SYD – Lesley Survela

The final presentation on this series on Victorian Management Wastage now ratchets down to an actual hands on level and it's my great privilege to welcome Dr Lesley Survela. Lesley is the Director of Transfusion Medicine Services and Acting Director of Laboratory Haematology at Westmead Hospital and provides consultative and supervisory support to the Associate Network Libraries of Pathology West in regional and remote New South Wales. She is heavily involved in the education mentoring, nursing, medical and laboratory staff and improving and supporting transfusion services across this network. Her major areas of interest in transfusion medicine are appropriate transfusion, patient blood management, massive haemorrhage and quality aspects of transfusion. She's been the clinical lead for her area health service for New South Wales Blood Transfusion Improvement Collaborative and for the current Blood Watch program. She serves on the newly formed blood and blood product wastage committee with the New South Wales department of health and as the New South Wales representative on the Nation Transfusion Committee. Lesley Thank you very much and please welcome her.

Thank you very much and thank you for asking me to speak. I've been asked to talk today about what we do at Westmead Hospital as a case study. Hopefully I don't have a disaster with the remote.

So one of the things we've been involved in over the last few years in New South Wales is looking at appropriate transfusion and one of the drivers for that is that donor population is shrinking, we're transfusing more and more patients and it's imperative that we use blood appropriately and everything that applies to that conversation also applies to wastage. We can't afford to waste blood. This was brought home to me when I was actually a registrar at the Red Cross and I saw donors giving up an hour and a half of their time frequently unpaid and then sitting at the Red Cross to donate blood and they do this for very altruistic reasons and I think it really is imperative that we use that blood with respect and use as much as we can and we don't waste it. So we have an ethical responsibility as users.

Basically Amanda gave me this slide some years ago and it applies just as much to wastage again basically our supply is diminishing demand is increasing and we need to make the most of what is donated by our donor population, so it's both an economic as you've seen from some of the slides that have been presented as well as an ethical challenge. We need to exercise stewardship which is an important role we have as transfusion clinical professionals. A certain proportion of wastage is unavoidable as we've heard but what we want to address is the avoidable wastage. You've seen this slide before, I did a back of the envelope calculation and came up with the same sort of figures you showed earlier Peter that platelets is about 16-17% wastage, red cells about 4% and FFPs about 8% was it.

But you can see there's 63,000 units total being wasted annually at a significant cost and a significant cost to our donors as well. You've heard today about the national strategy and the Red Cross, have you heard about the Red Cross supplier strain strategy. I believe there are some supplier side issues that are

occurring as well. At the local hospital this is largely being driven by both our commitment to good inventory management and with compliance to the new Standard 7 that's become available which requires us to have systems to monitor wastage of blood and blood products.

I had a think about what this would involve and that's a summary slide about all the things that I think are part of avoiding and reducing wastage and it involves having appropriate transfusion policies having an ideal, appropriate inventory that minimises the opportunity for waste, having good transfusion practice that respects and takes stewardship of the blood product, managing your inventory carefully to minimise waste, looking after your refrigerators and making sure you have a backup plan for when things fail as they inevitably do in laboratories. Managing your temperature control during transport and feeding back to your clinicians about wastage and reasons for wastage at your transfusion committee. So I'll just go through those.

So I think having appropriate transfusion polices is really where we should start with this conversation. The amount of blood that you hold in your laboratory will depend on the policies that you actually have and that will drive whether you use your inventory appropriately or not. We need to have these conversations with our clinical colleagues to make sure that we're on the same page with when we're going to transfuse and how much whether we're going to give two units or one and how that blood is actually going to be delivered to the ward and that relates again to the inventory that's going to be held.

The next issue that we look at at Westmead is the appropriate inventory. So it's obvious that if you overstock your inventory you're going to increase your risk of expiry. A good practice point to do is to have a look and see what blood you've got in your refrigerator and see what you're holding on to for a long time, what are you using and what are you not using. Have a look at your historical usage and then work out where your ideal inventory should be. You need to consider, obviously this is much easier if you're in the city. If you're in the country or in a remote location you need to base it on your historical usage and local factors such as the distance from re-supply in the event of an emergency and how patients are going to be retrieved and removed from that service to a place where they can be given blood products.

For instance helicopters and how long that's going to take. All of that comes into your consideration of how much blood you're going to hold locally. But even though you may be geographically isolated there may be other laboratories that you can form partnerships with as has occurred in Tasmania to buffer the supply before you need to re-order from the Red Cross and that'll reduce, if you can actually create some kind of agreement locally with geographically laboratories in your area it'll reduce how much you need to hold locally. And we do that at Westmead with our metropolitan hospitals because we're an hour to an hour and a half, depending on the traffic away from the red cross on a Friday night at 5.30pm. We actually will, if we have a bleeding patient and it's not infrequent at that time of the day and time of the week we will actually restock from our surrounding laboratories, we'll pull those supplies in and resupply ourselves before we can actually get the blood from the Red Cross and that reduces the amount inventory that we have to hold.

