/dL with whole blood was required to return tissue oxygenation to baseline levels. This study demonstrated that three times the dose of whole blood (as compared to the dose of a hemoglobin solution) was required to return tissue oxygenation to baseline levels.



Colorized photo of cross section of a blood vessel showing a red blood cell surrounded by Oxyglobin in the plasma.

For full prescribing information, please refer to pages 42-43.

When to use Oxyglobin® Solution

As a Safe, Effective and Convenient Alternative to RBCs for the Treatment of Anemia Resulting from:

When RBCs Are Not Convenient:

- RBCs are not immediately available
- There's no time to obtain / warm RBCs
- RBCs cannot be crossmatched
- Blood has been used in the past

Other Anemic Conditions:

- Surgical support (During anesthesia)
- Fading puppies
- Geriatric support (e.g. prior to dental work)
- Oncology (chemotherapy related anemia)

For full prescribing information, please refer to pages 42-43.

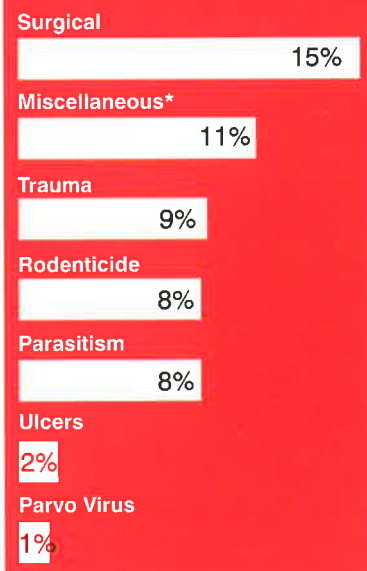
Blood Loss

Oxyglobin is an excellent treatment of anemia due to blood loss. Oxyglobin's immediate availability and "off-the-shelf" convenience enable quick treatment and stabilization of animals that are in immediate need of a colloid that carries and delivers oxygen rapidly.

- Immediate improvement in the clinical signs of anemia
- Immediately available
- Colloidal properties
- Saves time, labor and materials

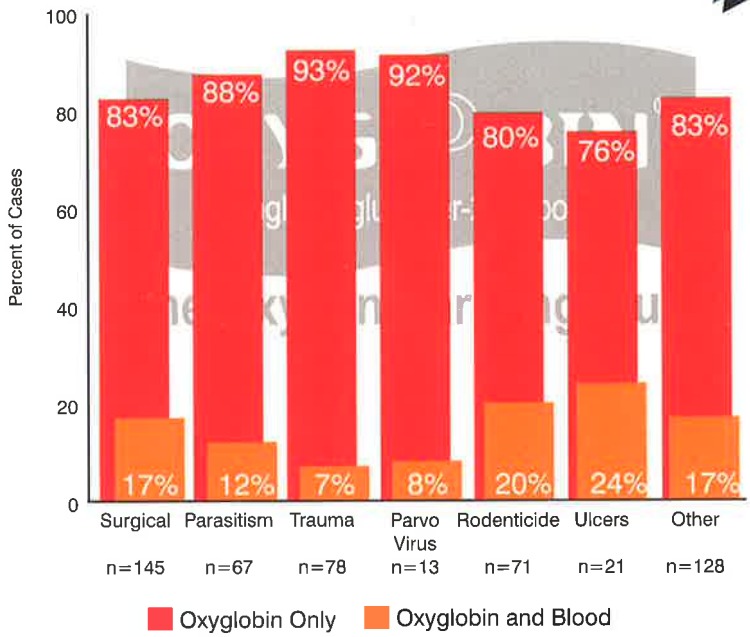
85% of blood loss cases reported received **Oxyglobin only****

Oxyglobin is Being Used For Blood Loss
(% of total cases, n=885)



*Miscellaneous causes include epistaxis, wounds, neoplasia, coagulation or gastrointestinal hemorrhage of other origins, and undefined.

Percentage of Dogs Treated With "Oxyglobin Only"**



**n=523.
Percent of doctors responding "Oxyglobin Only" as a treatment regimen (administered within the first 72 hours following presentation). Choices included: Oxyglobin ONLY; Oxyglobin followed by whole blood; Whole blood followed by Oxyglobin; Oxyglobin followed by RBC's; RBC's followed by Oxyglobin

Average Pre-Infusion PCV (Transfusion Trigger) 20%

Veterinarians' Comments

"Oxyglobin and vitamin K1 therapy for coagulopathy. Patient and PCV stabilized at 16%. Patient's condition (BAR) improved quickly with Oxyglobin and so did not transfuse with blood or pRBC. 48hrs after Oxyglobin/Vit. K, PCV increased to 22%."
DVM, Berlin, MD

"I don't think that this puppy would have survived the parvo virus without the Oxyglobin transfusion."
Dr. Victor R. Oppenheimer
Hospital de Animales Perla de Sur, Ponce, PR

"Earl might have made it without pRBC's, whole blood or Oxyglobin. But Oxyglobin provided not only the needed hemoglobin for Earl, but gave peace of mind to owners and me at much greater convenience and ease than pRBC's or whole blood."
DVM, Hubbard, OH

Dog presented weak but walking. Rectal temp 104 degrees, pyometra was diagnosed. Oxyglobin was given during surgery and dog recovered so quickly she went home that evening.
DVM, Telluride, CO

For full prescribing information, please refer to pages 42-43.

To learn more about oxygen therapeutics, visit our web site at www.biopure.com

OXYGLOBIN
The Oxygen Carrying Fluid™
For The Treatment of Anemia in Dogs

Hemoabdomen

Louisville KY

Pre / Post Oxyglobin:
HR: 170 / 90 (bpm)
RR: / (bpm)
PCV: 31 / 10 %

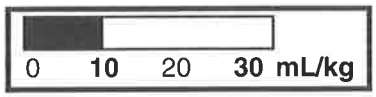
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
28 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
10 mL/kg



Case Outcome Summary:
Doing well, tumor benign, Oxyglobin administered intraoperatively after hemorrhage was controlled.

Hemoabdomen

Porterville CA

Pre / Post Oxyglobin:
HR: / (bpm)
RR: / (bpm)
PCV: 12 / 14 %

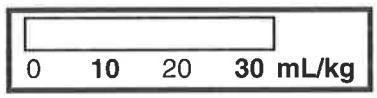
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by pRBCs

Weight:
lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
mL/kg



Case Outcome Summary:
Dog did great!

Hemoabdomen

Dr. Tom Day Louisville KY

Pre / Post Oxyglobin:
HR: 200 / 110 (bpm)
RR: 60 / 24 (bpm)
PCV: 13 / 8 %

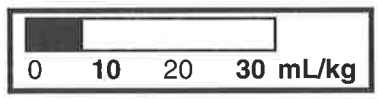
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
40 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
7 mL/kg



Case Outcome Summary:
Postoperative administration for both volume expansion and severe anemia.

Hemoabdomen / Trauma

Charles H. Sung, DVM Hubbard OH

Pre / Post Oxyglobin:
HR: 180 / 150 (bpm)
RR: / 40 (bpm)
PCV: 20 / 27 %

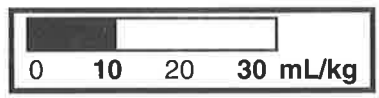
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
26 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
11 mL/kg



Case Outcome Summary:
"Earl" might have made it without pRBC's, whole blood or Oxyglobin. I truly felt Oxyglobin provided not only the needed hemoglobin for Earl, but gave peace of mind to owners and me at much greater convenience and ease than pRBC's or whole blood.

For full prescribing information, please refer to pages 42-43.

Immune Mediated Thrombocytopenia

Traverse City MI

Pre / Post Oxyglobin:	O2 Carrying Fluid(s) Admin:	Weight:	Amt. of Oxyglobin Admin:
HR: / (bpm)	Oxyglobin ONLY	47 lbs	3 - 125 mL bag(s)
RR: / (bpm)			
PCV: 9 / 8 %	Outcome:	Dose:	
	(24 hrs) Survived	18 mL/kg	0 10 20 30 mL/kg
Case Outcome Summary:	(72 hrs) Survived		

Full recovery. Note: No platelet count reported.

Immune Mediated Thrombocytopenia

Dr. Robert Sarsfield Harrisburg PA

Pre / Post Oxyglobin:	O2 Carrying Fluid(s) Admin:	Weight:	Amt. of Oxyglobin Admin:
HR: 150 / 130 (bpm)	Oxyglobin ONLY	60 lbs	2 - 125 mL bag(s)
RR: 40 / 30 (bpm)			
PCV: 16 / 15 %	Outcome:	Dose:	
	(24 hrs) Survived	9 mL/kg	0 10 20 30 mL/kg
Case Outcome Summary:	(72 hrs) Died		

This was a classic case of immune-mediated thrombocytopenia, but unfortunately, there was little or no improvement with Oxyglobin or other meds. Note: No platelet count reported.

Immune Mediated Thrombocytopenia

Barry Kipperman, DVM ACVIM Dublin CA

Pre / Post Oxyglobin:	O2 Carrying Fluid(s) Admin:	Weight:	Amt. of Oxyglobin Admin:
HR: 120 / 120 (bpm)	Oxyglobin followed by pRBCs	20 lbs	4 - 125 mL bag(s)
RR: / (bpm)			
PCV: 8 / 6 %	Outcome:	Dose:	
	(24 hrs) Survived	55 mL/kg	0 10 20 30 mL/kg
Case Outcome Summary:	(72 hrs) Survived		

Splenectomy for ITP recovery. Note: No platelet count reported.

Immune Mediated Thrombocytopenia

Orlando FL

Pre / Post Oxyglobin:	O2 Carrying Fluid(s) Admin:	Weight:	Amt. of Oxyglobin Admin:
HR: / (bpm)	Oxyglobin followed by blood	60 lbs	1 - 125 mL bag(s)
RR: / (bpm)			
PCV: 18 / 18 %	Outcome:	Dose:	
	(24 hrs) Survived	5 mL/kg	0 10 20 30 mL/kg
Case Outcome Summary:	(72 hrs) Survived		

Chelsea did seem to respond to Oxyglobin infusion - the next morning she was more alert and moving around more. On 8/3 she was euthanized - PCV went back down and she developed a fever - poor prognosis. Note: No platelet count reported.

For full prescribing information, please refer to pages 42-43.

Parasite Anemia

Atlanta GA

Pre / Post Oxyglobin:
HR: 180 / 140 (bpm)
RR: 60 / 40 (bpm)
PCV: 10 / 15 %

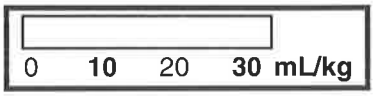
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
3 lbs

Amt. of Oxyglobin Admin:
<1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
mL/kg



Case Outcome Summary:
Recovered completely and is doing well, growing normally.

Parasite Anemia

Deborah Moreno, DVM Freedom CA

Pre / Post Oxyglobin:
HR: 80 / 80 (bpm)
RR: 20 / 25 (bpm)
PCV: 8 / 8 %

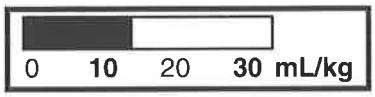
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by blood

Weight:
40 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
14 mL/kg



Case Outcome Summary:
I believe Oxyglobin was instrumental in saving this dog's life. Definitely was a stabilizing factor. Dog is now well.

Parasite Anemia

J. Robert Mauldin, DVM Hartwell GA

Pre / Post Oxyglobin:
HR: / (bpm)
RR: / (bpm)
PCV: 7 / %

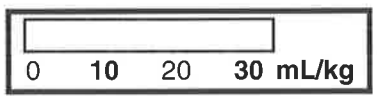
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by pRBCs

Weight:
lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
mL/kg



Case Outcome Summary:
After 24 hours, dog began to eat a little, after that, began to increase appetite, and 4 days later is going home.

Parasite Anemia

Lago Vista TX

Pre / Post Oxyglobin:
HR: 150 / 80 (bpm)
RR: 84 / 60 (bpm)
PCV: 9 / %

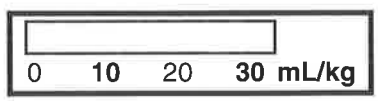
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
6 lbs

Amt. of Oxyglobin Admin:
<1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
mL/kg



Case Outcome Summary:
Amazing transformation within 3 hours - eating and drinking.

Parasite Anemia

Levelland TX

Pre / Post Oxyglobin:
HR: / (bpm)
RR: / (bpm)
PCV: 7 / %

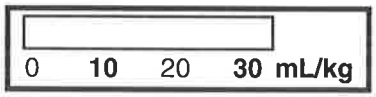
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
5 lbs

Amt. of Oxyglobin Admin:
<1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
mL/kg



Case Outcome Summary:
8 months of age. Re-check 1 1/2 weeks post infusion - PCV increased from 7.2 to 28. Dog doing great.

Parasite Anemia

Orlando FL

Pre / Post Oxyglobin:
HR: 130 / 110 (bpm)
RR: 30 / 30 (bpm)
PCV: 8 / 8 %

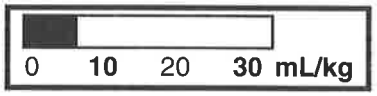
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by blood

Weight:
40 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
7 mL/kg



Case Outcome Summary:
Whole blood administered 24 hours post Oxyglobin. Pet presented PCV = 8% in evening, given Oxyglobin, transfused the next day - dog went home 24 hours from time of presentation.

Parasite Anemia

Middle Falls NY

Pre / Post Oxyglobin:
HR: 120 / 100 (bpm)
RR: 58 / 48 (bpm)
PCV: 6 / 6 %

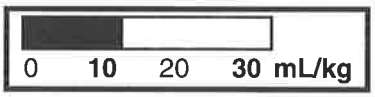
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
23 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) NA

Dose:
12 mL/kg



Case Outcome Summary:
age = 4 months

Parasite Anemia / Fleas

Richard P. Pence, DVM Bluefield WV

Pre / Post Oxyglobin:
HR: 180 / 120 (bpm)
RR: 20 / 15 (bpm)
PCV: 10 / 13 %

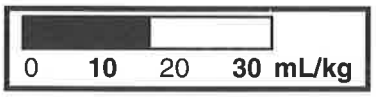
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
15 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
18 mL/kg



Case Outcome Summary:
Fleas had actually drained the dog of blood - within minutes she was able to interact normally and withstand treatment for fleas.

Parasite Anemia / Fleas

Dr. Coleman L. Scott, DVM — **Newton KS**

Pre / Post Oxyglobin:
HR: 150 / 122 (bpm)
RR: 36 / 24 (bpm)
PCV: 10 / 9 %

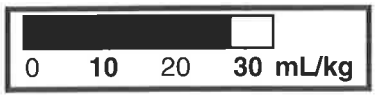
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Weight:
10 lbs

Dose:
28 mL/kg

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)



Case Outcome Summary:

Parasite Anemia / Hookworm

Bowdon GA

Pre / Post Oxyglobin:
HR: 90 / 80 (bpm)
RR: 50 / 42 (bpm)
PCV: 20 / 24 %

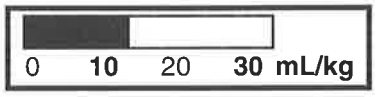
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Weight:
21 lbs

Dose:
13 mL/kg

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)



Case Outcome Summary:

16 weeks old.
Animal survived hookworm anemia.

Parasite Anemia / Surgery / Amputation

Bowdon GA

Pre / Post Oxyglobin:
HR: 110 / 78 (bpm)
RR: 44 / 30 (bpm)
PCV: 18 / 22 %

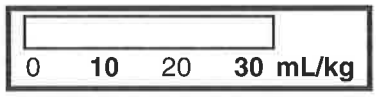
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Weight:
lbs

Dose:
mL/kg

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)



Case Outcome Summary:

age = 5 months
Bright alert, discharged 3 days after surgery.

Parasite Anemia / Ticks

Fulton MS

Pre / Post Oxyglobin:
HR: / (bpm)
RR: / (bpm)
PCV: / %

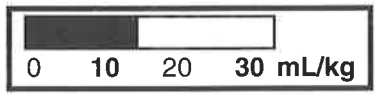
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Weight:
20 lbs

Dose:
14 mL/kg

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)



Case Outcome Summary:

Dodger was literally coated with ticks. His mucous membranes were sheet cotton white. I did not do any blood work at the time of infusion. One week later Dodger was back to his active happy self.

