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To: Blood Bank Directors, Supervisors and Personnel
From: Robert R. Rees, MHA, Manager, Blood Bank Program
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Clinical Laboratory Improvement Services (CLIS)
Public Health and Environmental Laboratories (PHEL)
Subject: 2015 Statistical Summary of Blood Use in New Jersey

The Department has compiled the information regarding blood and blood component collections, transfusions and other applicable blood related activities to prepare the "2015 Statistical Summary of Blood Use in New Jersey" report in order to provide the regulated community an overview of the blood collections and transfusions in New Jersey. The information was submitted by 6 Blood Centers (BC); 72 Hospitals; 24 Umbilical Cord Blood (UCB) and Hematopoietic Progenitor Cell (HPC) facilities; 2 Brokers; 19 Out of Hospital Transfusion (OOHT) facilities which includes 11 off-site and 8 on-site; 45 Dialysis facilities and 98 Perioperative Autologous Blood Collection/Administration (PABCA) facilities which includes 27 hospitals, 61 Ambulatory Surgery Centers (ASC) and 10 Licensed Contract Providers (LCP). CLIS hopes this information is helpful and welcomes any comments and suggestions you may have towards improving the value and usefulness of this report for future years.

New Jersey continues to have an annual blood collection deficit and must regularly import blood from other states to meet the transfusion needs of our citizens. Refer to Tables I, II and III and the summaries of each.

CLIS would like to thank the Blood Bank Task Force of New Jersey, the New Jersey Hospital Association, hospitals, blood drive sponsors and advocates, and public/private partnerships for their initiatives and dedication to promote routine blood donation.

Table I Blood Collections in New Jersey

As noted in Table I, the total blood collected in New Jersey has continually decreased since 2013.

BC were responsible for the collection of 233,319 units or 96%, while hospitals collected 10,104 units or 4% of the total blood collected in 2015. Autologous donations have decreased from 2,223 units in 2013 to 1,119 units in 2015 or 0.5% of the total blood collected while directed donations decreased from 1,579 units or 0.5% in 2013 to 709 units or 0.3% in 2015.

Three BC and the hospitals that collect blood reported a decrease of 5,263 units of blood collected and one BC closed effective December 2014 resulting in a net decrease of 35,233 units of blood collected in 2015 as compared to their 2014 total collections. Two BC reported an increase of 17,984 units of blood collected in 2015 as compared to their 2014 total collections. This resulted in a net decrease of 17,249 units of blood collected or 6.6% in 2015 as compared to the 2014 total collections.

Five BC and two hospitals that collect blood reported collecting 27,690 RBC units from double red cell apheresis donors in 2015, a decrease of 1,556 units or 5.3% when compared to 29,246 RBC units collected in 2014.

Table II Number of Red Blood Cell (RBC) and Whole Blood (WB) Units Collected vs. Number of RBC and WB Units Transfused

CLIS has been tracking and reporting the total blood collected and RBC/WB units transfused annually in New Jersey to determine statewide trends in the collection and transfusion of blood.

The total blood collected in New Jersey has failed to meet the transfusion needs of NJ citizens since 1996 with the exceptions of 2001 and 2008. It was observed that the total blood collected has decreased from 344,277 units in 2008 to 243,319 units in 2015 or by 29%.

CLIS observed that the total number of RBC/WB transfusions has decreased from 344,680 units in 2009 to 287,705 units in 2015 or by 17%.

The difference between the total number of WB and RBC units collected versus transfused from 2006 to 2015 is graphically illustrated in the Table II chart.

Table III Allogeneic Blood Collections

In 2015, the total allogeneic blood collected by American Red Cross Penn-Jersey Region (ARC), New Jersey Blood Services/NYBC (NJBS), the Community Blood Centers (CBC), and the hospital blood banks was 241,491 units and of that allogeneic blood collected, 17,980 units were discarded for the reasons noted in the summary of Table IV – Discard Totals.

ARC has consistently shown a significant deficit in the amount of allogeneic blood collected and available for transfusion when compared to the number of allogeneic units distributed in New Jersey. CLIS observed in 2015, the number of allogeneic units collected and available for distribution by ARC increased 6.5% or 5,591 units. ARC distributed 114,638 allogeneic units to New Jersey in 2015, an increase of 15.3% or 15,206 units. ARC experienced a deficit of 23,120 allogeneic units in 2015.

NJBS has consistently shown a significant surplus in the amount of blood collected and available for transfusion when compared to the number of allogeneic units distributed in New Jersey. In 2015, the number of allogeneic units collected and available for distribution by NJBS decreased 2.0% or 1,196 units. NJBS distributed 32,780 allogeneic units to New Jersey in 2015, an increase of 30.1% or 7,581 units. NJBS experienced a surplus of 24,456 allogeneic units in 2015.

The CBC have consistently shown a significant deficit in the amount of allogeneic blood collected and available for transfusion when compared to the number of allogeneic units distributed in New Jersey. In 2015, the number of allogeneic units collected and available for distribution by the CBC decreased 27.3% or 24,654 units. CBC distributed 122,231 allogeneic units to New Jersey in 2015, a decrease of 20.3% or 31,162 units. CBC experienced a deficit of 56,661 allogeneic units in 2015.

Thus, the total supply of allogeneic blood collected in and available for distribution to New Jersey hospitals was 223,511 units and the total allogeneic units distributed to the New Jersey hospitals for transfusion were 278,836.

The difference between the total available supply of allogeneic blood collected in New Jersey and allogeneic units distributed to New Jersey hospitals for transfusion from 2011 to 2015 is graphically illustrated in the Table III charts.