Okay, platelets, in terms of managing your inventory, with platelets which are one

of the products which have the higher expiry because of their short survival we have avoided holding platelets just in case, we only hold platelets for patients for whom platelets have been ordered. We do marrow transplants and we have a significant number of those patients being transfused with platelets every day, usually there are about two or three units of platelets available in the laboratory and if we have a bleeding patient come in who requires platelets then we'll switch the platelets from the prophylactic use from one of those bone marrow transplant patients and we'll give them to the bleeding patients and then restock for the bone marrow transplant patient. So we've taken that opportunity there to avoid holding stock which is going to expire.

Red Cells. We actually really push the Red Cross and they don't always love it for us but we really like to hold red blood cells that are as fresh as possible because that actually allows us to do the stock rotation and also reduces the possibility of expiry.

Albumin is another product, we took the Safe study that actually showed that albumin was safe to use or as safe as Crystalloid in resuscitation of patients to mean that we could actually eliminate 4% Albumin we've negotiated this with our intensive care unit, if they need Albumin they'll use 20% and dilute it as an infusion and it's eliminated basically all of the casual use around the hospital that was really unnecessary and unindicated. So as a result of that we don't have Albumin sitting on various stock shelves in various wards expiring unbeknownst to us.

Transfusion Practice. So one of the major causes of waste is holding blood in case it is required or in anticipation of need for instance your theatre might actually ring you and say "I've got a patient who's going to have an aortic valve replacement and I want three units available in theatre just in case" We've negotiated with our theatre to say we can have blood available to you as long as we have a current group and screen within minutes of you ordering it, if you give us a telephone order for the blood we'll have it up to you in a few minutes. It will be just as quick as if you had it in your fridge. And that has actually reduced the likelihood of blood being held in the fridge in theatre being forgotten about and not used and expiring.

It does still happen but it's much less likely. We also issue single units. So this is where patients are not actively bleeding, so where patients are not actively bleeding we'll actually issue single units at a time. We have a single unit policy and we'll only issue it when the ward is ready to transfuse so we have to be assured that the line is in, the blood has actually been signed for, it's been written up and they are ready to go when that blood hits the ward so that we don't have blood sitting on the ward for more than 30 minutes and expiring. And then for the second unit we'll ask them to reassess the patient, see if it's still required and we'll issue it again when they're ready.

Again having a clinically appropriate transfusion practice reduces the volume of transfusion occurring at site, on your site and reduces the risk therefore of having more blood on site than is actually needed and of inventory expiring. All of our transfusion must meet the current guidelines for transfusion and the guidelines that are actually out there are written into our transfusion laboratory policy so the the scientists are well aware of what the current policies are for transfusion and they will screen for appropriate use, they'll ask the haemoglobin, they'll ask

whether the patient is bleeding if that patient doesn't meet appropriate guidelines they'll be referred, the doctor requesting the blood will be referred to the haematology registrar for review and discussion and hopefully by this means we'll actually make sure transfusion is happening in appropriate fashion and it reduces the risk of wastage because we've all seen doctors who think they need blood, have got in a bit of a panic, have ordered it, it wasn't appropriate and they haven't used it and it's been wasted.

Similarly, all clotting factors, platelets, cryoprecipitate must be approved again by the haematology registrar and all Albumin use because we've got this new agreement with our ICU must be approved by the intensive care consultant.

Again, I think you've had some discussion on rotation of stocks. We rotate stocks from areas of low use in smaller laboratories to high use services to ensure they are used before they expire and this is complicated by the fact that we have a large bone marrow transplant population and there blood is required to be irradiated so you do have to have fresher stock from the Red Cross in order to actually do this. Computerised cross match I think is very important if you're cross matching ahead of surgery you're basically tying up blood in inventory that may or may not be used and while it's sitting there in that cross match state it's basically ageing and not available for use and it's contributing to the aging of your total inventory. So computerised cross match is very important in reducing the risk of expiry it frees up the units and it also minimises the amount of inventory you have to hold as well.

We also have daily computerised review of cross matched blood immediately before returning to stock inventory when it's not used. And we have daily reports of expiring stock which can be used prior to expiry so in the way if somebody said the oldest units were being flagged, we're doing that too we're actually looking at stock that's about to expire and making sure that it gets used. We also generate daily reports on prophylactic platelet orders and their cancelation if they're no longer required so that we can make them available for other patients.