Parasite Anemia / Ticks

Dr. Richard Holm — **Fresno** **CA**

Pre / Post Oxyglobin:
HR: 80 / (bpm)
RR: 60 / 40 (bpm)
PCV: 4 / 4 %

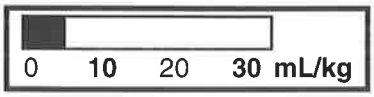
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by blood

Weight:
140 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
4 mL/kg



Case Outcome Summary:

PCV was 4.9% from ticks, large dog.

Parasite Anemia / Ticks

Dr. Eriksen — **Glendale** **AZ**

Pre / Post Oxyglobin:
HR: 140 / 90 (bpm)
RR: 36 / 12 (bpm)
PCV: 8 / 5 %

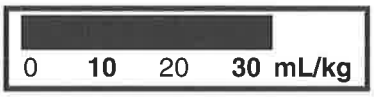
O2 Carrying Fluid(s) Admin:
Whole blood followed by Oxyglobin

Weight:
11 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
50 mL/kg



Case Outcome Summary:

Dog had severe tick bite anemia, Oxyglobin gave us time to remove ticks (thousands of them) from dog before using pRBC'S, dog did very well post treatment.

Parasite Anemia / Ticks

L.W. Puckett, DVM — **Midland** **NC**

Pre / Post Oxyglobin:
HR: / 190 (bpm)
RR: / 48 (bpm)
PCV: / %

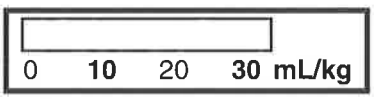
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
6 lbs

Amt. of Oxyglobin Admin:
<1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
mL/kg



Case Outcome Summary:

72 hours later I am sending the dog home. On doxycycline - she is eating and moving well. (Did not get clinical signs because dog was dying - used all available veins.)

Parvo Virus

Dr. Victor R. Oppenheimer — **Ponce** **PR**

Pre / Post Oxyglobin:
HR: 160 / 120 (bpm)
RR: 50 / 30 (bpm)
PCV: 53 / 40 %

O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
13 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
21 mL/kg

Case Outcome Summary:

My first case with Oxyglobin; however, I don't think that this puppy would have survived the parvo virus without the Oxyglobin transfusion.

Parvo Virus

Houston TX

Pre / Post Oxyglobin:
HR: / (bpm)
RR: / (bpm)
PCV: / %

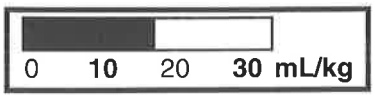
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
15 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
18 mL/kg



Case Outcome Summary:
Still bright and alert; however, still vomiting and not eating. Outlook at 24 hours is better; but survival still to be determined.

Parvo Virus

Powder Springs GA

Pre / Post Oxyglobin:
HR: / (bpm)
RR: / (bpm)
PCV: 18 / 24 %

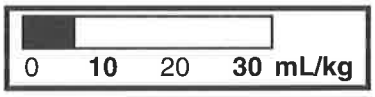
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
45 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
6 mL/kg



Case Outcome Summary:
Puppy was on supportive fluids, but stayed depressed with bloody diarrhea and vomiting. Considerable anemia. Oxyglobin was a good decision. Puppy became active, diarrhea subsided and was discharged within 48 hrs and began eating.

Parvo Virus

Mayfield NY

Pre / Post Oxyglobin:
HR: 200 / 140 (bpm)
RR: / (bpm)
PCV: 12 / 16 %

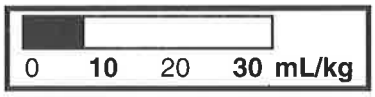
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
39 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
7 mL/kg



Case Outcome Summary:
Puppy responded wonderfully to Oxyglobin. Was sent home the next day following Oxyglobin administration.

Parvo Virus / Parasite Anemia

Jefferson City MO

Pre / Post Oxyglobin:
HR: / (bpm)
RR: / (bpm)
PCV: / %

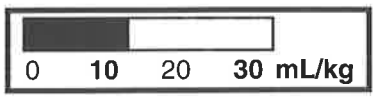
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
21 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

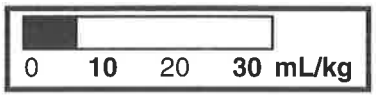
Dose:
13 mL/kg



Case Outcome Summary:
Amazing.

Post Surgical Blood Loss

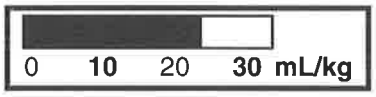
Lafayette CA

Pre / Post Oxyglobin:	O2 Carrying Fluid(s) Admin:	Weight:	Amt. of Oxyglobin Admin:
HR: / (bpm)	Oxyglobin followed by pRBCs	80 lbs	2 - 125 mL bag(s)
RR: / (bpm)			
PCV: 28 / 27 %	Outcome:	Dose:	
	(24 hrs) Survived	7 mL/kg	
Case Outcome Summary:	(72 hrs) Survived		

Hemorrhage 6 hours post splenectomy for hemangiosarcoma. Whole blood plus 2 bags Oxyglobin before second surgery. Ligated bleeder. Doing well 1 month later.

Post Surgical Blood Loss / Shock

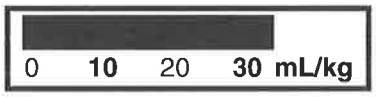
Washougal WA

Pre / Post Oxyglobin:	O2 Carrying Fluid(s) Admin:	Weight:	Amt. of Oxyglobin Admin:
HR: 180/ (bpm)	Oxyglobin followed by blood	12 lbs	1 - 125 mL bag(s)
RR: 100/ (bpm)			
PCV: 12 / 10 %	Outcome:	Dose:	
	(24 hrs) Survived	23 mL/kg	
Case Outcome Summary:	(72 hrs) Survived		

Amazing results! C-section on dog, 2 pups. Both survived. Routine post surgery for 2 hours. Then dog began hemorrhaging from vulva. Dog collapsed in shock. Gave fluids and Oxyglobin. Dog immediately perked up but hemorrhaged until given whole blood.

Rodenticide Toxicity

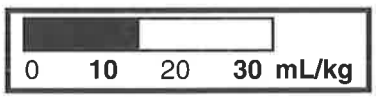
Teresa Cable, DVM Uvalde TX

Pre / Post Oxyglobin:	O2 Carrying Fluid(s) Admin:	Weight:	Amt. of Oxyglobin Admin:
HR: 260/ 190 (bpm)	Oxyglobin ONLY	6 lbs	1 - 125 mL bag(s)
RR: 45 / 25 (bpm)			
PCV: 7 / %	Outcome:	Dose:	
	(24 hrs) Survived	46 mL/kg	
Case Outcome Summary:	(72 hrs) Survived		

Age is 18 months. Mucous membranes were pink immediately post transfusion and when IV catheter pulled there was no extra bleeding.

Rodenticide Toxicity

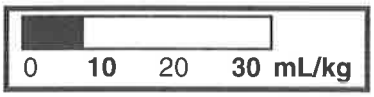
Dr. Elizabeth Bryan League City TX

Pre / Post Oxyglobin:	O2 Carrying Fluid(s) Admin:	Weight:	Amt. of Oxyglobin Admin:
HR: 100/ 120 (bpm)	Oxyglobin followed by blood	20 lbs	1 - 125 mL bag(s)
RR: / (bpm)			
PCV: 24 / 14 %	Outcome:	Dose:	
	(24 hrs) Survived	14 mL/kg	
Case Outcome Summary:	(72 hrs) Survived		

Puppy was sternal within minutes of administration and up and walking within an hour.

Rodenticide Toxicity

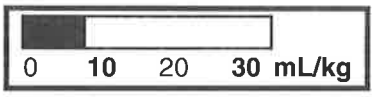
Auburn IN

Pre / Post Oxyglobin:	O2 Carrying Fluid(s) Admin:	Weight:	Amt. of Oxyglobin Admin:
HR: 90 / 90 (bpm) RR: 42 / 38 (bpm) PCV: 14 / 14 %	Oxyglobin followed by blood	35 lbs	1 - 125 mL bag(s)
	Outcome:	Dose:	
Case Outcome Summary:	(24 hrs) Survived (72 hrs) Survived	8 mL/kg	0 10 20 30 mL/kg

This dog survived but owner would not spend more money for more Oxyglobin. Whole blood transfusion was cheaper. Would not have survived without it.

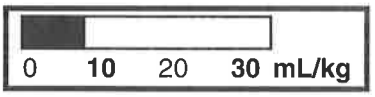
Rodenticide Toxicity

Dr. Patti Meldi Collinsville IL

Pre / Post Oxyglobin:	O2 Carrying Fluid(s) Admin:	Weight:	Amt. of Oxyglobin Admin:
HR: 160 / 128 (bpm) RR: 60 / 48 (bpm) PCV: 14 / 14 %	Oxyglobin ONLY	69 lbs	2 - 125 mL bag(s)
	Outcome:	Dose:	
Case Outcome Summary:	(24 hrs) Survived (72 hrs) Survived	8 mL/kg	0 10 20 30 mL/kg

Rodenticide Toxicity

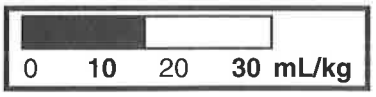
Galesburg MI

Pre / Post Oxyglobin:	O2 Carrying Fluid(s) Admin:	Weight:	Amt. of Oxyglobin Admin:
HR: 130 / 60 (bpm) RR: 80 / 40 (bpm) PCV: 10 / %	Oxyglobin ONLY	65 lbs	2 - 125 mL bag(s)
	Outcome:	Dose:	
Case Outcome Summary:	(24 hrs) Survived (72 hrs) Survived	8 mL/kg	0 10 20 30 mL/kg

Buddy was discharged 30 hours after admission for severe rodenticide toxicity. He continues to improve and is doing well at home on Vitamin K therapy. This product saved his life.

Rodenticide Toxicity

Rockport ME

Pre / Post Oxyglobin:	O2 Carrying Fluid(s) Admin:	Weight:	Amt. of Oxyglobin Admin:
HR: 140 / 140 (bpm) RR: 60 / 60 (bpm) PCV: 12 / %	Oxyglobin ONLY	17 lbs	1 - 125 mL bag(s)
	Outcome:	Dose:	
Case Outcome Summary:	(24 hrs) Survived (72 hrs) Survived	16 mL/kg	0 10 20 30 mL/kg

Puppy improved dramatically 24 hours later, post administration, went home tail wagging 48 hours later.

For full prescribing information, please refer to pages 42-43.

Rodenticide Toxicity

Reno NV

Pre / Post Oxyglobin:
HR: 160 / 160 (bpm)
RR: 60 / 50 (bpm)
PCV: 15 / 15 %

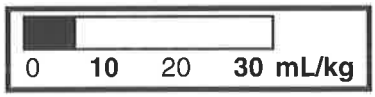
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
40 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
7 mL/kg



Case Outcome Summary:

Owner thought dog had been hit by car - Chest full of blood on radiograph and paracentesis - Critical Patient - Treatment: Oxyglobin and Vitamin K. Patient survived. Oxyglobin made the difference.

Rodenticide Toxicity

William R. Watson, DVM Berlin MD

Pre / Post Oxyglobin:
HR: 140 / 120 (bpm)
RR: 60 / 60 (bpm)
PCV: 15 / 15 %

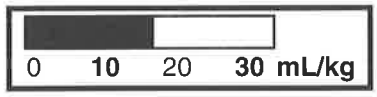
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
32 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
17 mL/kg



Case Outcome Summary:

Oxyglobin and vitamin K1 therapy for coagulopathy. Patient and PCV stabilized at 16%. Patient's condition (BAR) improved quickly with Oxyglobin and so did not transfuse with blood or pRBC. 48hrs after Oxyglobin/Vit. K, PCV increased to 22%.

Rodenticide Toxicity

Dallas TX

Pre / Post Oxyglobin:
HR: 180 / 172 (bpm)
RR: 48 / 90 (bpm)
PCV: 20 / 18 %

O2 Carrying Fluid(s) Admin:
Oxyglobin followed by pRBCs

Weight:
14 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
20 mL/kg

Case Outcome Summary:

Also 180 ml of blood autotransfusion. By 36 hours dog went from obtunded to bright, alert and responsive. Patient was discharged without complication at 36 hours.

Rodenticide Toxicity / Heartworm Positive

Roger Bradley, DVM Santa Rosa CA

Pre / Post Oxyglobin:
HR: 90 / 140 (bpm)
RR: 40 / 55 (bpm)
PCV: 18 / %

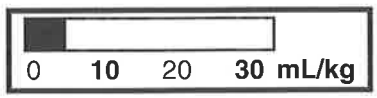
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by blood

Weight:
54 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
5 mL/kg



Case Outcome Summary:

Also heartworm positive.

Shock

Dr. Della Monica — Guilford CT

Pre / Post Oxyglobin:
HR: 180 / 140 (bpm)
RR: 48 / 36 (bpm)
PCV: 24 / %

Case Outcome Summary:

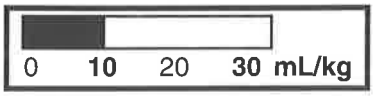
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Weight:
84 lbs

Dose:
10 mL/kg

Amt. of Oxyglobin Admin:
3 - 125 mL bag(s)



Presented for GDV. Preop PCV was 40% (this was shock state and I suspect the dog was anemic prior to presentation). Postop acted shocky and depressed again - gave Oxyglobin.

Shock / Surgery

Mercersburg VA

Pre / Post Oxyglobin:
HR: 60 / 96 (bpm)
RR: 16 / 18 (bpm)
PCV: / %

Case Outcome Summary:

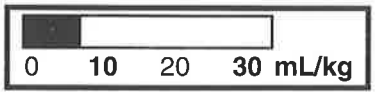
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Weight:
40 lbs

Dose:
7 mL/kg

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)



Dog lost large volume of blood post surgery. Became shocky. Recovered completely within 12 hrs post surgery.

Shock / Surgery

Renfrew PA

Pre / Post Oxyglobin:
HR: 60 / 120 (bpm)
RR: 6 / 15 (bpm)
PCV: / %

Case Outcome Summary:

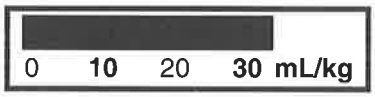
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Outcome:
(24 hrs) Survived
(72 hrs) NA

Weight:
9 lbs

Dose:
31 mL/kg

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)



Presented in shock. Dog chewed open its pyometra incision and damaged 12" of jejunum. Intestinal anastomosis was performed while administering Oxyglobin for blood loss.

Surgery / C-Section

Dr. J.E. Nachamkin — GA

Pre / Post Oxyglobin:
HR: / (bpm)
RR: / (bpm)
PCV: 46 / 26 %

Case Outcome Summary:

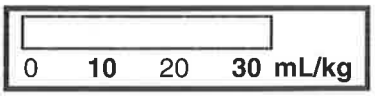
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Outcome:
(24 hrs) Survived
(72 hrs) NA

Weight:
5 lbs

Dose:
mL/kg

Amt. of Oxyglobin Admin:
<1 - 125 mL bag(s)



For full prescribing information, please refer to pages 42-43.

Surgery / C-Section

Reno NV

Pre / Post Oxyglobin:
HR: 130 / 120 (bpm)
RR: 60 / 48 (bpm)
PCV: 18 / 18 %

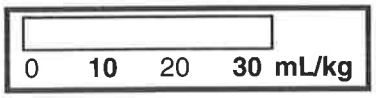
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
6 lbs

Amt. of Oxyglobin Admin:
<1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
mL/kg



Case Outcome Summary:
Caesarian section and ovariohysterectomy moderate marked blood loss. Oxyglobin - great product. Please make more!