Table IV Discard Totals

In 2015, of the 243,319 units of blood collected by BC and hospitals, 18,079 units or 7.4% were discarded for reasons noted below. **NOTE:** *This discard total does not include the 4,192 units discarded by hospitals that were distributed to them.*

Blood Centers

ARC, NJBS and the CBC reported discarding 17,593 units or 7.5% of their total blood collections in 2015 due to positive/reactive test results or other reasons as follow:

HBsAg – 49	Irregular Antibodies – 205
HBcAb – 786	Breakage/Contamination – 2,397
HCV – 148	Other – 6,943 (See below for details)
HIV – 157	• Incorrect volume (overweight, underweight, QNS)
HTLV I/II – 60	• DHQ incomplete; Missing test results
Syphilis – 172	• Product failures (bloody, lipemic, clotted); Chagas
Outdating – 6,507	• Temperature failures (storage, transport)
Donor Deferral - 169	• QA issues (SOP not followed, QC failures)

CLIS observed that the total number of units discarded by BC increased from 13,529 in 2014 to 17,593 in 2015. Specifically, the total number of units discarded by ARC, NJBS and CBC increased from 4.5%, 0.8% and 9.0%, respectively, in 2014 to 9.9%, 0.9% and 9.5%, respectively, in 2015.

Hospitals

In 2015, New Jersey hospitals reported discarding a total of 4,678 units (including 486 units collected by and 4,192 units distributed to them). Outdating accounted for 73.0% or 3,401 units that were discarded and of the outdated units, 82.0% or 2,781 were allogeneic units (including 140 collected by the hospitals) and 18.0% or 604 were autologous units (including 61 collected by the hospitals). The hospitals that collect blood reported discards of their collected units for the following reasons:

HBcAb – 48	Irregular Antibodies – 11
HCV – 10	Breakage/Contamination – 347
HIV – 11	Other – 837 (See below for details)
HTLV I/II – 4	• Out of refrigerator >30 min. (incl. pneumatic tube issues)
Syphilis – 7	• Wasted by floor (i.e. spiked and not used)
Chagas – 1	• Equipment and/or product failure (incl. filter issues)
Donor Deferral – 1	• Unacceptable preparation of RBC (incl. clotted and QNS)

CLIS observed that the total number of units collected and discarded by hospitals decreased 33 units or 6.4% in 2015 from 519 units in 2014 to 486 units. Also, it was observed that the total number of units discarded by hospitals (collected by and distributed to them) decreased 524 units or 10.1% from 5,202 units in 2014 to 4,678 units in 2015.

Table V Hemapheresis

Volunteer Apheresis

Volunteer apheresis collections increased 16,968 units or 35.2% in 2015 from 48,166 units in 2014 to 65,134 units as reported by four hospitals, five BC, and one Plasmapheresis Center. Refer to Table V for the total number of volunteer apheresis donors and units collected from 2013 to 2015.

Therapeutic Apheresis

Therapeutic apheresis procedures reported by hospitals and LCP increased 10.2% from 3,375 in 2014 to 4,728 in 2015. Refer to Table V for the total number of therapeutic apheresis procedures and patients from 2013 to 2015.

Table V A Perioperative Autologous Blood Collection and Administration

Thirteen hospitals and six LCP reported performing 12,251 Intraoperative Autologous Blood Collection and Administration procedures and sixteen hospitals and three LCP reported performing 3,054 Post-Operative Autologous Blood Collection and Administration procedures.

Three hospitals and three LCP reported performing 254 and 1,066 Acute Normovolemic Hemodilution (ANH) procedures, respectively.

Four hospitals and eight LCP reported collecting/processing/administering 282 and 384 Platelet Rich Plasma (PRP) products, respectively and thirty-eight ASC reported collecting/processing/administering 2,249 PRP products.

Refer to Table V A for the total number of different PABCA procedures performed from 2013 to 2015.

Table VI Salvaged Plasma

Refer to Table VI for the total number of units collected and the volume in liters of salvaged plasma that were distributed for further manufacture as reported by licensed brokers, BC and hospitals that collect blood from 2013 to 2015.

Table VII Transfusion Reactions Reported by Hospitals and OOHT Facilities

The hospitals and OOHT facilities reported transfusing 287,705 WB and RBC units and 131,770 units of other blood components in 2015. Of the 419,475 total transfusions, 1,350 recipients or 0.3% experienced suspected adverse reactions to the transfusions which included three acute hemolytic, eight delayed hemolytic, and sixty-three delayed serologic. Refer to Table VII for the different types of reactions that occurred.

All of the acute hemolytic transfusion reactions occurred within 24 hours of the completion of the transfusions and the recipient's exhibited new onset of signs and symptoms of suspected adverse reactions. These three reactions were due to the presence of the following antibodies: E, Fy_a, Fy_b and Le_a.

In all of the delayed hemolytic transfusion reactions, recipients exhibited a positive post-transfusion direct antiglobulin test (DAT) for antibodies developed between 24 hours and 28 days of the completion of the transfusions and a positive elution test with an alloantibody present on the transfused red blood cells or a newly-identified alloantibody in the recipient's serum.

In all of the delayed serologic transfusion reactions, there were no clinical signs of hemolysis and there was demonstration of new, clinically-significant alloantibodies by either a positive DAT and/or antibody screen. The blood banks detected and identified the following alloantibodies that caused the delayed hemolytic and/or serologic reactions: A1, C, c, D, E, e, f, M, S, Kell, Kell1, C_w, Fy_a, Jk_a, Jk_b, Le_a and Vel. Refer to Table VII for the different types of suspected adverse reactions reported from 2013 to 2015.

In the Non-Specific/Other transfusion reactions, the blood banks reported Anxiety, Back Pain, Chest Pain, Dyspnea, Hypotensive, Immune-related (i.e. Cytokines), Nausea/Vomiting, SOB, Tachycardia, and Symptoms not related to the transfusion (i.e. Underlying disease) / No evidence of an adverse reaction.