Offsite fridges have actually always been a dirty word at Westmead. There's only one of them and it's in theatre and we had our arm twisted behind our back. We actually have discouraged them as well we had a lot of pressure from our ED recently and we said to them "well you know you're going to have to comply with the blood standard with NATA and you realise as well that blood is actually going to, we're going to be holding double inventory if you're going to have blood sitting in that fridge and it's likely that your inventory won't be as fresh as the inventory we're going to have in the ward because you're not going to be using it as often and it's going to be inferior" and actually they did lose interest so I might suggest that to Peter. A little bit of persuasion.

Yeah, again, second fridges result in second inventory which ages it. Who knows what is happening with that inventory either it could be, blood could be going in and out of those fridges you have no idea, you have no idea whether the temperature control's been adequate and I think clinicians are increasingly aware of this and they're increasingly aware of the value of fresher red cells and they're turning away from some of these local aged inventory. That's all as long as there's, you know, obviously if there's direct control of the lab, you know, you're going to avoid some of those issues but if there isn't you're in tiger country.

Some of the newer things that we have looked at are monitoring the time out of fridges, so some services have available radio frequency ID labels which track units and allow you to say basically how long they've been out of stock and out of the fridge. There are also fridges available that actually barcode units in and out and which will tell you basically how long blood has been out of the fridge and since time out of the fridge is a major source of expiry this potentially could avoid a lot of wastage. We did a study, we've got 28 network laboratories and Westmead's the hub for those. We did a calculation that if we actually installed these systems we could save $1.7m a year in costs just by saving wastage and $500,000 of that was at Westmead. We don't have a very high wastage so if you look at the cost of blood at around $300 a time it does quickly add up into a business case and I'm hoping it's going to get up sometime.

Massive transfusion policies. Some labs hold thawed FFP for use in massive transfusion. We don't actually do that because we feel it's likely to increase the FFP expiry. If we get somebody who sounds coagulopathic who's just come in and is having a massive bleed we will often just thaw some Cryoprecipitate it's a much smaller volume, it's about 40ml I think it thaws quite quickly it doesn't take the 20 minutes to thaw that you actually have to wait for FFP and in the meantime we'll get, so we'll issue a couple of units of that while we actually get the fibrinogen levels. In the future I think we need to start to think about products like Fibrinogen concentrates to try and reduce FFP usage. I'm not a fan of holding FFP thawed.

So another issue with time out of fridge, sorry this should have been on the other page, is that the temperature needs to be maintained between two and six degrees. So we transport blood between laboratory services within an Esky which has been temperature validated to maintain the blood temperature for 72 hours and it's fitted with a temperature logger that can be read when opening so that we can ensure that the blood's been maintained at that temperature. I believe, I hope I'm not misquoting anyone but I believe the Red Cross is working on a blood bank label to monitor temperature out of the fridge which would be an absolute boon as well to the laboratory services. And I read a French study which actually used temperature monitor transport between the laboratory.

So first of all they did a study and they identified that a lot of their blood was being wasted in their emergency department and in their intensive care units and it was due to temperature expiry of products. So what they did is they invested in some Eskys which actually transported product at a stable temperature which could be monitored and then they read the temperature off in theatre before using that blood and returned it to those little transporters if they didn't use it. That actually reduced the wastage in theatre and ICU from 4% down to 1% over several years and that's again something we don't do that we could actually look at.

Refrigeration Failure. Now this isn't a problem in the city but it's a big problem if you have a little laboratory in Young or Walgett and your fridge suddenly dies and you only have one of them so we have an esky on site in all of these laboratories again it's the same esky we use for transporting bloods between services and once it's actually properly packed it's actually validated to maintain the temperature for 72 hours and we have an agreement with our maintenance companies that they will get out there within that time and make sure those fridges are actually working. If you have a nearby laboratory you can also shift

stock to a nearby laboratory fridge as well if it's an option.

The next thing you need to do is start talking to our clinicians so there needs to be feedback to clinicians on the sources of wastage at transfusion committee meetings so I do remember my head of the transfusion laboratory really having a go with the intensive care people over some product that she found sitting at the back of the fridge. So we really need to look at, if that's happening we need to audit their fridges and we need to develop strategies to ensure it doesn't actually occur again. One of our sources of wastage has been the issuing of blood during a massive transfusion policy which tends to occur very automatically and then the lab not being told that the bleeding had actually stopped and the policy had been stepped down with the lab continuing to issue FFP. So we've now changed that and we've got a clear policy as to when the MTP is stepped down.

And just some references and thank you very much.