Surgery / C-Section

Big Rapids MI

Pre / Post Oxyglobin:
HR: 140 / 107 (bpm)
RR: / 16 (bpm)
PCV: 13 / 25 %

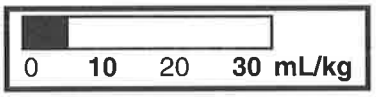
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
50 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
6 mL/kg



Case Outcome Summary:
Admitted 9 yr. old female boxer with dead puppies in utero. PCV 13.2%, Hgb 4.5 g/dl. Infused Oxyglobin 45 minutes pre-surgical (125 ml). Pulse oximeter O2 saturation during surgery = 96 avg. and stable HR of 107 BPM - normal recovery.

Surgery / C-Section

Waukesha WI

Pre / Post Oxyglobin:
HR: / (bpm)
RR: / (bpm)
PCV: / %

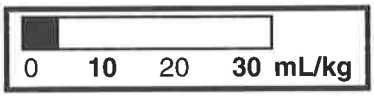
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
76 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
4 mL/kg



Case Outcome Summary:
Had caesarian section, doing well per phone call the following morning. Alert, ate a small meal this morning. All 10 puppies doing well.

Surgery / General

Dr. Moja Oviedo FL

Pre / Post Oxyglobin:
HR: 84 / 120 (bpm)
RR: / (bpm)
PCV: 23 / 27 %

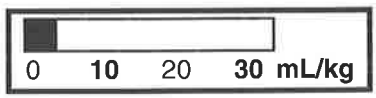
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
80 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) NA

Dose:
3 mL/kg



Case Outcome Summary:
We noticed a very fast recovery from surgery, the patient was up and eating 6 hours post surgery. Discharged 20 hours post surgery.

Surgery / Hemangiosarcoma

Brian Chambers, DVM — Hood River OR

Pre / Post Oxyglobin:
HR: 175 / 120 (bpm)
RR: 45 / 40 (bpm)
PCV: 18 / %

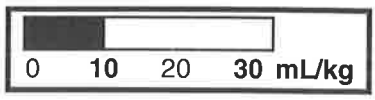
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Weight:
82 lbs

Dose:
10 mL/kg

Amt. of Oxyglobin Admin:
3 - 125 mL bag(s)



Case Outcome Summary:
Doing much better, 72 hours post - bright, eating well, going home!

Surgery / Hemangiosarcoma

Dr. Waits Washington Courthouse OH

Pre / Post Oxyglobin:
HR: 80 / 120 (bpm)
RR: 20 / 60 (bpm)
PCV: 36 / 32 %

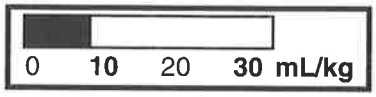
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Weight:
60 lbs

Dose:
9 mL/kg

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)



Case Outcome Summary:

Surgery / Hemangiosarcoma

Brian Chambers, DVM — Hood River OR

Pre / Post Oxyglobin:
HR: 90 / 90 (bpm)
RR: 35 / 35 (bpm)
PCV: 18 / 14 %

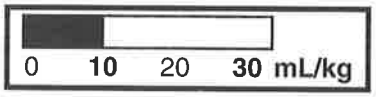
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Weight:
28 lbs

Dose:
10 mL/kg

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)



Case Outcome Summary:
Gave preop due to low PCV and hemoabdomen to help during surgery - dog discharged 3 days post op - doing well.

Surgery / Neoplasia / Geriatric

Damariscotta ME

Pre / Post Oxyglobin:
HR: / (bpm)
RR: / (bpm)
PCV: / %

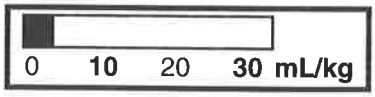
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Weight:
80 lbs

Dose:
3 mL/kg

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)



Case Outcome Summary:
Molly was extremely depressed waking from anesthesia, her color was poor and her body temp was 97. I feel that the Oxyglobin she received was the difference between life and death for her.

For full prescribing information, please refer to pages 42-43.

Surgery / Pyometra

Dr. Ford — Sparks NV

Pre / Post Oxyglobin:
HR: 130 / (bpm)
RR: 20 / (bpm)
PCV: 23 / %

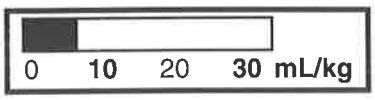
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
38 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
7 mL/kg



Case Outcome Summary:
Dog had to be spayed due to continual blood loss from ruptured uterine wall (7 different sites). Dog responded well post surgery.

Surgery / Pyometra

Camden TN

Pre / Post Oxyglobin:
HR: 92 / 72 (bpm)
RR: / (bpm)
PCV: 16 / 25 %

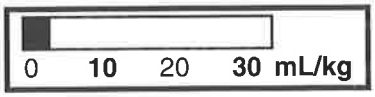
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by blood

Weight:
90 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
3 mL/kg



Case Outcome Summary:

Surgery / Pyometra

Olympia WA

Pre / Post Oxyglobin:
HR: / (bpm)
RR: / (bpm)
PCV: 9 / 7 %

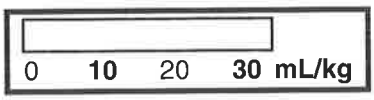
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
112 lbs

Amt. of Oxyglobin Admin:
<1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
mL/kg



Case Outcome Summary:
I love Oxyglobin, it worked great.

Surgery / Pyometra

Dr. Stephen Stimpson — Shelbyville TN

Pre / Post Oxyglobin:
HR: / (bpm)
RR: / (bpm)
PCV: 19 / %

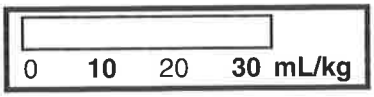
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
3 lbs

Amt. of Oxyglobin Admin:
<1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
mL/kg



Case Outcome Summary:
This was a very small very weak, very sick dog. I don't think that this dog could have been saved much less survived the surgery and dental work that had to be performed without the Oxyglobin. Thanks.

Surgery / Pyometra

Dr. William Armbruster — San Jose IL

Pre / Post Oxyglobin:
HR: / (bpm)
RR: / (bpm)
PCV: 20 / 24 %

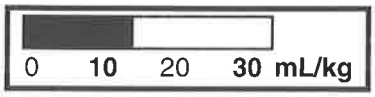
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
20 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
14 mL/kg



Case Outcome Summary:
Complete recovery.

Surgery / Pyometra

Sutherlin OR

Pre / Post Oxyglobin:
HR: 96 / (bpm)
RR: 24 / (bpm)
PCV: 26 / %

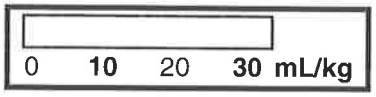
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
47 lbs

Amt. of Oxyglobin Admin:
<1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
mL/kg



Case Outcome Summary:
Dog presented recumbent with severe pyometra. PCV 26, TP 8.6, Hb 9.8. Oxyglobin given prior to surgery along with antibiotics and fluid therapy. Doing great.

Surgery / Pyometra

Dr. Steven J. Agoston — Bethel NY

Pre / Post Oxyglobin:
HR: 90 / 80 (bpm)
RR: 22 / 12 (bpm)
PCV: 12 / 18 %

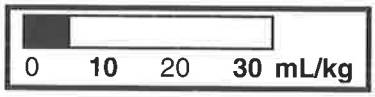
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
50 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
6 mL/kg



Case Outcome Summary:

Surgery / Pyometra

Niagara Falls NY

Pre / Post Oxyglobin:
HR: / 72 (bpm)
RR: / (bpm)
PCV: / %

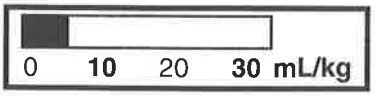
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
45 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
6 mL/kg



Case Outcome Summary:
This dog is everything the general public thinks Pit Bulls are! Extremely dangerous dog, so post surgical exam was difficult. I found the belly full of blood and a pyometra. I do think the dog would have died from blood loss without the Oxyglobin.

For full prescribing information, please refer to pages 42-43.

Surgery / Pyometra

Dr. Diamantopoulos — Hempstead NY

Pre / Post Oxyglobin:
HR: 180 / 120 (bpm)
RR: 40 / 20 (bpm)
PCV: 8 / %

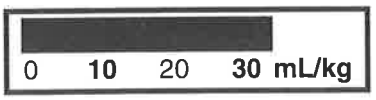
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
17 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
32 mL/kg



Case Outcome Summary:
Return to normal function post surgery.

Surgery / Pyometra / Ulcers

Telluride CO

Pre / Post Oxyglobin:
HR: 180 / 100 (bpm)
RR: / (bpm)
PCV: 18 / 18 %

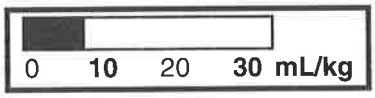
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
34 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
8 mL/kg



Case Outcome Summary:
Dog presented weak but walking. Rectal temp 104 degrees, pyometra was diagnosed. Oxyglobin was given during surgery and dog recovered so quickly she went home that evening.

Surgery / Splenic Hemangiosarcoma

Atlanta GA

Pre / Post Oxyglobin:
HR: 90 / 80 (bpm)
RR: 20 / 32 (bpm)
PCV: 32 / 25 %

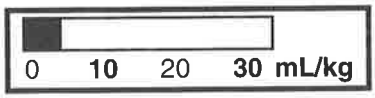
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
65 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
4 mL/kg



Case Outcome Summary:
Splenic hemangiosarcoma. Seemed to recover well from surgery. Oxyglobin was administered immediately after surgery.

Surgery / Splenic Hemangiosarcoma

Randy Benson, DVM — Bethesda MD

Pre / Post Oxyglobin:
HR: 120 / 100 (bpm)
RR: 30 / 30 (bpm)
PCV: 17 / %

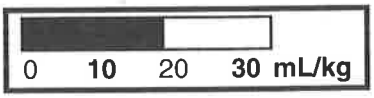
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
29 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
19 mL/kg



Case Outcome Summary:
Dog was presented with a bleeding splenic tumor. The dog was in a crisis. Oxyglobin was the only thing given because no whole blood was available. 5 days post-op, PCV is 24.5%.

Surgery / Splenic Hemangiosarcoma

Kevin Roberts, DVM — **Charles Town** **WV**

Pre / Post Oxyglobin:
HR: 130 / 130 (bpm)
RR: 45 / 45 (bpm)
PCV: 18 / %

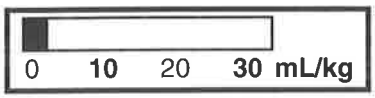
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
80 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
3 mL/kg



Case Outcome Summary:
This dog would have died within hours without a splenectomy. I don't know if it could have handled anesthesia without Oxyglobin. It almost immediately 'pinked-up' - but I felt a lot better putting her under with the Oxyglobin on board.

Surgery / Splenic Hemangiosarcoma

David C. Corfman, DVM — **Cincinnati** **OH**

Pre / Post Oxyglobin:
HR: / 140 (bpm)
RR: / (bpm)
PCV: 24 / %

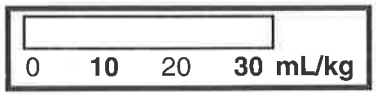
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
69 lbs

Amt. of Oxyglobin Admin:
<1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
mL/kg



Case Outcome Summary:
Was able to walk after Oxyglobin. Had surgery shortly after Oxyglobin - removed spleen with mass.

Surgery / Splenic Hemangiosarcoma

Norman Haber, DVM — **Sicklerville** **NJ**

Pre / Post Oxyglobin:
HR: 140 / 120 (bpm)
RR: 36 / 32 (bpm)
PCV: 28 / 20 %

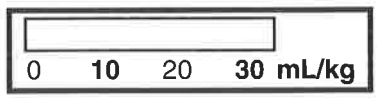
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
100 lbs

Amt. of Oxyglobin Admin:
<1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
mL/kg



Case Outcome Summary:
Dog presented with huge splenic hemangiosarcoma with significant blood loss into abdomen. Removed 5.5 lb. tumor (while administering Oxyglobin).

Surgery / Splenic Hemangiosarcoma

Dr. Richard Levine — **Toms River** **NJ**

Pre / Post Oxyglobin:
HR: 180 / 180 (bpm)
RR: 100 / 100 (bpm)
PCV: 22 / %

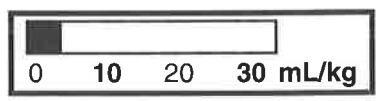
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
140 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Died

Dose:
4 mL/kg



Case Outcome Summary:
24 lb Splenic tumor - did very well for three days post op - sudden death at home - suspect embolus.

For full prescribing information, please refer to pages 42-43.

Surgery / Splenic Hemangiosarcoma/Diabetic

Post Falls ID

Pre / Post Oxyglobin:
HR: 130 / 88 (bpm)
RR: 38 / 22 (bpm)
PCV: 14 / 15 %

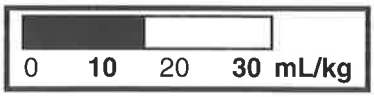
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
17 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
16 mL/kg



Case Outcome Summary:
Diabetic dog, splenic mass/hemorrhage. Seven days post surgery doing well.

Trauma / Bite Wounds

Indian Head MD

Pre / Post Oxyglobin:
HR: / (bpm)
RR: / (bpm)
PCV: 31 / %

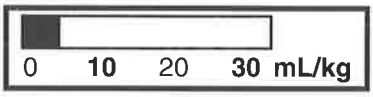
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
67 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
4 mL/kg



Case Outcome Summary:
This dog had been in a fight with a beaver; he was recumbent and non-responsive. Multiple bite wounds and a large hematoma with 3 holes bleeding profusely. IV fluids seemed to revive him but I think the Oxyglobin made his recovery easier and smoother.

Trauma / Gunshot

Dr. Isaac Charlestown WV

Pre / Post Oxyglobin:
HR: 120 / (bpm)
RR: 30 / (bpm)
PCV: / %

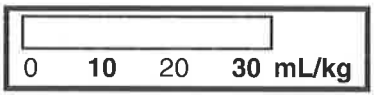
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
25 lbs

Amt. of Oxyglobin Admin:
<1 - 125 mL bag(s)

Outcome:
(24 hrs) NA
(72 hrs) Survived

Dose:
mL/kg



Case Outcome Summary:
Bled out in chest cavity.

Trauma / Gunshot / Amputation

Napa CA

Pre / Post Oxyglobin:
HR: 150 / 120 (bpm)
RR: 80 / 40 (bpm)
PCV: 20 / %

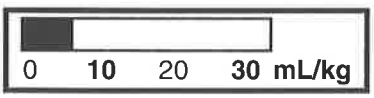
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
150 lbs

Amt. of Oxyglobin Admin:
3 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
6 mL/kg



Case Outcome Summary:
Gradual improvement of PCV/attitude over 72 hours.

Trauma / Gunshot / Amputation

Dr. Steve Fairchild — **Cornelia** **GA**

Pre / Post Oxyglobin:
HR: 140 / 120 (bpm)
RR: / (bpm)
PCV: 40 / 30 %

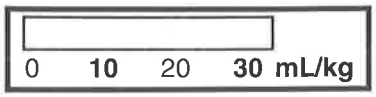
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Weight:
lbs

Dose:
mL/kg

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)



Case Outcome Summary:

Roxanne had a gunshot wound through the brachial plexus. After stabilization, her foreleg was amputated, she is doing very well.

Trauma / HBC

Tualatin **OR**

Pre / Post Oxyglobin:
HR: 180 / 180 (bpm)
RR: 78 / 80 (bpm)
PCV: 64 / 44 %

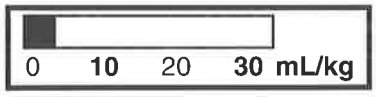
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Weight:
64 lbs

Dose:
4 mL/kg

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)



Case Outcome Summary:

Hit by car. Diaphragmatic hernia. Respiratory distress. Began Oxyglobin prior to surgery - completed during surgery. Had pulmonary contusions and some internal hemorrhage. Recovered slowly but uneventfully from surgery.