Table VII A Donor Reactions Reported by BC and a Plasmapheresis Center

The BC reported an increase in the number of adverse donor reactions from 3,950 in 2014 to 5,546 in 2015. **NOTE:** *In 2014, two of the licensed blood centers did not report figures for donor reactions contributing to the decrease in reactions when compared to the 2015 figures.* Refer to Table VII A for the specific reaction types and their percentages from 2013 to 2015.

Table VIII Breakdown by Site of Transfusion

Seventy-two hospitals transfused 279,284 RBC and WB units or 97.0% of the RBC and WB transfusions while eleven OOHT facilities (off-site) transfused 8,421 RBC units or 3.0% of the RBC transfusions in 2015.

Refer to Table VIII for the total number of WB and RBC transfusions reported by hospitals and OOHT facilities from 2013 to 2015.

Table IX Units Transfused in New Jersey

Refer to Table IX for the breakdown of the total number of WB, RBC and other blood component transfusions in the hospitals and OOHT facilities (off-site) from 2013 to 2015. The grand total of transfusions continues to decrease annually from 467,235 in 2013 to 419,475 in 2015.

Table X Hospital and Out of Hospital Use Categorized by Donor Type

Refer to Table X for the proportion of WB to RBC units transfused which remained relatively stable. In 2015, blood transfusions consisted of 99.9% RBCs and 0.1% WB. One hundred percent of the WB units were transfused to autologous recipients. For RBC transfusions, allogeneic accounted for 99.8%, directed accounted for 0.1% and autologous accounted for 0.1%.

Table XI Distribution of Blood to Transfusion Services by County

Please refer to Table XI for the distribution of WB and RBC units to New Jersey hospitals by county in 2015. The numbers are reported by the hospitals as compared to those reported by the CBC, ARC and NJBS.

Errors and Accidents

In 2015, the BC, Hospitals that collect blood and Transfusion Services reported 329 Error/Accident incidents to the Department compared to 423 incidents reported in 2014. Of the 329 incidents, 177 were classified as accidents and 152 as errors and of the 177 accidents, 171 or 97% were Post Donation Information (PDI).

Errors/Accidents reported by BC and Hospitals that collect blood were as follows:

- Travel to malarial endemic area; risk factors associated with CJD travel
- Male donor had sex with another male; female donor had sex with a male who had sex with another male
- Donor diagnosed with Babesiosis, Lymes Disease, Polycythemia Vera, Viral Meningitis or MRSA
- Donor history of hepatitis; HIV; melanoma; breast cancer; IV drug or steroid use; receipt of bone, dental or dura mater graft; receiving money for sex; and receiving a tattoo
- Donor took Plavix, Propecia, Proscar and/or Coumadin medications; donor received growth hormone of unknown origin; donor received vaccine (Tetanus, Influenza) and exhibited symptoms immediate post-donation
- Donor exhibited self-mutilation/cutting and/or presented as female with prior history of donations as a male
- Incomplete and/or incorrect donor history records and sample tubes; incorrect review of donor deferral and/or previous donation records (including for RBC/Plasma losses); improper donor health assessments; and improper arm preparations
- Subsequent testing confirmed positive for HCV, HBV, or HIV; confirmed positive HBsAg; repeat reactive and/or confirmed positive anti-HBc
- Distribution of RBC units that were hemolyzed and FFP units with clots or white matter
- Inappropriate distribution of products prior to completion of required testing (hematocrit/WBC of final product not verified), inadequate testing performed (Chagas) and/or incorrect test results; inadequate preparation of products; inadequate and/or incomplete product QC (WBC/hematocrit) and equipment QC (Hemocue, Cell-Dyne)
- RBC/SDP units improperly leukocyte reduced and/or irradiated and distributed to hospital consignees; RBC/SDP units leukocyte reduced and/or irradiated per SOP but relabeled incorrectly and distributed to hospital consignees
- RBC/FFP/SDP units distributed to hospital consignees at unacceptable temperatures (error in shipping) and/or post unacceptable storage temperatures due to failure of the blood/blood product storage device
- Distribution of RBC units with incorrect ABO/Rh and/or antigen testing results and SDP units that subsequently tested positive for bacteria
- Distribution of products mislabeled with incorrect volumes, WBN, blood types, unit attributes, expiration dates/times, autologous and/or directed donor information
- Failure to follow and/or inadequate SOPs (variety of reasons)

Errors reported by Transfusion Services were as follows:

- Technical errors in testing/interpretation of ABO, Rh, antibody screening, antibody identification, and/or antigen typing

- Performance of incorrect cross matches (IS only when AHG required, IS not performed during full cross match)
- Failure to follow and/or inadequate SOPs (Testing, QC, Preventive maintenance)
- Nurses failure to positively identify recipients resulting in the transfusion of incorrect blood/blood products; blood products transfused with incorrect solution
- Issued and transfused packed RBC and SDP units that were non-irradiated for an “irradiated” order; RBC units that were non-leukocyte reduced for a “leukocyte reduced” order; CMV positive units for a “CMV negative” order; and RBC units that were not antigen typed or incorrectly antigen typed for recipients with an antibody
- Issued and/or transfused SDP and FFP units when RBC were ordered and RBC units when SDP and FFP were ordered
- Issued and transfused FFP units that were expired
- Used mislabeled or expired samples for compatibility testing; expired reagents used in compatibility testing
- Inadequate or incomplete equipment QC
- Products issued and transfused but not released in Blood Bank Computer System
- Released products with incorrect and/or incomplete transfusion tags; after notification of a product recall and prior to completion of required testing

Umbilical Cord Blood Collections

Twenty-two facilities are licensed by the Department to collect, process and/or store umbilical cord blood (UCB) from prospective mother’s in New Jersey. These licensed facilities include eighteen out-of-state facilities located in Arizona, California, Connecticut, Florida, Georgia, Indiana, Illinois, Kentucky, Massachusetts, Nevada, New York and Puerto Rico. These facilities reported collecting 4,919 UCB units; processing 3,824 UCB units; storing 3,709 UCB units and transplanting 16 UCB units in 2015.

Hematopoietic Progenitor Cell Collections

Eleven facilities are licensed by the Department to collect, process and/or store hematopoietic progenitor cells (HPC) from the citizens of New Jersey. Four licensed facilities reported performing 1,856 HPC collections in NJ hospitals, processing/storing 1,080 HPC units for future transplantation and transplanting 1,659 HPC units in 2015.

Other Hospital, OOH, Transfusion Only and ASC Information Reported to the Department

- Seventy-two hospitals reported a total bed capacity of 24,205 beds and seventy-one hospitals reported performing 556,351 surgical procedures in 2015.
- Fifty-six hospitals reported transfusing 292 patients with 1,094 least incompatible units in 2015.
- Ten OOHT facilities (off-site of the hospitals) reported transfusing 5,415 SDP, 237 FFP and 10 Cryoprecipitate components in 2015. **NOTE:** *These figures are included in the transfusions reported by the hospital blood banks providing the blood components to these facilities.*

- Forty-four licensed facilities (located within the hospitals) reported transfusing 6,428 RBC units, twenty-four SDP units, one random platelet unit and 1,002 FFP units during hemodialysis treatments and eight licensed Long Term Acute Care (LTAC) and/or Specialty Care facilities reported transfusing 2,168 RBC units, 134 SDP units and 100 FFP units in 2015. **NOTE:** *These figures are included in the transfusions reported by the blood banks in the hospitals where these facilities are located.*
- Forty-three hospitals and eight OOH (off-site) facilities reported performing 4,711 and 915 Therapeutic Phlebotomy Collections, respectively, in 2015.

NOTES:

- State of New Jersey Website: www.nj.gov
- Department of Health Website: www.nj.gov/health
- Clinical Laboratory Improvement Services Website: <http://www.nj.gov/health/phel/clinical-lab-imp-services>
- It is the **responsibility** of each licensed facility to ensure that blood collection facilities distributing blood and blood products to them and companies that *contract with them* to perform umbilical cord blood and/or hematopoietic progenitor cell collection, Perioperative Autologous Blood Collection/Administration procedures (inclusive of providers of Platelet Rich Plasma), therapeutic apheresis procedures, transfusion only procedures (inclusive of LTACH and/or Specialty Care facilities) and/or dialysis services (inclusive of transfusions performed during hemodialysis treatments) have a blood bank license to operate in New Jersey (*inclusive of companies located out of state*).
- For electronic submission of Error/Accident and Transfusion Reaction Reports, send to: dohbb@doh.nj.gov
- For questions about this report, please call Robert Rees at (609) 406-6826 or e-mail at Robert.Rees@doh.nj.gov.

TABLE I**BLOOD COLLECTIONS IN NEW JERSEY**

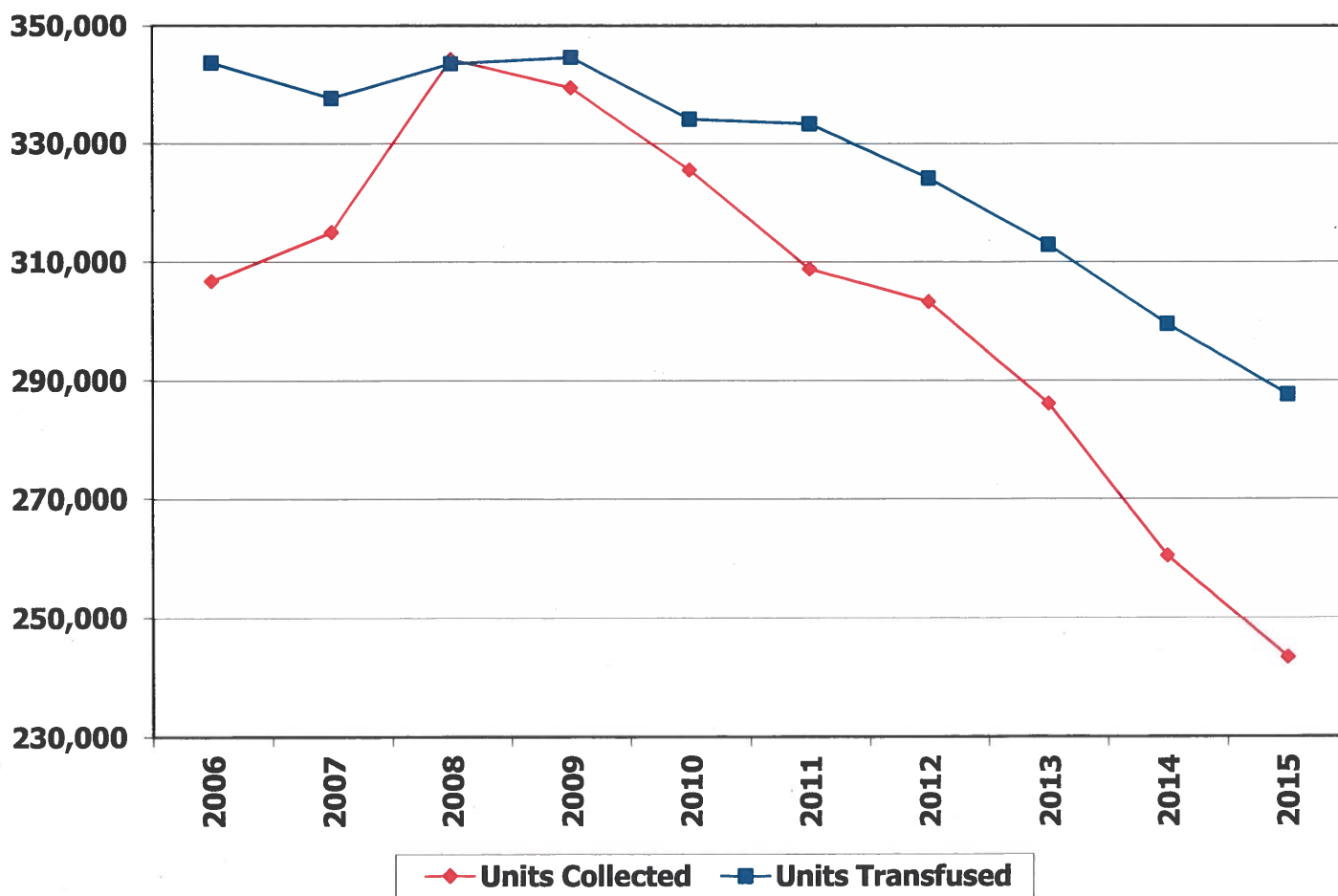
Number of Units Drawn	2013	%	2014	%	2015	%
Hospital Blood Banks						
All Donations	13,147	5%	11,023	4%	10,104	4%
Allogeneic	11,880	4%	10,064	4%	9,612	4%
Autologous	386	18%	411	30%	309	28%
Directed	881	56%	548	52%	183	26%
Community Blood Centers*						
All Donations	109,193	38%	99,994	38%	73,204	30%
Allogeneic	107,609	38%	99,190	38%	72,506	30%
Autologous	1,072	48%	499	36.4%	308	35%
Directed	512	32%	305	29%	300	42%
ARC Penn-Jersey Region						
All Donations	99,401	35%	90,511	35%	102,089	42%
Allogeneic	98,769	35%	90,000	35%	101,625	42%
Autologous	495	22%	348	25.4%	292	26%
Directed	137	9%	163	15%	172	24%
NJ Blood Services (NYBC)						
All Donations	64,385	22%	59,040	23%	57,922	24%
Allogeneic	64,066	23%	58,891	23%	57,748	24%
Autologous	270	12%	112	8.2%	120	11%
Directed	49	3%	37	4%	54	8%
Totals						
All Donations	286,126	100%	260,568	100%	243,319	100%
Allogeneic	282,324	99.0%	258,145	99.1%	241,491	99.2%
Autologous	2,223	0.5%	1,370	0.5%	1,119	0.5%
Directed	1,579	0.5%	1,053	0.4%	709	0.3%