Trauma / HBC

A. Jutkowitz, VMD — **Walpole** **MA**

Pre / Post Oxyglobin:
HR: 180 / 120 (bpm)
RR: 72 / 42 (bpm)
PCV: 18 / 15 %

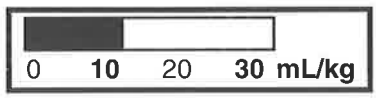
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Weight:
45 lbs

Dose:
12 mL/kg

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)



Case Outcome Summary:

Hit by car presenting with pneumothorax, contusion, hemoabdomen, severe anemia and hypoproteinemia. Stabilized with oxygen, fluids, and Oxyglobin and went on to have fracture fixation within 72 hours.

Trauma / HBC

Carl Grimmett, DVM — **Birmingham** **AL**

Pre / Post Oxyglobin:
HR: / (bpm)
RR: 60 / 15 (bpm)
PCV: / %

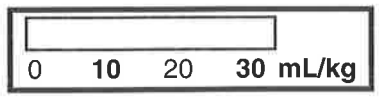
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Weight:
90 lbs

Dose:
mL/kg

Amt. of Oxyglobin Admin:
<1 - 125 mL bag(s)



Case Outcome Summary:

Rottweiler HBC with severe abdominal hemorrhage. Rapid shock therapy fluids and Oxyglobin. The patient was in such severe shock that I thought he would die. His physical condition and blood pressure immediately improved after treatment.

For full prescribing information, please refer to pages 42-43.

Trauma / HBC / Hypovolemic shock

Watkinsville GA

Pre / Post Oxyglobin:
HR: 160 / 136 (bpm)
RR: 40 / 36 (bpm)
PCV: 52 / %

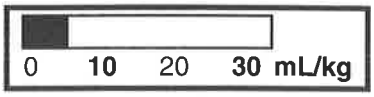
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
58 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
5 mL/kg



Case Outcome Summary:

Trauma / HBC / Shock

Miami FL

Pre / Post Oxyglobin:
HR: 150 / 120 (bpm)
RR: 40 / 15 (bpm)
PCV: / %

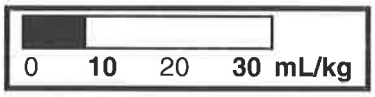
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
35 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
8 mL/kg



Case Outcome Summary:

Dog was hit by car with rear leg dangling, plus profuse bleeding. Pet was in shock. Treated with soludelta cortef and Oxyglobin and amputated leg 3 hours later.

Trauma / Other

Mark A. Kummer, DVM Bellingham WA

Pre / Post Oxyglobin:
HR: 140 / 90 (bpm)
RR: 40 / 36 (bpm)
PCV: 41 / 38 %

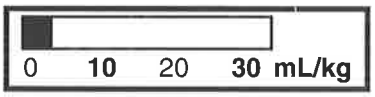
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
82 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
3 mL/kg



Case Outcome Summary:

Acute blood loss from trauma, transfused despite normal PCV due to possible additional hemorrhage at surgery.

Trauma / Other

Dr. Donald Kennard Gresham OR

Pre / Post Oxyglobin:
HR: 80 / 70 (bpm)
RR: 12 / (bpm)
PCV: 25 / %

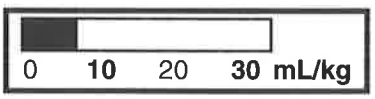
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
98 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
6 mL/kg



Case Outcome Summary:

Response to antiarrhythmic drug therapy improved significantly almost immediately after administration of Oxyglobin, whereas previously had been refractory.

Trauma / Shock

Beatrix in der Wiesche, DVM — **Lewes** **DE**

Pre / Post Oxyglobin:
HR: 128 / 95 (bpm)
RR: 35 / 25 (bpm)
PCV: 20 / 23 %

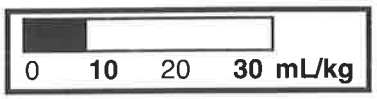
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
72 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
8 mL/kg



Case Outcome Summary:

Trauma / Shock

Hastings **NE**

Pre / Post Oxyglobin:
HR: 80 / 80 (bpm)
RR: 30 / 30 (bpm)
PCV: / 20 %

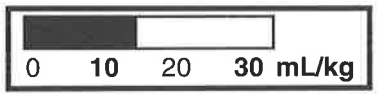
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
20 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
14 mL/kg



Case Outcome Summary:

Big dog/little dog syndrome. Dog presented in shock. 99.5 F temp. No capillary refill time. Treated with 50 ml IV 5% dextrose followed by 50 ml Oxyglobin - dog stabilized within 30 minutes. Hospitalized overnight and discharged.

Trauma / Surgery

Robert Melco, DVM — **Milaca** **MN**

Pre / Post Oxyglobin:
HR: 160 / 120 (bpm)
RR: 72 / 48 (bpm)
PCV: 30 / %

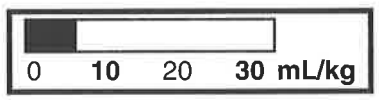
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
48 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
6 mL/kg



Case Outcome Summary:

Dog presented with an acute injury with significant blood loss and very pale mucous membranes. I administered Oxyglobin and brought the dog to surgery to suture a large bleeding artery, dog recovered very well.

Trauma / Surgery

Half Moon Bay **CA**

Pre / Post Oxyglobin:
HR: 120 / 140 (bpm)
RR: 24 / 32 (bpm)
PCV: 26 / %

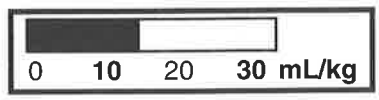
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
40 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
14 mL/kg



Case Outcome Summary:

Fractured tibia 2 days prior to surgical stabilization. PCV AM of surgery was 26% - post op period went well Oxyglobin administered intra-op. SpO2 remained constant at 98-99% throughout anesthesia period.

For full prescribing information, please refer to pages 42-43.

Trauma / Surgery

Deborah Moreno, DVM — **Freedom** **CA**

Pre / Post Oxyglobin:
HR: 140 / 90 (bpm)
RR: 40 / 16 (bpm)
PCV: 21 / 21 %

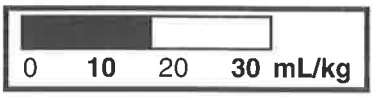
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by blood

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Weight:
31 lbs

Dose:
18 mL/kg

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)



Case Outcome Summary:
7 months of age. Dog survived due to combination of the immediacy of Oxyglobin and then the clotting factors in the whole blood.

Trauma / Surgery / Amputation

John Bates, DVM — **Imperial** **MO**

Pre / Post Oxyglobin:
HR: 72 / 70 (bpm)
RR: 68 / 49 (bpm)
PCV: 20 / 20 %

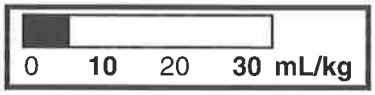
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Weight:
43 lbs

Dose:
6 mL/kg

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)



Case Outcome Summary:
Dog had traumatic amputation of leg from boating accident.

Trauma / Surgery / Amputation

Glasgow **KY**

Pre / Post Oxyglobin:
HR: 120 / (bpm)
RR: 30 / (bpm)
PCV: 21 / %

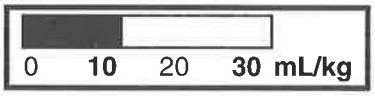
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Weight:
47 lbs

Dose:
12 mL/kg

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)



Case Outcome Summary:
Patient's right forelimb amputated due to severe infection and trauma as a result of gun shot wound. Patient recovered well and was released 48 hours post surgery.

Ulcers

Charlevoix **MI**

Pre / Post Oxyglobin:
HR: 162 / 126 (bpm)
RR: 60 / 30 (bpm)
PCV: 12 / 15 %

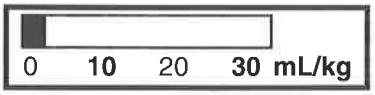
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by blood

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Weight:
80 lbs

Dose:
3 mL/kg

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)



Case Outcome Summary:
Pet went on to complete recovery.

Ulcers

Stuart FL

Pre / Post Oxyglobin:	O2 Carrying Fluid(s) Admin:	Weight:	Amt. of Oxyglobin Admin:
HR: / (bpm)	Oxyglobin followed by blood	107 lbs	2 - 125 mL bag(s)
RR: / (bpm)			
PCV: 17 / 15 %	Outcome:	Dose:	
	(24 hrs) Survived	5 mL/kg	0 10 20 30 mL/kg
Case Outcome Summary:	(72 hrs) Survived		

Pet's anemia was regenerative. Currently, pet is improving dramatically. Oxyglobin kept the pet alive until whole blood could be acquired.

Ulcers / Chronic Addison's Disease

Dr. Carolyn McCutcheon Memphis TN

Pre / Post Oxyglobin:	O2 Carrying Fluid(s) Admin:	Weight:	Amt. of Oxyglobin Admin:
HR: / (bpm)	Oxyglobin followed by blood	55 lbs	4 - 125 mL bag(s)
RR: / (bpm)			
PCV: 20 / %	Outcome:	Dose:	
	(24 hrs) Survived	20 mL/kg	0 10 20 30 mL/kg
Case Outcome Summary:	(72 hrs) Survived		

Chronic Addison's disease with GI ulcerations, dog stabilized and doing fine.

Ulcers / GI

Troy OH

Pre / Post Oxyglobin:	O2 Carrying Fluid(s) Admin:	Weight:	Amt. of Oxyglobin Admin:
HR: / (bpm)	Oxyglobin followed by blood	60 lbs	4 - 125 mL bag(s)
RR: / (bpm)			
PCV: 10 / 7 %	Outcome:	Dose:	
	(24 hrs) Survived	18 mL/kg	0 10 20 30 mL/kg
Case Outcome Summary:	(72 hrs) Survived		

The dog went home after 1 week of hospitalization, PCV 22 %

Ulcers / GI

Carrollton TX

Pre / Post Oxyglobin:	O2 Carrying Fluid(s) Admin:	Weight:	Amt. of Oxyglobin Admin:
HR: 132 / 108 (bpm)	Oxyglobin followed by pRBCs	21 lbs	2 - 125 mL bag(s)
RR: 80 / 42 (bpm)			
PCV: 15 / 24 %	Outcome:	Dose:	
	(24 hrs) Survived	26 mL/kg	0 10 20 30 mL/kg
Case Outcome Summary:	(72 hrs) Survived		

Doing well after 3-4 days of hospitalization, packed cell finally stabilized and dog started eating.

For full prescribing information, please refer to pages 42-43.

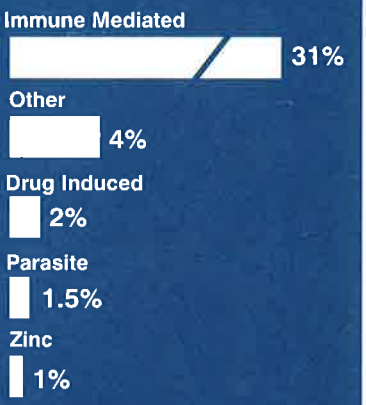
Hemolysis

Oxyglobin is an excellent treatment of anemia due to hemolysis because it is void of red cell membranes. Oxyglobin is universally-compatible and has demonstrated minimal antigenicity, making it an ideal alternative to a red blood cell transfusion.

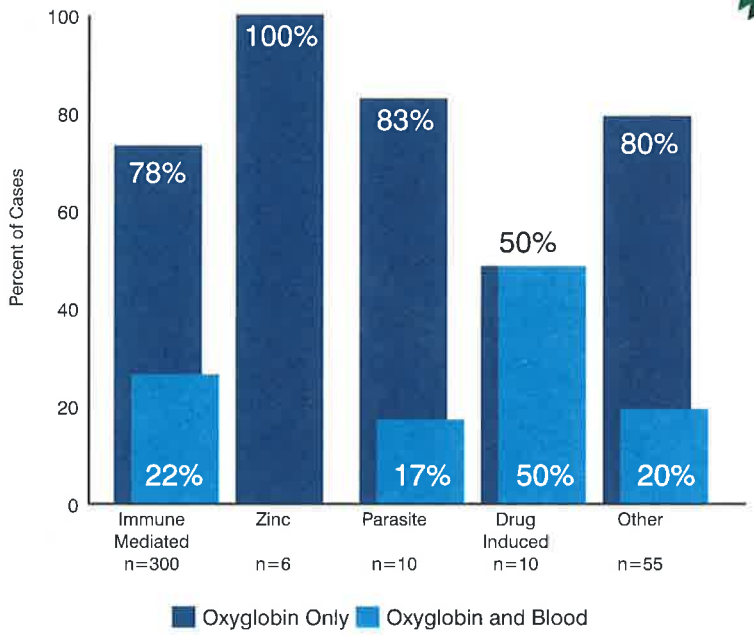
- Will NOT potentiate hemolysis
- No typing or crossmatching necessary
- No transfusion reaction

78% of hemolysis cases reported received **Oxyglobin only***

Oxyglobin is Being Used For Hemolysis
(% of total cases, n=885)



Percentage of Dogs Treated With "Oxyglobin Only"*



*n=381
Percent of doctors responding "Oxyglobin Only" as a treatment regimen (administered within the first 72 hours following presentation). Choices included: Oxyglobin ONLY; Oxyglobin followed by whole blood; Whole blood followed by Oxyglobin; Oxyglobin followed by RBC's; RBC's followed by Oxyglobin

Average Pre-Infusion PCV (Transfusion Trigger) 14%

Veterinarians' Comments

"Dog was severely hemorrhaging, Oxyglobin stabilized her to allow the meds to do their job. Dog went home 3 days later to very happy owners."
Omitted for Confidentiality, DVM, WI

"Admitted (1/28/99) with diagnosis of autoimmune hemolytic anemia. PCV went from 15.8% to 8.3% within one day. Gave Oxyglobin - this got him over the hump."
Dr. William Dunnavant, Jr.
Iron Bridge Animal Hospital, Richmond, VA

"Oxyglobin provided me with the opportunity to start pRBCs, submit labwork, etc. Amazing case because of severe anemia on presentation...Thanks for the great product."
Omitted for Confidentiality, DVM, WA

"Pet did well overnight but became visibly icteric whereas she was not on presentation. Regular vet today (24 hrs. later) reports pet is more alert and brighter.
Omitted for Confidentiality, DVM, NJ

For full prescribing information, please refer to pages 42-43.

To learn more about oxygen therapeutics, visit our web site at www.biopure.com

OXYGLOBIN®
hemoglobin glutamer-200 (bovine)
The Oxygen Carrying Fluid™
For The Treatment of Anemia in Dogs

Ehrlichiosis

Guaynabo PR

Pre / Post Oxyglobin:
HR: 120 / (bpm)
RR: 40 / (bpm)
PCV: 22 / %

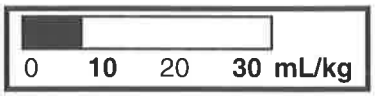
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
35 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
8 mL/kg



Case Outcome Summary:
Dog came in with Ehrlichia. She survived after Oxyglobin.

Ehrlichiosis

Uvalde TX

Pre / Post Oxyglobin:
HR: 230 / 160 (bpm)
RR: 200 / 90 (bpm)
PCV: 8 / %

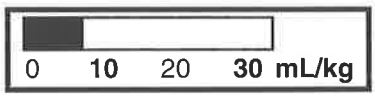
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
35 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
8 mL/kg



Case Outcome Summary:
Dog had Ehrlichia and was treated and recovered.

Ehrlichiosis / Immune Mediated Hemolytic Anemia

Boynton Beach, FL

Pre / Post Oxyglobin:
HR: 68 / 77 (bpm)
RR: 47 / 40 (bpm)
PCV: 12 / 14 %

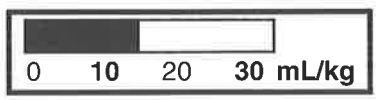
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by blood

Weight:
38 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
14 mL/kg



Case Outcome Summary:
Treated for IMHA and Ehrlichia. Currently on Prednisone and Doxycycline. Still alive, PCV dropped to 7%, gave one more unit of Oxyglobin with whole blood. Dog is doing as well as can be expected.

Hemolysis

Aurora IL

Pre / Post Oxyglobin:
HR: 160 / 140 (bpm)
RR: 74 / 60 (bpm)
PCV: 11 / 13 %

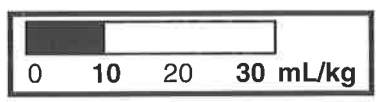
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
57 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
10 mL/kg



Case Outcome Summary:
4 Days post-treated - doing well, PCV=20%, Oxyglobin helped her get through the first critical day and now she is doing great!