* The aggregated numbers shown for Community Blood Centers represent the total number of collections as reported by Central Jersey Blood Center, Community Blood Council of New Jersey, Community Blood Services, and Miller-Keystone Blood Center.

NOTE: The Blood Center of New Jersey was removed due to closure of the facility in Dec. 2014

TABLE II
NUMBER OF WHOLE BLOOD (WB) and RED BLOOD CELL (RBC) UNITS COLLECTED
vs. NUMBER OF WB and RBC UNITS TRANSFUSED

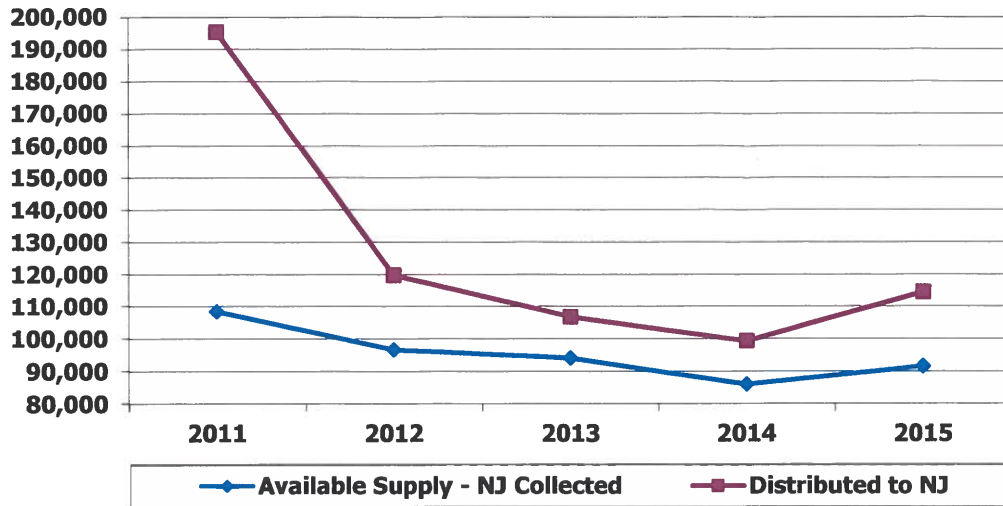
Year	Units Collected	Units Transfused
2006	306,663	343,721
2007	314,922	337,731
2008	344,277	343,607
2009	339,512	344,680
2010	325,567	334,236
2011	308,842	333,433
2012	303,291	324,166
2013	286,126	312,893
2014	260,568	299,586
2015	243,319	287,705