Hemolysis / Coagulapathy / Hemothorax

Walnutport PA

Pre / Post Oxyglobin:
HR: 150 / 160 (bpm)
RR: 40 / 40 (bpm)
PCV: 16 / %

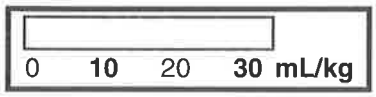
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by blood

Weight:
3 lbs

Amt. of Oxyglobin Admin:
<1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) NA

Dose:
mL/kg



Case Outcome Summary:

Chronic bronchiopneumonia acute onset coagulopathy w/hemothorax. Patient stabilized with Oxyglobin and transported to emergency hospital for whole blood and plasma treatment.

Hemolysis / Snake Bite

Dr. Judy Horrath Garberville CA

Pre / Post Oxyglobin:
HR: 200 / 120 (bpm)
RR: / (bpm)
PCV: 24 / 21 %

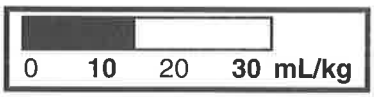
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
20 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
14 mL/kg



Case Outcome Summary:

Oxyglobin helped a lot in this case, I had no time to collect blood from a donor.

IMHA

Oklahoma City OK

Pre / Post Oxyglobin:
HR: 190 / 140 (bpm)
RR: 44 / 28 (bpm)
PCV: 20 / %

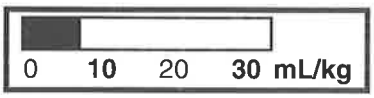
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
36 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Died
(72 hrs) Died

Dose:
8 mL/kg



Case Outcome Summary:

Emboli were ultimate cause of death.

IMHA / Bone Marrow Disease

Ft. Wayne IN

Pre / Post Oxyglobin:
HR: 180 / 140 (bpm)
RR: / 40 (bpm)
PCV: 9 / 9 %

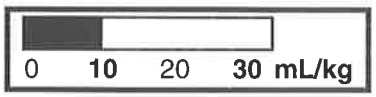
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by blood

Weight:
84 lbs

Amt. of Oxyglobin Admin:
3 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
10 mL/kg



Case Outcome Summary:

This dog died 4.5 days post Oxyglobin infusion. There was still no response to steroid therapy by this time. Effects of Oxyglobin were wearing off by 3 days, but it worked extremely well.

IMHA / Parasite Anemia

John Dillon, DVM — **Sylvania** **OH**

Pre / Post Oxyglobin:
HR: 100 / 120 (bpm)
RR: 20 / 20 (bpm)
PCV: 17 / 13 %

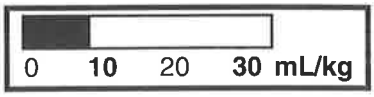
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by pRBCs

Weight:
30 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
9 mL/kg



Case Outcome Summary:
Additional 125 ml needed 84 hours later after initial treatment - dog doing great next AM.

IMHA / Septicemia

Dr. Mark O'Reilly — **San Luis Obispo** **CA**

Pre / Post Oxyglobin:
HR: 132 / 108 (bpm)
RR: 24 / 36 (bpm)
PCV: 14 / 7 %

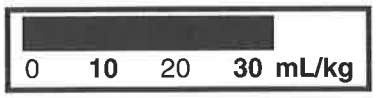
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by blood

Weight:
18 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
31 mL/kg



Case Outcome Summary:
Due to gastric ulceration. 48 hrs. post [Oxyglobin] infusion and 24 hrs post blood infusion PCV = 27%, strength, appetite + general well being continuing to improve. Infection controlled (pyelonephritis that resulted in septicemia + hemolysis).

IMHA / Splenectomy

T.J. Ireland, DVM — **Tucson** **AZ**

Pre / Post Oxyglobin:
HR: / (bpm)
RR: / (bpm)
PCV: / %

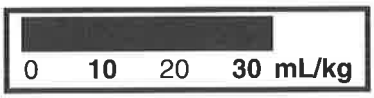
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
42 lbs

Amt. of Oxyglobin Admin:
5 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
33 mL/kg



Case Outcome Summary:
9 months old. Infusion of Oxyglobin stabilized this patient enabling us to perform abdominal surgery and remove his spleen. Two days post surgery PCV = 16%, attitude still good.

Immune Mediated Hemolytic Anemia

Bryan Flood, VMD — **Ponte Vedra Beach** **FL**

Pre / Post Oxyglobin:
HR: 160 / 120 (bpm)
RR: 40 / 30 (bpm)
PCV: 14 / 8 %

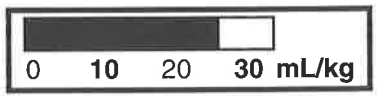
O2 Carrying Fluid(s) Admin:
Whole blood followed by Oxyglobin

Weight:
32 lbs

Amt. of Oxyglobin Admin:
3 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
26 mL/kg



Case Outcome Summary:
day 1 - PCV 16% (7/3/99) IMHA - whole blood day 2 (PCV 14%) , day 5 - 2 units Oxyglobin, 7/22/99 - PCV 26% still in hospital.

Immune Mediated Hemolytic Anemia

Little Rock AR

Pre / Post Oxyglobin:
HR: 130 / 108 (bpm)
RR: 70 / 55 (bpm)
PCV: 14 / 16 %

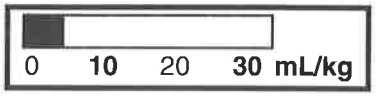
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by blood

Weight:
101 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
5 mL/kg



Case Outcome Summary:

The Oxyglobin definitely improved the status of the patient, but ultimately he required blood transfusion and immunosuppression.

Immune Mediated Hemolytic Anemia

Dr. Robert Starkey Columbus OH

Pre / Post Oxyglobin:
HR: 146 / 108 (bpm)
RR: 48 / 78 (bpm)
PCV: 9 / 7 %

O2 Carrying Fluid(s) Admin:
pRBCs followed by Oxyglobin

Weight:
52 lbs

Amt. of Oxyglobin Admin:
4 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
21 mL/kg

Case Outcome Summary:

Sent home 4 1/2 days later. PCV was 19% at that time.

Immune Mediated Hemolytic Anemia

WA

Pre / Post Oxyglobin:
HR: 150 / 100 (bpm)
RR: 30 / 30 (bpm)
PCV: 4 / 5 %

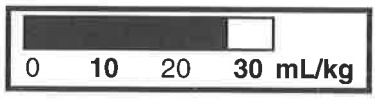
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by pRBCs

Weight:
10 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
28 mL/kg



Case Outcome Summary:

Oxyglobin provided me with the opportunity to start pRBC's, submit labwork, etc. Amazing case because of the severe anemia on presentation. Presented on 2/17/99. Final recheck performed on 3/4/99 with a PCV of 29%. Thanks for a great product.

Immune Mediated Hemolytic Anemia

Eden WI

Pre / Post Oxyglobin:
HR: 160 / 100 (bpm)
RR: / 25 (bpm)
PCV: 17 / 16 %

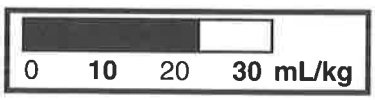
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
25 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
22 mL/kg



Case Outcome Summary:

Dog was severely hemorrhaging, Oxyglobin stabilized her to allow the meds to do their job. Dog went home 3 days later to very happy owners.

Immune Mediated Hemolytic Anemia

Dr. Cassie Hamilton — **Lakeside** **CA**

Pre / Post Oxyglobin:
HR: 172 / 158 (bpm)
RR: / 70 (bpm)
PCV: 17 / 7 %

O2 Carrying Fluid(s) Admin:
Oxyglobin followed by blood

Weight:
55 lbs

Amt. of Oxyglobin Admin:
4 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
20 mL/kg

Case Outcome Summary:
Currently treating AIHA - dog doing very well.

Immune Mediated Hemolytic Anemia

Dr. Peter Lugten — **Farmingdale** **NY**

Pre / Post Oxyglobin:
HR: 200 / 160 (bpm)
RR: 40 / 40 (bpm)
PCV: 9 / 9 %

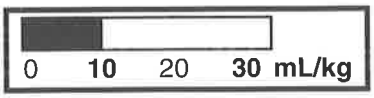
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
55 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
10 mL/kg



Case Outcome Summary:
Dog recovered in 4 days. PCV increased from 9% to 19%, attitude improved by day 3, began eating.

Immune Mediated Hemolytic Anemia

West Bridgewater **MA**

Pre / Post Oxyglobin:
HR: 96 / 92 (bpm)
RR: 28 / 40 (bpm)
PCV: 15 / 15 %

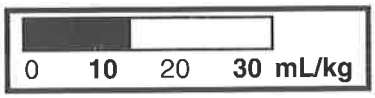
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
41 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
13 mL/kg



Case Outcome Summary:
Dog responded well to Oxyglobin treatment even though the dose given was less than recommended; after 3 days in hospital and dog was more stable, elected to transfer to emergency clinic closer to home.

Immune Mediated Hemolytic Anemia

Natalie Fayman, DVM — **Deerfield Beach** **FL**

Pre / Post Oxyglobin:
HR: 90 / 130 (bpm)
RR: / (bpm)
PCV: 15 / 10 %

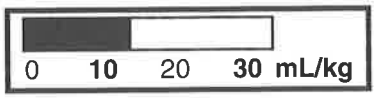
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
22 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
13 mL/kg



Case Outcome Summary:
Referring veterinarian reports dog PCV of 22% 4 days-post Oxyglobin. Sent home on a regimen of prednisone, cytotec, doxycycline, and nutrical.

Immune Mediated Hemolytic Anemia

Andover KS

Pre / Post Oxyglobin:
HR: 179 / 124 (bpm)
RR: 32 / 24 (bpm)
PCV: 16 / 16 %

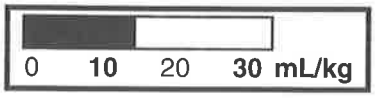
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
20 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
14 mL/kg



Case Outcome Summary:

Oxyglobin reduced the hospitalization by an estimated 3 days at $65/day or a net savings of $66.
[(3 x $65) - $129 cost of product = $66]

Immune Mediated Hemolytic Anemia

Swedesboro NJ

Pre / Post Oxyglobin:
HR: 120 / 100 (bpm)
RR: 60 / 45 (bpm)
PCV: 14 / 12 %

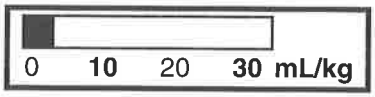
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
110 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
3 mL/kg



Case Outcome Summary:

Tx: Oxyglobin 1 bag. 1/29/99 PCV 27% 2/4/99 PCV 34% 2/12/99 PCV 36%
2/24/99 PCV 39%

Immune Mediated Hemolytic Anemia

Warren NJ

Pre / Post Oxyglobin:
HR: / (bpm)
RR: / (bpm)
PCV: 12 / 29 %

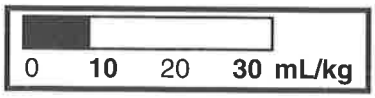
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
30 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
9 mL/kg



Case Outcome Summary:

Responded well to prednisone therapy. Dog doing well currently. PCV = 39.1% on 1/6/99. I feel Oxyglobin gave dog boost until autoimmune was under control.

Immune Mediated Hemolytic Anemia

Cortex CO

Pre / Post Oxyglobin:
HR: 120 / 90 (bpm)
RR: / 60 (bpm)
PCV: 18 / 22 %

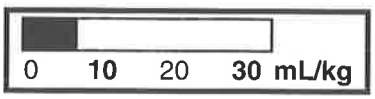
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
40 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
7 mL/kg



Case Outcome Summary:

10 day post infusion - dog doing well, no signs of hemolytic distress, tetracyline 500 mg bid x 14 days, may need prednisone therapy if reoccurs.

Immune Mediated Hemolytic Anemia

Richard P. Pence, DVM — Bluefield WV

Pre / Post Oxyglobin:
HR: 116 / 140 (bpm)
RR: 55 / 60 (bpm)
PCV: 11 / 13 %

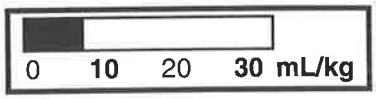
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
33 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
8 mL/kg



Case Outcome Summary:
The dog's condition responded dramatically and allowed time for initiation of appropriate steroid therapy. The patient's recovery was uneventful.

Immune Mediated Hemolytic Anemia

Dr. Pat Hidalgo — Amory MS

Pre / Post Oxyglobin:
HR: / (bpm)
RR: / (bpm)
PCV: 15 / 3 %

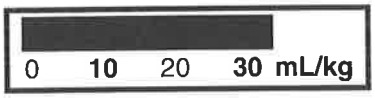
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by blood

Weight:
14 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
39 mL/kg



Case Outcome Summary:
Dog developed IMHA 1 week after being stung by bee. Responded to Oxyglobin plus whole blood and prednisone.

Immune Mediated Hemolytic Anemia

Dr. J. Woll — Lisle IL

Pre / Post Oxyglobin:
HR: 140 / 120 (bpm)
RR: 40 / 22 (bpm)
PCV: 16 / 16 %

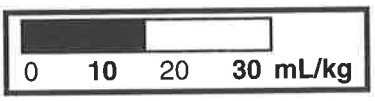
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
35 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
16 mL/kg



Case Outcome Summary:
Much improved energy level after Oxyglobin.

Immune Mediated Hemolytic Anemia

West Caldwell NJ

Pre / Post Oxyglobin:
HR: 108 / (bpm)
RR: 24 / (bpm)
PCV: 11 / 8 %

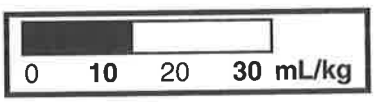
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
20 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
14 mL/kg



Case Outcome Summary:
Pet did well overnight but became visibly icteric whereas she was not on presentation. Regular vet today (24 hrs. later) reports pet is more alert and brighter.

Immune Mediated Hemolytic Anemia

Dr. Johanna Frank — **Littleton** **CO**

Pre / Post Oxyglobin:
HR: 180 / 124 (bpm)
RR: 60 / 40 (bpm)
PCV: 16 / 9 %

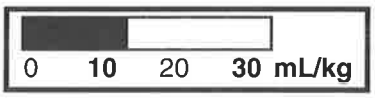
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
85 lbs

Amt. of Oxyglobin Admin:
4 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Died

Dose:
13 mL/kg



Case Outcome Summary:
Severe intravascular hemolysis the following morning. The PCV dropped to 2.1% but the dog was still alert, HR up to 160 again, owners elected euthanasia due to severity of disease and cost of continuing treatment.

Immune Mediated Hemolytic Anemia

Dr. Mark Girone — **Antioch** **TN**

Pre / Post Oxyglobin:
HR: 160 / (bpm)
RR: 16 / (bpm)
PCV: 12 / %

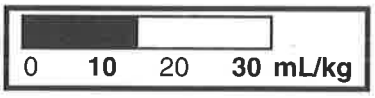
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
20 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Died

Dose:
14 mL/kg



Case Outcome Summary:
Dog's condition immediately improved after administration of Oxyglobin. Owner elected to euthanize dog 36 hours later due to poor response to meds.

Immune Mediated Hemolytic Anemia

East Dummerston **VT**

Pre / Post Oxyglobin:
HR: 160 / 180 (bpm)
RR: 50 / 60 (bpm)
PCV: 15 / 12 %

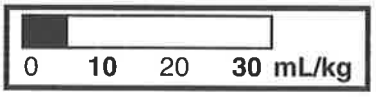
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
51 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
5 mL/kg



Case Outcome Summary:

Immune Mediated Thrombocytopenia

Dr. Donald Ernat — **Naperville** **IL**

Pre / Post Oxyglobin:
HR: 160 / 150 (bpm)
RR: 20 / 60 (bpm)
PCV: 13 / 12 %

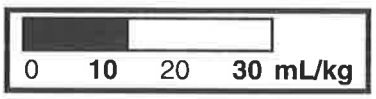
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
22 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
13 mL/kg



Case Outcome Summary:
After initiating therapy 36 hours ago - he is gradually improving - is more alert and responsive. No platlet count reported.