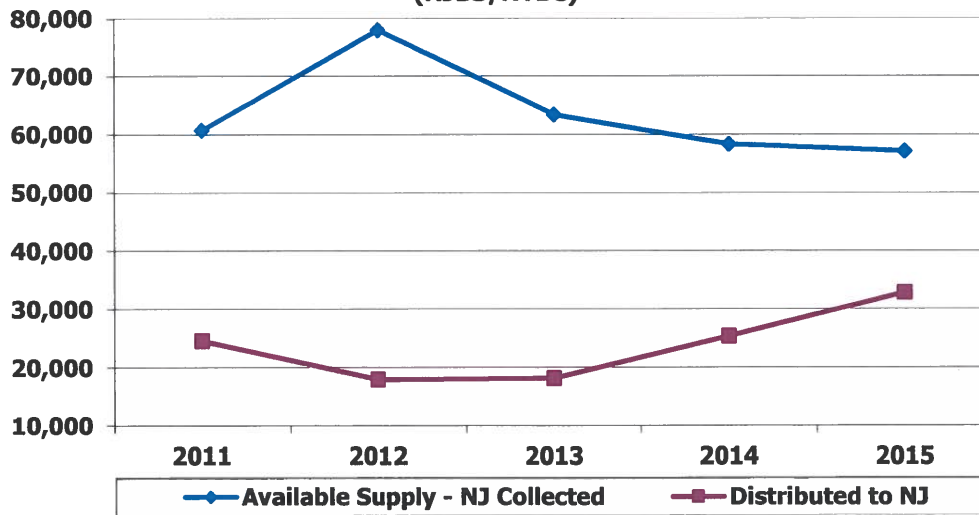
**TABLE III
ALLOGENEIC BLOOD COLLECTIONS**

	Year	Collected Units	Discarded Units	Available Supply – NJ Collected Units	Distributed to NJ	Surplus/ Deficit
American Red Cross Penn-Jersey Region	2011	112,689	4,120	108,569	195,108	-86,539
	2012	100,249	3,594	96,655	119,862	-23,207
	2013	98,769	4,672	94,097	106,913	-12,816
	2014	90,000	4,073	85,927	99,432	-13,505
	2015	101,625	10,107	91,518	114,638	-23,120
New Jersey Blood Services/ NYBC	2011	61,812	996	60,816	24,414	36,402
	2012	79,083	1,064	78,019	17,772	60,247
	2013	64,066	564	63,502	18,002	45,500
	2014	58,891	459	58,432	25,199	33,233
	2015	57,748	512	57,236	32,780	24,456
Community Blood Centers	2011	114,796	7,908	106,888	168,490	-61,602
	2012	105,701	7,573	98,128	166,565	-68,437
	2013	107,609	6,166	101,443	156,385	-54,942
	2014	99,190	8,966	90,224	153,393	-63,169
	2015	72,506	6,936	65,570	122,231	-56,661
Hospital Blood Banks	2011	12,850	580	12,270	12,270	0
	2012	12,949	332	12,617	12,617	0
	2013	11,880	511	11,369	11,369	0
	2014	10,064	358	9,706	9,706	0
	2015	9,612	425	9,187	9,187	0

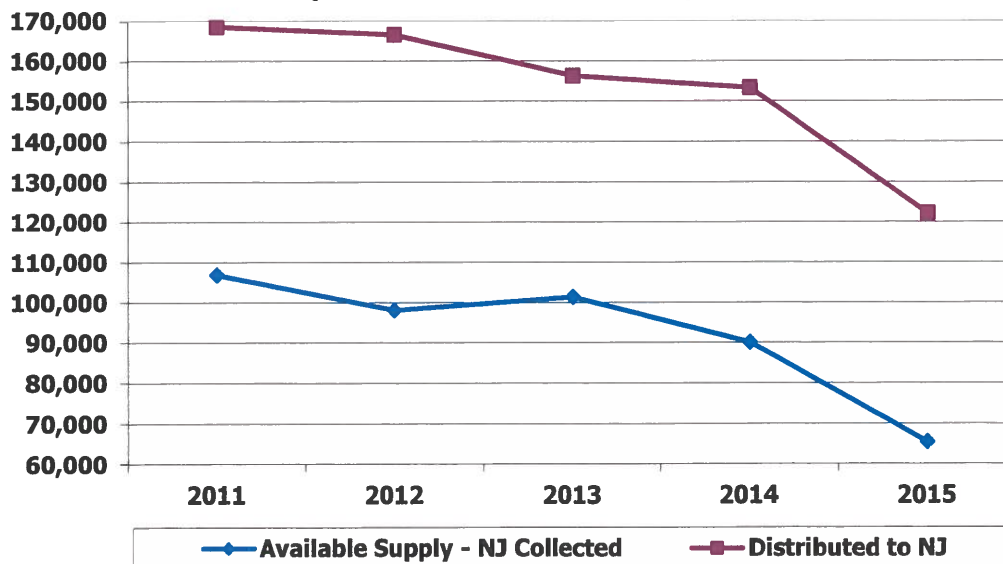
**ALLOGENEIC BLOOD COLLECTIONS
(ARC PENN-JERSEY)**



**ALLOGENEIC BLOOD COLLECTIONS
(NJBS/NYBC)**



**ALLOGENEIC BLOOD COLLECTIONS
(COMMUNITY BLOOD CENTERS)**



**TABLE IV
NUMBER OF DONOR UNITS DISCARDED:**

	Allogeneic		Autologous		Directed		All Types	%
AMERICAN RED CROSS PENN-JERSEY REGION								
2011	4,120		0		0		4,120	3.6%
2012	3,594		2		3		3,599	3.6%
2013	4,672		0		0		4,672	4.7%
2014	4,073		0		0		4,073	4.5%
2015	10,107		0		0		10,107	9.9%
NEW JERSEY BLOOD SERVICES/NYBC								
2011	996		0		0		996	1.6%
2012	1,064		0		0		1,064	1.3%
2013	564		0		0		564	0.9%
2014	459		0		0		459	0.8%
2015	512		0		0		512	0.9%
COMMUNITY BLOOD CENTERS								
2011	7,908		119		135		8,162	6.9%
2012	7,573		59		90		7,722	7.2%
2013	6,166		18		30		6,214	5.7%
2014	8,966		20		11		8,997	9.0%
2015	6,936		22		16		6,974	9.5%
ALL HOSPITALS (Units collected in-house and received from contract suppliers)								
2011	3,137		1,875		108		5,120	
2012	3,502		1,784		103		5,389	
2013	3,791		1,122		22		4,935	
2014	4,388		761		53		5,202	
2015	4,041		607		30		4,678	
GRAND TOTALS							All Types	
2011							18,398	6.0%
2012							17,774	5.9%
2013							16,385	5.7%
2014							18,731	7.2%
2015							22,271	9.2%

**TABLE V
HEMAPHERESIS**

VOLUNTEER APHERESIS (Blood Centers, Hospitals and 1 Plasmapheresis Center)						
Procedures Performed	2013		2014		2015	
	Donors	Units	Donors	Units	Donors	Units
Plasmapheresis	3,173	9,900	4,285	17,371	4,998	35,405
Leukapheresis	8	8	0	0	2	2
Plateletpheresis	13,476	36,387	11,676	30,795	10,696	29,727
THERAPEUTIC APHERESIS (Hospitals and Licensed Contract Providers)						
Procedures Performed	Patients	Procedure	Patients	Procedures	Patients	Procedures
Therapeutic Plasmapheresis	298	2,866	388	3,093	604	3,906
Therapeutic Leukapheresis	12	27	14	28	23	38
Therapeutic Plateletpheresis	2	12	5	6	8	19
RBC Exchange	71	158	96	248	125	407
MNC/DLI	+	+	+	+	140	358

+ Data Not Available

**TABLE V A
PERIOPERATIVE AUTOLOGOUS BLOOD COLLECTION and ADMINISTRATION
(Hospitals, ASCs and Licensed Contract Providers)**

Procedures Performed	2013	2014	2015
Intraoperative	13,625	12,871	12,251
Postoperative	5,735	3,961	3,054
Acute Normovolemic Hemodilution	351	1,365	1,320
Platelet Rich Plasma (Hosp./LCP)	755	711	666
Platelet Rich Plasma (ASC)	1,840	2,342	2,249

**TABLE VI
SALVAGED PLASMA**

	2013		2014		2015	
	Units	Liters	Units	Liters	Units	Liters
Hospital Blood Banks	3,649	927	2,897	738	2,540	629
Community Blood Centers, ARC and NJBS/NYBC	208,511	42,036	206,770	44,787	175,511	37,424
Licensed NJ Brokers		108,999		104,096		34,802

Table represents the method used by blood banks to report these figures to the Department.

**TABLE VII
TRANSFUSION REACTIONS REPORTED BY HOSPITAL BLOOD BANKS**

Reaction Types:	2013	2014	2015
Acute Hemolytic	9*	4*	3*
Delayed Hemolytic	3	18*	8*
Delayed Serologic	93	71*	63*
Febrile	668	672	626
Allergic	614	515	410
Anaphylactic	2	1	3
Bacterial Contamination	1	1	0
Babesiosis (B. microti)	0	0	1
Malaria (P. Falciparum)	0	0	0
Suspected TRALI	3	3	2
Circulatory Overload	15	8	17
Non-Specific/Other	233	195	217*
Totals	1,641	1,488	1,350

* Please see the summary section for details of the Acute/Delayed Hemolytic, Delayed Serologic & Non-Specific/Other Reactions

**TABLE VII A
DONOR REACTIONS REPORTED BY BLOOD CENTERS and A PLASMAPHERESIS CENTER**

Reaction Types:	2013		2014		2015	
	#	%	#	%	#	%
Slight or Mild	4,172	1.5	3,551	1.4	5,196	2.0
Moderate	379	0.1	319	0.1	319	0.1
Severe	59	0.02	80	0.03	31	0.01
Total	4,610	1.7	3,950	1.5	5,546	2.1

**TABLE VIII
BREAKDOWN of WB and RBC TRANSFUSIONS BY SITE**

Number of Units Transfused	2013		2014		2015	
	Whole Blood	Red Cells	Whole Blood	Red Cells	Whole Blood	Red Cells
Hospitals	278	304,616	213	291,082	198	279,086
Out of Hospitals		7,999		8,291		8,421
Total Transfusions:		312,893		299,586		287,705

TABLE IX
UNITS of WB, RBC and OTHER BLOOD COMPONENTS TRANSFUSED IN NEW JERSEY
HOSPITALS AND OUT OF HOSPITAL TRANSFUSION FACILITIES

	2013		2014		2015	
	Transfused	Outdated	Transfused	Outdated	Transfused	Outdated
Whole Blood	278	+	213	+	198	+
* Packed Red Blood Cells	312,615	+	299,373	+	287,507	+
Washed Red Blood Cells	566	0.9%	558	2.0%	614	1.4%
Frozen Red Blood Cells	80	2.5%	60	7.7%	63	17.1%
RBCs Leukocytes Reduced	292,400	0.8%	299,013	1.0%	282,863	1.0%
<u>Sub Total</u>	312,893		299,586		287,705	
Fresh Frozen Plasma	84,347	2.6%	77,020	3.0%	67,176	3.6%
Plasma Frozen w/in 24 hours of Collection	1,853	5.1%	1,966	2.6%	708	4.3%
Platelet Concentrates	356	58.9%	334	57.5%	530	45.1%
Single Donor Platelets	50,535	6.1%	51,072	9.3%	49,329	5.9%
Cryoprecipitate	16,128	4.3%	14,199	6.8%	12,718	6.8%
Leukocytes	11	0%	3	0%	0	0%
Cryo-Poor Plasma	0	0%	0	0%	32	0%
Pre-pooled Cryoprecipitate	1,112	9.4%	1,061	1.9%	1,277	8.1%
Jumbo FFP	Not Reported		Not Reported		Not Reported	
<u>Sub Total</u>	154,342		145,655		131,770	
<u>Grand Totals</u>	467,235		445,241		419,475	
* The figure for Packed Red Blood Cells includes RBCs transfused as washed, frozen, and/or RBCs Leukocytes Reduced.						
Crossmatch/Transfusion						
Ratio	1.5		1.6		1.5	