For full prescribing information, please refer to pages 42-43.

Zinc Toxicity

Stanley Hastings, DVM — **Erlanger** **KY**

Pre / Post Oxyglobin:
HR: 180 / 150 (bpm)
RR: 35 / 120 (bpm)
PCV: 11 / 8 %

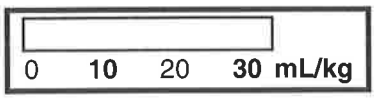
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
6 lbs

Amt. of Oxyglobin Admin:
<1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
mL/kg



Case Outcome Summary:

Scoped to remove penny. Dog was up and more active and alert in 30 minutes. Continued treatment with Calcium EDTA.

Zinc Toxicity

Dr. Pat Hidalgo — **Amory** **MS**

Pre / Post Oxyglobin:
HR: / (bpm)
RR: / (bpm)
PCV: 28 / %

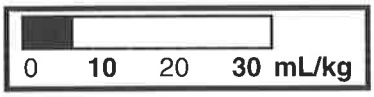
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
48 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
6 mL/kg



Case Outcome Summary:

Penny in stomach, gastrotomy performed, dog sent home 2 days later.

Zinc Toxicity / IMHA

Dr. Kelly Crawford — **Plymouth** **MA**

Pre / Post Oxyglobin:
HR: 160 / 120 (bpm)
RR: 60 / 40 (bpm)
PCV: 11 / 11 %

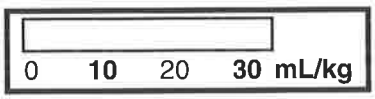
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
8 lbs

Amt. of Oxyglobin Admin:
<1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
mL/kg



Case Outcome Summary:

Performed gastrotomy 5 hours after receiving Oxyglobin. Removed 1 penny and 1 dime from pyloric area of stomach. Uneventful recovery. 24 hours post op, PCV 14% and hemolysis of plasma. 48 hrs. post op, BAR, eating and active. Continued to improve.

Zinc Toxicity / Thrombocytopenia

Dr. John Jackson — **Memphis** **TN**

Pre / Post Oxyglobin:
HR: 120 / (bpm)
RR: / (bpm)
PCV: 22 / %

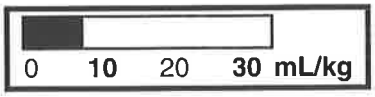
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
70 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Died

Dose:
8 mL/kg



Case Outcome Summary:

Ineffective Erythropoiesis

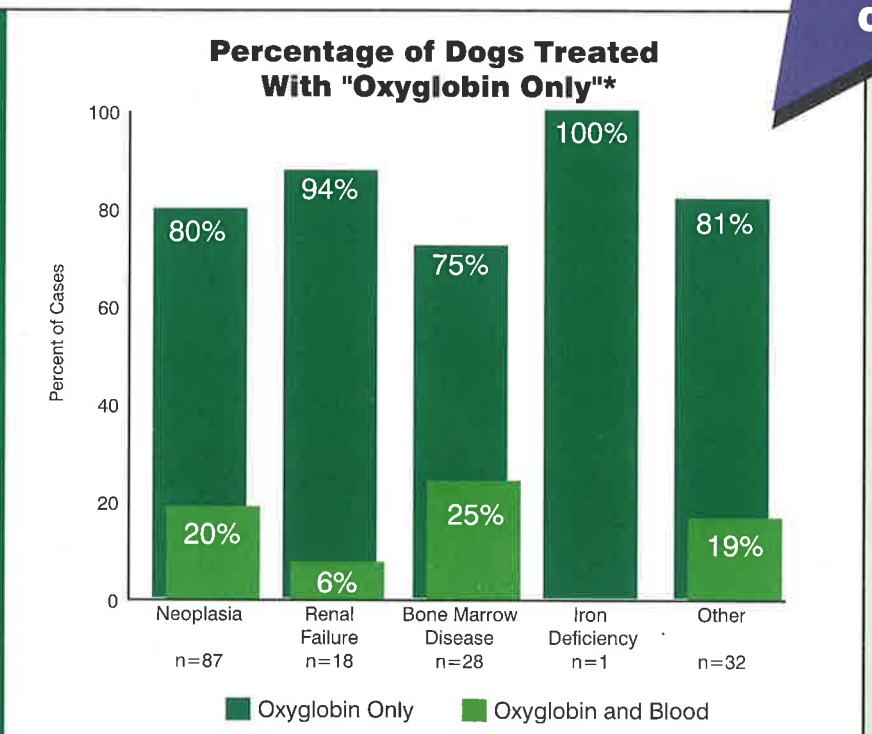
Oxyglobin is a good treatment of anemia due to ineffective erythropoiesis because it:

- Stabilizes the patient prior to surgery
- Supports the anemic patient during diagnostic workup
- Provides an oxygen bridge in terminal patients

81% of ineffective erythropoiesis cases reported received **Oxyglobin only***

Oxyglobin is Being Used For Ineffective Erythropoiesis
(% of total cases, n=883)

- Neoplasia 9%
- Bone Marrow Disease 3%
- Miscellaneous 3%
- Renal Failure 1.5%
- Iron Deficiency <1%



*n=166. Percent of doctors responding "Oxyglobin Only" as a treatment regimen (administered within the first 72 hours following presentation). Choices included: Oxyglobin ONLY; Oxyglobin followed by whole blood; Whole blood followed by Oxyglobin; Oxyglobin followed by RBC's; RBC's followed by Oxyglobin

Average Pre-Infusion PCV (Transfusion Trigger) 18%

Veterinarians' Comments

"Terminal patient has been on chemotherapy. Oxyglobin used supportively. Can stand and go home with owner overnight."
Omitted for Confidentiality, DVM, OH

"Removal of kidney tumor. Lived. Client happy."
Omitted for Confidentiality, DVM, PA

"Ultrasound revealed tumors throughout the liver and spleen - prognosis grave - Owner wanted to give Oxyglobin so their dog could spend 1-2 days at home being alert before they rendered euthanasia."
Omitted for Confidentiality, DVM, NJ

"Found atrial mass and weak heart contractions and pericardial effusion on ultrasound. Removed 40cc of blood. Placed on Digoxin. Immediately after Oxyglobin-significant improvement in strength. At one week - PCV = 36%. Doing very well."
Omitted for Confidentiality, DVM, OH

For full prescribing information, please refer to pages 42-43.

To learn more about oxygen therapeutics, visit our web site at www.biopure.com

OXYGLOBIN® hemoglobin glutamer-200 (bovine)
The Oxygen Carrying Fluid™
For The Treatment of Anemia in Dogs

Bone Marrow Disease

Ft. Wayne IN

Pre / Post Oxyglobin:
HR: 180 / 140 (bpm)
RR: / 40 (bpm)
PCV: 9 / 9 %

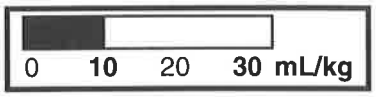
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by blood

Weight:
84 lbs

Amt. of Oxyglobin Admin:
3 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
10 mL/kg



Case Outcome Summary:

This dog died 4.5 days post Oxyglobin infusion. There was still no response to steroid therapy by this time. Effects of Oxyglobin were wearing off by 3 days, but it worked extremely well.

Bone Marrow Disease / Parasite Anemia

Cathy Kaga, DVM Little Rock AR

Pre / Post Oxyglobin:
HR: / (bpm)
RR: / (bpm)
PCV: 10 / 12 %

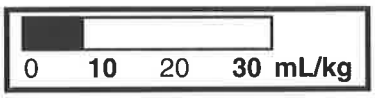
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
70 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
8 mL/kg



Case Outcome Summary:

I think this dog survived longer because of the Oxyglobin; if we had done further diagnostics (bone marrow biopsy) we may have found a potentially treatable disease.

Bone Marrow Disease / Parasite Anemia

Julie J. Gibson, DVM Wichita Falls TX

Pre / Post Oxyglobin:
HR: 170 / 160 (bpm)
RR: 60 / 55 (bpm)
PCV: 10 / 8 %

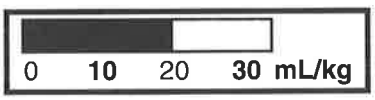
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by pRBCs

Weight:
14 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
20 mL/kg



Case Outcome Summary:

This dog died 3.5 days post Oxyglobin. Response to Oxyglobin moderately favorable. Patient non-responsive to meds.

Chronic Disease

G.A. Ritter, DVM Bossier City LA

Pre / Post Oxyglobin:
HR: 132 / 128 (bpm)
RR: 90 / 60 (bpm)
PCV: 15 / 15 %

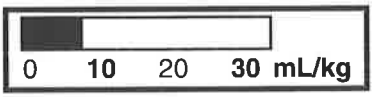
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by whole blood

Weight:
65 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
8 mL/kg



Case Outcome Summary:

Good response to second bag given 72 hours after first and 250 ml whole blood - outlook is grave at this time but giving owners time to adjust.

For full prescribing information, please refer to pages 42-43.

Exploratory / Neoplasia

Forest VA

Pre / Post Oxyglobin:
HR: 116 / 88 (bpm)
RR: 136 / 44 (bpm)
PCV: 18 / 14 %

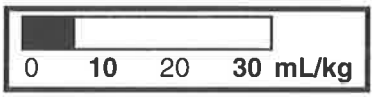
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
84 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Died
(72 hrs) Died

Dose:
7 mL/kg



Case Outcome Summary:
Oxyglobin administered prior to anesthesia for exploratory and probable splenectomy. Discovered extensive organ involvement in neoplastic bleeding mass. Owner authorized euthanasia.

Exploratory / Neoplasia

Tim Cavanagh, DVM, ABVP Arlington WA

Pre / Post Oxyglobin:
HR: 90 / 60 (bpm)
RR: 60 / 45 (bpm)
PCV: 22 / %

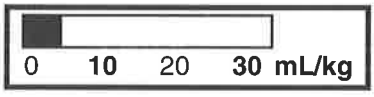
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
134 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
4 mL/kg



Case Outcome Summary:
Owner elected an exploratory surgery where a bleeding splenic hemangiosarcoma was found and removed.

Ineffective Erythropoiesis / C-Section

Perham MN

Pre / Post Oxyglobin:
HR: 150 / (bpm)
RR: / (bpm)
PCV: / %

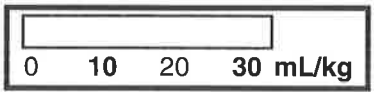
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
19 lbs

Amt. of Oxyglobin Admin:
<1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
mL/kg



Case Outcome Summary:
Presented for caesarian section, weak depressed, PCV = 23%. Oxyglobin before surgery. Dog recovered alert, active and nursing puppies.

Neoplasia

Dr. Mike Passarella Antioch IL

Pre / Post Oxyglobin:
HR: 180 / 160 (bpm)
RR: 20 / 19 (bpm)
PCV: 16 / 16 %

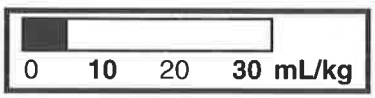
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
110 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Died
(72 hrs) Died

Dose:
5 mL/kg



Case Outcome Summary:
Laparotomy revealed multiple growths on liver. Animal was euthanized but was doing fine during surgery and anesthesia.

Neoplasia

Dr. Sharon A. Burns — South Lake Tahoe CA

Pre / Post Oxyglobin:
HR: 90 / 84 (bpm)
RR: 40 / 34 (bpm)
PCV: 27 / 29 %

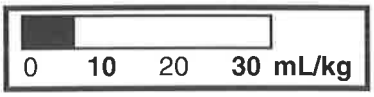
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
80 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
7 mL/kg



Case Outcome Summary:
Mass-bleeding.

Neoplasia

Independence MO

Pre / Post Oxyglobin:
HR: 132 / 120 (bpm)
RR: / 30 (bpm)
PCV: 15 / 16 %

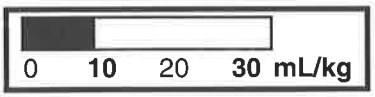
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
31 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
9 mL/kg



Case Outcome Summary:
Dog stabilized enough with Oxyglobin and fluids that tumor could be removed.

Neoplasia / Amputation

Jeffrey M. Kline, DVM — Mooresville NC

Pre / Post Oxyglobin:
HR: 100 / 108 (bpm)
RR: 50 / 60 (bpm)
PCV: 31 / 20 %

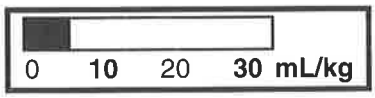
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
90 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
6 mL/kg



Case Outcome Summary:
Amputation for probable bone tumor with concurrent hypothyroidism. 3 days post op, happy with outcome.

Neoplasia / Arterial Mass / Surgery

Cincinnati OH

Pre / Post Oxyglobin:
HR: 140 / (bpm)
RR: / (bpm)
PCV: 15 / %

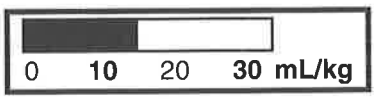
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
38 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) NA

Dose:
14 mL/kg



Case Outcome Summary:
Found atrial mass and weak heart contractions and pericardial effusion on ultrasound. Removed 40cc of blood. Placed on Digoxin. Immediately after Oxyglobin-significant improvement in strength. At one week - PCV = 36%. Doing very well.

Neoplasia / Hemangiosarcoma

J.R. Swanson, DVM — Kansas City KS

Pre / Post Oxyglobin:
HR: 90 / 92 (bpm)
RR: 45 / 40 (bpm)
PCV: 17 / 22 %

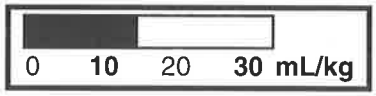
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by pRBCs

Weight:
40 lbs

Amt. of Oxyglobin Admin:
2 - 125 mL bag(s)

Outcome:
(24 hrs) Died
(72 hrs) Died

Dose:
14 mL/kg



Case Outcome Summary:
Removed very large spleen.

Neoplasia / Hemangiosarcoma

Dr. Gail Counts — Portsmouth OH

Pre / Post Oxyglobin:
HR: 100/ 88 (bpm)
RR: 30 / 20 (bpm)
PCV: 17 / 21 %

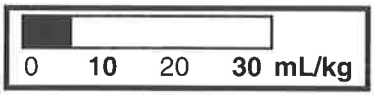
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
46 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
6 mL/kg



Case Outcome Summary:
Dramatic improvement after Oxyglobin administration.

Neoplasia / Hemangiosarcoma / Surgery

Hyde Park VT

Pre / Post Oxyglobin:
HR: 132/ 104 (bpm)
RR: 40 / 32 (bpm)
PCV: 29 / 28 %

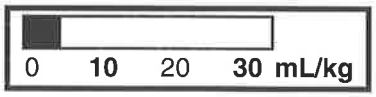
O2 Carrying Fluid(s) Admin:
Oxyglobin followed by pRBCs

Weight:
70 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
4 mL/kg



Case Outcome Summary:
Whole blood was administered on account of prolonged bleeding time (greater than 12 minutes). After transfusion, bleeding time about 4 minutes. Oxyglobin was administered intraoperatively to enhance chances of successful outcome.

Renal Failure

Naples FL

Pre / Post Oxyglobin:
HR: 120/ 100 (bpm)
RR: 36 / 24 (bpm)
PCV: 15 / 15 %

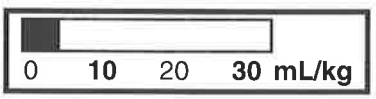
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
70 lbs

Amt. of Oxyglobin Admin:
1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Died

Dose:
4 mL/kg



Case Outcome Summary:
Improved over first 24 hours post-infusion but chronic renal failure ultimate downfall.

Renal Failure

Dr. Skinner **Hartfield VA**

Pre / Post Oxyglobin:
HR: / (bpm)
RR: / (bpm)
PCV: 11 / %

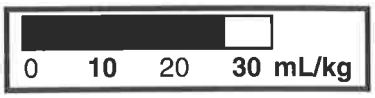
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
30 lbs

Amt. of Oxyglobin Admin:
3 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) Survived

Dose:
28 mL/kg



Case Outcome Summary:

We started erythropoietin when Oxyglobin was given. Anemia was resolved, but she died several weeks later due to other complications.

Renal Failure

Des Moines WA

Pre / Post Oxyglobin:
HR: 180 / 140 (bpm)
RR: / (bpm)
PCV: 7 / %

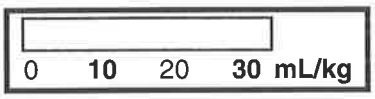
O2 Carrying Fluid(s) Admin:
Oxyglobin ONLY

Weight:
7 lbs

Amt. of Oxyglobin Admin:
<1 - 125 mL bag(s)

Outcome:
(24 hrs) Survived
(72 hrs) NA

Dose:
mL/kg



Case Outcome Summary:

Poor response, still very weak. Owner requested euthanasia.

For full prescribing information, please refer to pages 42-43.

Oxyglobin® Solution Questions & Answers

An Interview with ROGER W. GFELLER , DMV, DIP. ACVECC, Fresno, California.

What is Oxyglobin®?

Oxyglobin is what was called a "blood substitute" but is now known as an "oxygen therapeutic" or "hemoglobin based oxygen carrier" (HBOC). It is a sterile intravenous solution that provides 13 g/dL of hemoglobin; thus it will carry as much oxygen as blood that has a hematocrit of 39%. Oxyglobin is stable at room temperature for 3 years from the day it is made. It can be given safely without any advance preparation – that is, you do not have to warm it, reconstitute it, type and/or cross match the patient, filter it – no preparation at all is necessary. Nothing can be more convenient, especially when one compares administering Oxyglobin with safely administering blood.

Why should a general practitioner be interested in Oxyglobin?

Oxyglobin can be a lifesaver in many cases. All cases of anemia, regardless of the cause, will benefit from administration of Oxyglobin. I've heard many veterinarians in general practice say that they don't need it. If a case is presented that needs a blood transfusion or Oxyglobin, they refer the case. A tragic case comes to mind that actually happened to me. A doctor called our hospital on Monday giving us a "heads up." He had seen a patient on Friday and diagnosed anemia. The dog appeared stable at that time. By Monday, the anemia had gotten much worse. The patient was now in critical condition and the veterinarian asked the client to transport the patient to us. The patient arrived, after only 15 minutes of transport, in agonal respiration. He died before we had a chance. Had the referring veterinarian had Oxyglobin on the shelf, he could have started administration without any hassle, and it is reasonable to believe the patient would have arrived at our hospital alive.

How many times have you used Oxyglobin in your practice?

We have used over 150 bags of Oxyglobin.

In what types of cases have you used it in your practice?

We have administered it to dogs suffering immune mediated hemolytic anemia, but frankly, we have not seen many of these cases since Oxyglobin became available. We have used it in traumatic shock, hemorrhage (traumatic and splenic tumor rupture), GDV with ruptured short gastric arteries, chronic anemia related to neoplasia, chronic anemia associated with chronic renal failure, flea anemia in neonates, gunshot victims, bite wound victims and several others that don't come to mind right now. My favorite use is in the trauma case or the hemoabdomen case where hypotensive resuscitation is indicated.

What is hypotensive resuscitation?

Hypotensive resuscitation is a low volume resuscitation that is quite useful when patients are in shock due to loss of blood. Most commonly, these patients have been traumatized or have a tumor that has ruptured. Many times, when the "usual" fluids (crystalloids and non-hemoglobin colloids) are used to resuscitate these patients, the volume required to increase tissue oxygenation results in substantial increases in blood pressure. After all, that's why one gives them. Unfortunately, as the blood pressure increases, formed clots fail and the patient begins to hemorrhage (internally) again; this time they bleed faster because the fluids have diluted the blood as well as the clotting factors. When Oxyglobin is used to resuscitate these patients, significantly smaller volumes result in greater tissue oxygenation without the significant increase in blood pressure. While this approach is still quite undocumented in literature, I have found it to be a highly successful tool.

What types of cases are best suited for Oxyglobin and why?

The "slam dunk" for Oxyglobin is the patient suffering immune mediated hemolytic anemia. Many of these patients do not die of their anemia but die due to complications caused by destruction of the red cell membrane. When the membrane is damaged/destroyed, phospholipids are released and negatively charged surfaces are exposed. These substances initiate cascades that result in severe complications such as thromboembolism (particularly pulmonary thromboembolism), systemic inflammation (systemic inflammatory response syndrome or SIRS), disseminated intravascular coagulopathy, and shock. Further, hemolysis releases erythrocyte hemoglobin, which is toxic to the liver and kidneys.

When hypoxemia associated with immune mediated hemolytic ane-

For full prescribing information, please refer to pages 42-43.

mia becomes severe enough to warrant treatment, blood and Oxyglobin are the only choices. Red blood cells will add more toxic substances to the patient if they are transfused into the patient before the suppression of the immune mediated destruction of the membrane. Oxyglobin has no membrane, nor any membrane particles. It can be used to improve oxygen delivery to tissues without adding toxic components. Thus, it can be given early in the disease and perhaps will help prevent tissue hypoxia from becoming a problem.

One instance where Oxyglobin is indicated is in the patient who is dying of hypoxemia due to anemia. Blood transfusion would help, but will take time to prepare. If a blood donor is to be used, it takes time to collect the blood. If the blood is stored, it will require time to warm, cross match, and administer through a filter (filters impede flow). Oxyglobin is ready to use. These patients who present in a dying state may have Oxyglobin (safely) flowing within 2 or 3 minutes of presentation. Which would you do for your own pet if it was dying for need of oxygen carrying support – wait for blood or administer Oxyglobin? To me, the answer is obvious.

How has the product performed?

In my hands, the product has done very well. Certainly there have been patients with severe diseases or injury who have not survived after receiving Oxyglobin. I have found that when we use Oxyglobin early, we save a lot more than when we either don't get the patient early enough or delay in the decision to give it.

Why/when would you use it instead of blood?

I use Oxyglobin instead of blood in several places. First, I use it where the patient is "dying before my eyes" of its deficient oxygen delivery. These patients need help NOW and do not have time for us to draw blood from a donor or prepare stored blood for transfusion. It is worth noting that canine red blood cells stored for more than 10 days are not very efficient. That is because during storage, the erythrocytes used the available 2,3 diphosphoglycerate for energy. Without adequate 2,3 DPG, canine (and human) hemoglobin binds so tightly to oxygen that the oxygen is not released to tissues.
Oxyglobin is ready to infuse and efficiently delivers oxygen upon infusion.

In severely anemic patients where blood is going to be used, Oxyglobin is indicated while a cross match is performed. Now that Oxyglobin is available, we have the time to do proper cross matches for the safety of all our patients. If the patient cannot be matched (and I have seen this in a dog who had never had a transfusion), then Oxyglobin can be used instead of blood.

As mentioned, Oxyglobin is superior to blood when used in the immune mediated hemolytic anemia patient. If these patients require oxygen delivery support before the immunosuppressive drugs have had time to work, they deserve Oxyglobin rather than blood.

Another instance where I use Oxyglobin instead of blood is the young patient who has a very regenerative anemia and will require oxygen delivery support for only a few days. The most common case that comes to mind here would be the puppy that is severely anemic due to parasite infestation. Parasites such as fleas, ticks and hookworms are frequent causes of this. If these patients are given blood, they will be sensitized for life. These patients are at increased risk if they ever need another transfusion.

Tell me how you administer Oxyglobin.

In dogs, I first decide why I need the supplementation of oxygen delivery and decide how long this supplementation is likely to be necessary. If the patient is extremely hypoxemic or in shock, but will only need support for a day or two, I administer enough bags to provide a dose of 8 - 15 mL/kg. If the patient is expected to be normotensive, normovolemic, or if there is worry about the possibility of vascular overload, I administer this amount over 1-1½ hours. If the patient is hypotensive/hypovolemic, I will rapidly administer it until I see the patient's hypoxemia improving. In hypotensive resuscitation, I administer approximately 2-5 mL/kg STAT and then re-evaluate. Repeat these bolus doses as needed to stabilize the patient. Crystalloids must be administered concurrently at maintenance or higher levels to replete the interstitial space. The rate of administration must not be so rapid as to cause blood pressure increases that will dislodge internal clots.

If on the other hand, my patient is expected to need oxygen delivery support for >2 days, I will likely recommend the full label dose – 30 mL/kg. That is because the half-life of Oxyglobin is prolonged at higher doses. Each mL administered at the higher dose lasts longer. When Oxyglobin is given at 30 mL/kg, the half-life is around a day and a half. The half-life at a dose of 10 mL/kg is only a day or

For full prescribing information, please refer to pages 42-43.

so.

How do you monitor the patient?

Monitoring the patient that has received Oxyglobin is much like any other patient with two exceptions. First, the PCV is no longer valid as an estimate of the patient's capability to deliver adequate oxygen. One must measure total hemoglobin levels to be accurate. We can estimate our patient's PCV using the following. A dose of 30 mL/kg will provide the same hemoglobin as if the PCV had increased 12%. This theoretical increase in PCV may be added to the measured PCV to a total "theoretical" PCV/hematocrit. In one half-life (22-43 hours 30 mL/kg), the additional theoretical hematocrit will be reduced by 50%. Thus, we can measure the PCV in a day and a half and add the remaining 6% of the theoretical hematocrit to determine how our patient is doing. Second, administration of Oxyglobin interferes with certain colormetric tests and causes a yellowish-orange discoloration of the skin and mucous membranes. If one is worried about liver disease in a patient that has received Oxyglobin, diagnostic testing becomes difficult. In these cases, one must run the tests on blood taken before Oxyglobin was administered. It is possible to call the Biopure Corporation technical hotline (1-888-400-0030) to get help with tests run on in-house equipment. Be able to tell the technician:

How much Oxyglobin was given.
When the Oxyglobin was given.
What model of lab equipment you are using.
What tests you are running.
You may need to know the software edition of certain instruments.

Should a general practitioner view this as a product to be used regularly or just as insurance for that rare occasion?

I truly believe that when veterinarians begin to recommend the use of this product to their clients, they will find that it is as indispensable as many other pharmacy items. There will be many uses for Oxyglobin in every small animal private practice.

What are the most common side effects?

Patients given amounts >15 mL/kg will have a definite yellow to orange discoloration of the mucous membranes and sclera. These animals look icteric and must not be diagnosed as such by the staff. It is the discoloration of the Oxyglobin that causes this – not liver disease. In lower doses, these side effects are not so obvious.

After administration, there is a transient hemoglobinuria. This is due to a small amount of unstabilized tetrameric hemoglobin in the Oxyglobin filtered through the kidneys. The rust discoloration of the urine is usually gone within 4 hours after discontinuing the administration of Oxyglobin but during this time, urine analysis using dipsticks is invalid. If the urine remains discolored for longer that 4 hours after infusion, the patient should be examined for other possible causes of hemoglobinuria.

Administration of Oxyglobin will cause a rise in the central venous pressure. If the patient is normotensive, this rise may cause pulmonary artery pressures to rise enough to cause pulmonary edema. This happens if Oxyglobin is given too rapidly. When Oxyglobin is administered at 10 mL/kg/hr or less, this side effect will likely be avoided. Slowing the rate or interrupting the administration of Oxyglobin is nearly always all that is required to correct any overload problems.

Rarely, rapid administration will cause vomiting and/or diarrhea. Again, slowing the rate of administration will likely avoid these problems.

What is your "infusion trigger"? How do you approach this dilemma?

Delaying may save money; not delaying may save a life. Human data has shown that delays in administering additional oxygen carrying support result in massive increases in mortality. In one study, delaying transfusion from a PCV of 23% to 14% caused an increase in mortality from ~30% to ~60% - double!! Personally, I present these data to the owners and let them decide. I tell owners who have an animal with a PCV of <25% "we can wait to make more certain the patient proves it needs the transfusion by watching for a declining PCV or we can give Oxyglobin now. If we wait, studies have shown that the chance of dying goes up. Do you wish me to delay the transfusion?" I give the pet owner the choice. If I really don't feel it is wise they wait, I tend to put the urgency in HOW I say it. If I am not too worried, I let them know that too. The point is: I let them be involved in the decision. After all, it is their pet and their money.

For full prescribing information, please refer to pages 42-43.

How do you price Oxyglobin to your clients? Do you think it is a good value?

We looked at what we "made" on a transfusion ($41.00) and then added that to the cost of a bag of Oxyglobin. We have found that the clients readily pay that. In fact, considering the depressed economy of the Fresno area, we have been quite surprised that the majority of clients don't even bat an eye at the cost.

Is it a good value? Don Dooley taught me a long time ago that I am only a doctor. I have no training (and thus no right) to make these kinds of decisions for my clients. If I say that anything is too expensive for a patient, I'm judging the worth of that patient. How dare me? I can honestly answer the question this way – is it a good value for me to be used if I need it in my pets? Absolutely – without hesitation.

In your opinion, what are the greatest advantages of Oxyglobin over previously available treatments?

The absolute greatest advantage is that Oxyglobin can be safely administered to a needy patient in minutes after arrival and it will be efficacious. Another advantage is that it stores at room temperature for a long time. Recently, the shelf life has been extended from 2 to 3 years from the date of manufacture.

Do you mind if practitioners contact you regarding your experience with Oxyglobin?

I would be happy to talk with anyone about Oxyglobin. I can be reached by telephone at (559) 250-6469 or by email at ervet@aol.com.

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For full prescribing information, please refer to pages 42-43.

Oxyglobin® Solution

hemoglobin glutamer - 200 (bovine)

FOR INTRAVENOUS USE IN DOGS ONLY

CAUTION: Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.

DESCRIPTION: Oxyglobin® contains 13 g/dL polymerized hemoglobin of bovine origin in a modified Lactated Ringer's Solution containing Water for Injection USP 100 g/dL, NaCl USP 113 mmol/L, KCl USP 4 mmol/L, $CaCl\text{-}2H_2O$ USP 1.4 mmol/L, NaOH NF 10 mmol/L, Sodium Lactate USP 27 mmol/L, N-acetyl-L-cysteine USP 200 mg/dL. It has an osmolality of 300 mOsm/kg. It is a sterile, clear dark purple solution with a pH of 7.8. It is a distribution of hemoglobin polymers with less than 5% of the hemoglobin as unstabilized tetramers, approximately 50% has a molecular weight between 65 and 130 kD, and no more than 10% has a molecular weight >500 kD. It contains less than the detectable level of 3.5 µg/mL free-glutaraldehyde and 0.05 EU/mL endotoxin.

PHARMACOLOGY: Oxyglobin® is a hemoglobin-based oxygen carrying fluid which increases plasma and total hemoglobin concentration and thus increases arterial oxygen content. The terminal elimination half-life of the drug is estimated to range between 18 and 43 hours for dosages of 10-30 mL/kg (Table A) in dogs. The increase in half-life with dose suggests a saturable elimination process. Depending on the dose, greater than 95% of the administered dose is expected to be eliminated from the body at 4 to 9 days after infusion. A laboratory study in dogs established that an increase in total hemoglobin by as little as 0.7 mg/dL with a hemoglobin-based oxygen carrying fluid restored normal tissue oxygenation.[1] Table A provides data from a laboratory study on the post-infusion duration (hours) for which plasma Oxyglobin® levels remained above this therapeutically critical level (1 g/dL).

Table A Pharmacokinetic parameters at multiple dose levels after a single infusion of Oxyglobin®

Dose (mL/kg)	Immediate post infusion concentration (g/dL)	Duration (hours): Oxyglobin® levels over 1 g/dL	Terminal half-Life* (hours)	Cleared from plasma (days)***
10	1.5 – 2.0	11 – 23	18 – 26	4 – 5
15	2.0 – 2.5	23 - 39	19 – 30	4 – 6
21	3.4 – 4.3	66 - 70	25 – 34	5 – 7
30	3.6 – 4.8	74 - 82	22 – 43**	5 – 9**

* range based on mean ± SD
**range based on estimated mean value with bounds of a 95% prediction interval
***range based on 5 terminal half-lives

Metabolism and Excretion: In a toxicokinetic study involving 24 healthy young adult male Beagle dogs, transient hemoglobinuria was noted for less than 4 hours after completion of the Oxyglobin® infusion. The duration of hemoglobinuria in diseased dogs has not been determined.

INDICATIONS: Oxyglobin® is indicated for the treatment of anemia in dogs by increasing systemic oxygen content (plasma hemoglobin concentration) and improving the clinical signs associated with anemia, regardless of the cause of anemia (hemolysis, blood loss, or ineffective erythropoiesis) (See EFFECTIVENESS).

CONTRAINDICATIONS: Plasma volume expanders, such as Oxyglobin®, are contraindicated in dogs with a pre-disposition to volume overload such as those with advanced cardiac disease (i.e., congestive heart failure) or otherwise severely impaired cardiac function or oliguria or anuria. The safety of Oxyglobin® was not assessed in dogs with these conditions.

WARNINGS: Overdosage or an excessively rapid administration rate (i.e., > 10 mL/kg/hr) may result in circulatory overload.

OVERDOSAGE: Accidental overdosage or an excessive rate of administration (i.e., >10 mL/kg/hr) could result in immediate cardiopulmonary effects, in which case infusion of Oxyglobin® should be discontinued immediately until signs abate. Signs of circulatory overload such as pulmonary edema, pleural effusion, increased central venous pressure, dyspnea, or coughing may occur. Treatment of circulatory overload may be necessary.

[1] Bovine Haemoglobin is More Potent than Autologous Red Blood Cells in Restoring Muscular Tissue Oxygenation after Profound Isovolaemic Haemodilution in dogs. Standl T., et al. *Can J Anaesth.* 43(7):714-723.

PRECAUTIONS: The safety and efficacy of repeat administration of Oxyglobin® have not been demonstrated in dogs. The safety of Oxyglobin® for use in breeding dogs and pregnant or lactating bitches has not been determined. Teratogenic effects were observed in preliminary reproductive toxicity studies in rats using a related polymerized bovine hemoglobin product. The safety and efficacy of Oxyglobin® have not been evaluated in dogs with disseminated intravascular coagulopathy, thrombocytopenia with active bleeding, hemoglobinemia and hemoglobinuria, or autoagglutination.

If an immediate hypersensitivity reaction occurs, infusion of Oxyglobin® should be immediately discontinued and appropriate treatment administered. If a delayed type of hypersensitivity reaction occurs, immunosuppressant therapy is recommended.

Concomitant treatment of the cause of anemia should be instituted.

Treatment with Oxyglobin® at a dosage of 30 mL/kg results in a mild decrease in PCV immediately post infusion. Due to the dilutional effects of Oxyglobin® at that dose, PCV and RBC count are not accurate measures of the degree of anemia for 24 hours following administration. Dilutional effects are not seen at a dosage of 15 mL/kg.

The animal should be adequately hydrated (but not overhydrated) prior to administration. Due to the plasma expanding properties of Oxyglobin®, the possibility of circulatory overload should be considered especially when administering adjunctive intravenous fluids, particularly colloidal solutions. If concurrent fluid therapy is administered, it should be temporarily discontinued during infusion of Oxyglobin®. Close monitoring of central venous pressure (CVP) during and immediately following administration of Oxyglobin® is recommended. If CVP measurement is not feasible, the patient should be carefully monitored for signs of circulatory overload. If CVP increases to a clinically unacceptable level and/or if signs of circulatory overload are observed, the infusion of Oxyglobin® should be temporarily discontinued and reinstituted at a slower rate when signs abate and/or CVP decreases. Use of a diuretic may be indicated.

Clinical Pathology:

Chemistry: The presence of Oxyglobin® in serum may result in artifactual increases or decreases in the results of serum chemistry tests, depending on the type of analyzer and reagents used.

Table B: Valid Analytes by Instrumentation

Idexx VetLab	Hitachi All Models	Johnson & Johnson Ektachem/Vitros	Dupont Dimension	Beckman CX7/CX3
sodium	sodium	sodium	sodium	sodium
potassium	potassium	potassium	potassium	potassium
chloride	chloride	chloride	chloride	chloride
BUN	BUN	BUN	BUN	BUN
CK	CK	CK	LDH	calcium
creatinine	glucose	AST	calcium	glucose
	ALT	calcium		
	AST	magnesium		
	calcium	lipase		
		glucose		

Hematology: No interference. Confirm that hemoglobin is measured, not calculated from red blood cell number.

Coagulation: Prothrombin time (PT) and activated partial thromboplastin time (aPTT) can be accurately determined using methods that are mechanical, magnetic, and light scattering. Optical methods are not reliable for coagulation assays in the presence of Oxyglobin®. Fibrin degradation products can be measured using the Thrombo-Wellcotest kit (Murex® Kent, England).

Urinalysis: Sediment examination is accurate. Dipstick measurements (i.e., pH, glucose, ketones, protein) are inaccurate while gross discoloration of the urine is present.

SAFETY: The safety of Oxyglobin® was assessed in 40 healthy Beagle dogs with induced acute, severe normovolemic anemia (total hemoglobin concentration ≈ 5 g/dL). Oxyglobin® was administered at 0, 30, 60, and 90 mL/kg twice at a 72 hour interval (equivalent to 0, 1X, 2X, 3X the maximum recommended dose given twice, respectively). 13% Human Serum Albumin (HSA) in Saline was a control (90 mL/kg twice at 72 hour interval) used to determine the effects of a protein load compared with Oxyglobin®. There was 100% survival in all groups.

The clinical and pathological effects associated with Oxyglobin® were: ***Transient clinical signs:*** yellow-orange discoloration of the skin, ear canals, pinnae, mucous membranes (gums), and sclera, red-dark-green discoloration of feces, brown-black discoloration of urine, red spotting of skin and/or lips (less common finding) and decreased appetite and thirst. Vomiting, diarrhea, and decreased skin elasticity occurred within 48 hours of dosing. The frequency and/or intensity

of these clinical signs were dose dependent. ***Clinical pathology:*** transient, dose dependent red discoloration of plasma, increases in serum enzyme activity with no corresponding microscopic lesions in the liver: 8-fold mean increase in aspartate aminotransferase (AST) activity (peak activity 200 and 677 U/L at 1X and 2X doses given twice, respectively) and 5-fold mean increase in alanine aminotransferase (ALT) activity at 3X dose given twice only (peak activity 372 U/L), increase in serum total protein (peak concentration 9.9 and 14.6 g/dL at 1X and 3X doses given twice, respectively), and hemoglobinuria.

Gross pathology: Dark yellow-orange-brown discoloration (whole body) and dark areas on gall bladder serosa. ***Histopathology:*** Hemosiderin in the renal cortex, arteriolitis (limited duration) and activation of tissue macrophages in multiple organs occurred in all Oxyglobin® treated groups. Microscopic hemorrhage in the gall bladder and evidence of hepatic macrophage activation occurred in only the 2X and 3X dose groups given twice. Reversible, slight to mild renal tubular damage with limited distribution was seen in both the Oxyglobin® treated and HSA in Saline treated control dogs. All findings were dose dependent except for renal tubular protein droplets and casts (indicating saturation of tubular protein reabsorption) and a slight proliferative glomerulopathy (limited duration and distribution) seen in all Oxyglobin® treated groups.

Immunohistopathology: Immunofluorescent antibody staining was performed on kidneys of Oxyglobin® treated dogs in which a glomerulopathy was identified (5/24) to detect deposition of immune complexes. Only one dog with a glomerulopathy (graded slight) had a focal non-specific IgG deposit in a single area in the outer cortex of one kidney in an estimated amount of 30%. Deposits of <25% is considered normal in dogs.

Immunology: Low levels of canine immunoglobin-G class antibodies to bovine hemoglobin (anti-BvHb) were produced in 11/12 Oxyglobin® treated dogs. Due to the limited nature of the study, no relationship between anti-BvHb antibody titer and dose of Oxyglobin® administered could be demonstrated. Observed levels of IgG anti-BvHb are not expected to have any toxicological significance in dogs.

ADVERSE REACTIONS: The clinical field trial included dogs with anemia (PCV 6-23%) due to hemolysis (immune mediated, naphthalene toxicity), blood loss (gastrointestinal, traumatic, surgical, rodenticide intoxication), and ineffective erythropoiesis (idiopathic, red cell aplasia, ehrlichiosis, chronic renal failure). Adverse reactions were tabulated by frequency in treated dogs (n=52). The following adverse reactions may be related to Oxyglobin® and/or the underlying disease.

Table C: Frequency of Adverse Reactions in Oxyglobin® Treated Dogs

Adverse Reaction	% of Treated Dogs with Adverse Reaction (n=52)
Discoloration	
Mucous Membranes°	69
Sclera (yellow, red, brown)	56
Urine (orange, red, brown)	52
Skin (yellow)	12
Cardiovascular	
Increased CVP†	33
Ventricular Arrhythmia✓	15
Ecchymoses/ Petechiae	8
Bradycardia	6
Gastrointestinal	
Vomiting	35
Diarrhea	15
Anorexia	8
Respiratory	
Tachypnea	15
Dyspnea	14
Pulmonary Edema	12
Harsh Lung Sounds/Crackles	8
Pleural Effusion	6
Miscellaneous	
Fever	17
Death/ Euthanasia	15
Peripheral Edema	8
Hemoglobinuria*	6
Dehydration	6

° yellow, red, purple, brown
† measured in 17 dogs only
✓ AV block, tachycardia, ventricular premature contractions
* measured in 3 dogs only

Adverse reactions occurring in 4% of the dogs treated with Oxyglobin® included: coughing, disseminated intravascular coagulopathy, melena, nasal discharge/crusts (red), peritoneal effusion, respiratory arrest, and weight loss (5-7% body weight). Adverse reactions occurring in less than 2% of the dogs treated with Oxyglobin® included: abdominal discomfort on palpation, acidosis, cardiac arrest, cardiovascular volume overload (by echocardiography), collapse, cystitis, dark stool, discolored soft stool (red-brown) and tongue (purple), focal hyperemic areas on gums, forelimb cellulitis/lameness, hematemesis or hemoptysis (unable to differentiate), hypernatremia, hypotension, hypoxemia, lack of neurologic responses, left forebrain signs, nystagmus, pancreatitis, pendulous abdomen, polyuria, pulmonary thromboembolism, ptosis, reddened pinnae with papules/head shaking, reduction in heart rate, thrombocytopenia (worsening), and venous thrombosis.

EFFECTIVENESS:
Dose Response Study: A controlled laboratory study was conducted in 30 healthy dogs with induced acute, severe normovolemic anemia (total hemoglobin concentration ≈ 3 g/dL). Oxyglobin®, administered once at a dose of 30 mL/kg, resulted in significantly ($p \leq 0.01$) increased arterial oxygen content at 60 minutes and 24 hours following dosing compared with control dogs. A positive correlation was established between arterial oxygen content (laboratory measured) and plasma hemoglobin concentration (clinically measured).

Clinical Field Study: A well controlled clinical field trial involving 64 client-owned dogs (2 months to 15 years old) weighing 2.1 to 71.8 kg with moderate-severe anemia (total hemoglobin concentration 1.7-6.9 g/dL and PCV 6-23%) was conducted at six clinical sites. Dogs were either treated with Oxyglobin® (30 mL/kg) or untreated (with an option to receive Oxyglobin® if condition worsened). Relative to pretreatment, plasma hemoglobin concentration significantly increased ($p \leq 0.001$) and clinical signs associated with anemia (lethargy/depression, exercise intolerance, and increased heart rate) significantly improved ($p \leq 0.001$) in the Oxyglobin® treated group for at least 24 hours. Treatment success, defined as the lack of need for additional oxygen carrying support (i.e., a blood transfusion) for 24 hours, was 95% in the Oxyglobin® treated group compared with 32% in the control group.

The effectiveness of the lower end of the dose range is supported by controlled laboratory studies (See PHARMACOLOGY).

DOSAGE AND ADMINISTRATION: The recommended dosage of Oxyglobin® is a **one time** dose of 10 – 30 mL/kg body weight administered intravenously at a rate of up to 10 mL/kg/hr (See PRECAUTIONS). The choice of dose within the recommended range will vary with the patient and the clinical situation. Pharmacokinetic data show that there is an increase in the duration of action with increasing dose. (See PHARMACOLOGY).

For recommendations on patient monitoring during and immediately following Oxyglobin® administration and discussion of conditions which may warrant adjustment in the administration rate see Precautions section. If desired, Oxyglobin® may be warmed to 37° C prior to administration.

Remove overwrap prior to use and use within 24 hours. Oxyglobin® should be administered using aseptic technique via a standard intravenous infusion set and catheter through a central or peripheral vein at a rate of 10 mL/kg/hr. Do not administer with other fluids or drugs via the same infusion set. Do not add medications or other solutions to the bag. Do not combine the contents of more than one bag.

Use of Oxyglobin® does not require cross-matching with recipient blood. A blood transfusion is not contraindicated in dogs which receive Oxyglobin® nor is Oxyglobin® contraindicated in dogs which have previously received a blood transfusion. Oxyglobin® is intended for single dose use. Any unused Oxyglobin® should be disposed of in accordance with local requirements for handling veterinary medical waste.

STORAGE CONDITIONS: *Store at room temperature or refrigerated (2-30° C). DO NOT FREEZE. Oxyglobin® remains stable for up to 36 months; the expiry date is printed on the bag.*

HOW SUPPLIED: Oxyglobin® is available as follows:

NDC 63075-301-01
125 mL single dose bags

NOT FOR HUMAN USE

Oxyglobin® Solution
Biopure Corporation
11 Hurley Street
Cambridge, MA 02141

NADA # 141-067, Approved by FDA
Revision Apr 00

Biopure Part Number 49-0060

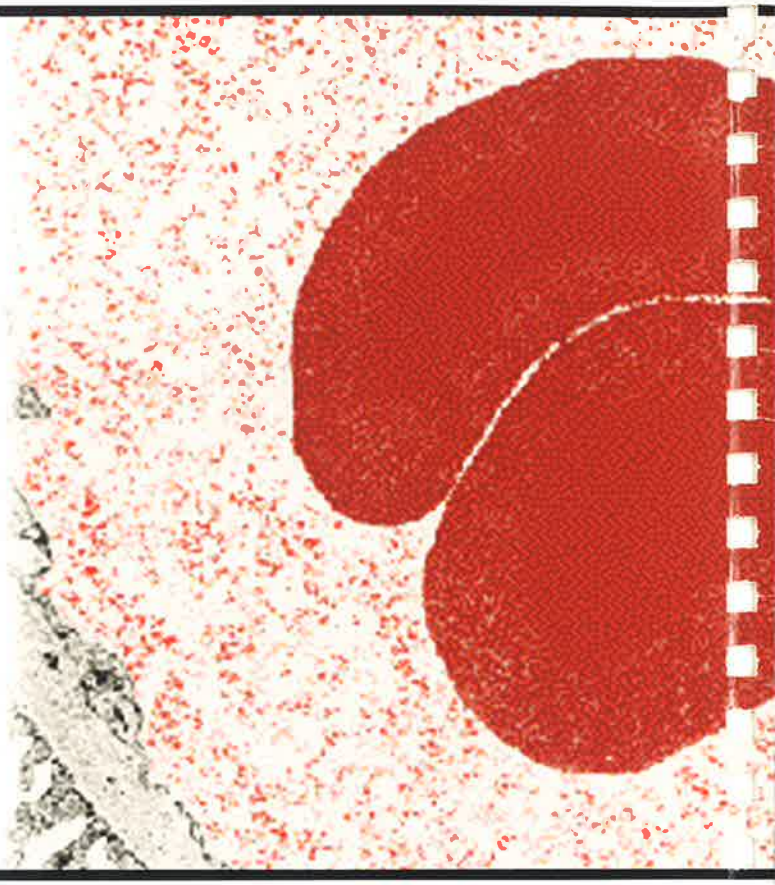
No typing or crossmatching

No transfusion reaction

Room temperature storage

3 year shelf life

Travels in plasma



OXYGLO_2BIN®
hemoglobin glutamer-200 (bovine)

The Oxygen Carrying Fluid™

For The Treatment of Anemia In Dogs

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