+ Data Not Available

**TABLE X
2015 HOSPITAL AND OUT OF HOSPITAL USE CATEGORIZED BY DONOR TYPE**

County	Whole Blood (0.1% of Total Transfusions)				Red Blood Cells (99.9% of Total Transfusions)				County Sub Total				
	Allogeneic	%	Autologous	%	Directed	%	Allogeneic	%		Autologous	%	Directed	%
Atlantic & Cape May	0	0.0%	38	19.2%	0	0.0%	11,480	4.0%	0	0.0%	1	0.5%	11,519
Bergen	0	0.0%	0	0.0%	0	0.0%	32,934	11.5%	65	39.2%	74	37.9%	33,073
Burlington	0	0.0%	0	0.0%	0	0.0%	9,321	3.3%	0	0.0%	0	0.0%	9,321
Camden	0	0.0%	9	4.6%	0	0.0%	23,666	8.2%	22	13.3%	4	2.1%	23,701
Cumberland	0	0.0%	0	0.0%	0	0.0%	4,366	1.5%	0	0.0%	0	0.0%	4,366
Essex	0	0.0%	16	8.0%	0	0.0%	40,883	14.2%	4	2.4%	24	12.3%	40,927
Gloucester	0	0.0%	0	0.0%	0	0.0%	5,877	2.0%	0	0.0%	1	0.5%	5,878
Hudson	0	0.0%	4	2.0%	0	0.0%	14,576	5.1%	3	1.8%	0	0.0%	14,583
Hunterdon & Somerset	0	0.0%	0	0.0%	0	0.0%	6,205	2.2%	9	5.4%	6	3.1%	6,220
Mercer	0	0.0%	5	2.5%	0	0.0%	10,344	3.6%	2	1.2%	2	1.0%	10,353
Middlesex	0	0.0%	77	38.9%	0	0.0%	34,506	12.0%	17	10.2%	41	21.0%	34,641
Monmouth	0	0.0%	0	0.0%	0	0.0%	20,138	7.0%	22	13.3%	16	8.2%	20,176
Morris	0	0.0%	9	4.6%	0	0.0%	20,927	7.3%	2	1.2%	8	4.1%	20,946
Ocean	0	0.0%	9	4.6%	0	0.0%	17,761	6.2%	12	7.2%	0	0.0%	17,782
Passaic	0	0.0%	0	0.0%	0	0.0%	13,107	4.6%	4	2.4%	13	6.7%	13,124
Salem	0	0.0%	2	1.0%	0	0.0%	1,528	0.5%	1	0.6%	0	0.0%	1,531
Sussex	0	0.0%	2	1.0%	0	0.0%	2,513	0.9%	0	0.0%	0	0.0%	2,515
Union	0	0.0%	27	13.6%	0	0.0%	14,471	5.0%	0	0.0%	5	2.6%	14,503
Warren	0	0.0%	0	0.0%	0	0.0%	2,543	0.9%	3	1.8%	0	0.0%	2,546
Totals	0	0.0%	198	100%	0	0.0%	287,146	99.9%	166	0.1%	195	0.1%	287,705
% of Total Transfusions	0.0%		0.07%		0.0%		99.8%		0.06%		0.07%		100%

**TABLE XI
DISTRIBUTION OF BLOOD TO TRANSFUSION SERVICES BY COUNTY (as reported by the hospitals)**

County	Incoming Supply	Hospital Donors	%	American Red Cross Penn-Jersey Region	%	New Jersey Blood Services /NYBC	%	Community Blood Centers	%	Available Supply
Atlantic & Cape May										
2013	15,131	0	0%	9,979	66%	5,152	34%	0	0%	14,586
2014	13,425	0	0%	5,251	39%	8,174	61%	0	0%	13,438
2015	12,359	0	0%	5,050	41%	7,309	59%	0	0%	10,903
Bergen										
2013	35,820	1,946	5%	3,684	10%	2,744	8%	27,446	77%	35,699
2014	35,844	695	2%	3,234	9%	3,023	8%	28,892	81%	35,817
2015	33,735	0	0%	2,718	8%	3,006	9%	28,011	83%	19,845
Burlington										
2013	10,564	0	0%	10,208	97%	0	0%	356	3%	10,423
2014	10,522	0	0%	10,233	97%	0	0%	289	3%	10,220
2015	9,540	0	0%	9,216	97%	0	0%	324	3%	9,426
Camden										
2013	25,746	0	0%	24,909	97%	0	0%	837	3%	25,724
2014	23,113	0	0%	22,319	97%	0	0%	794	3%	23,194
2015	24,056	0	0%	23,853	99%	0	0%	203	1%	23,989
Cumberland										
2013	5,570	0	0%	4,291	77%	1,205	22%	74	1%	5,547
2014	4,916	0	0%	4,767	97%	0	0%	149	3%	4,926
2015	4,502	0	0%	4,502	100%	0	0%	0	0%	4,391

TABLE XI (Continued)
DISTRIBUTION OF BLOOD TO TRANSFUSION SERVICES BY COUNTY (as reported by the hospitals)

County	Incoming Supply	Hospital Donors	%	American Red Cross Penn-Jersey Region	%	New Jersey Blood Services /NYBC	%	Community Blood Centers	%	Available Supply
Essex										
2013	44,438	31	0%	29,921	67%	4,883	11%	9,603	22%	44,627
2014	43,817	30	0%	30,165	69%	4,967	11%	8,655	20%	43,893
2015	41,022	42	0%	31,124	76%	5,118	12%	4,738	12%	41,124
Gloucester										
2013	7,163	0	0%	7,163	100%	0	0%	0	0%	7,123
2014	7,041	0	0%	7,041	100%	0	0%	0	0%	7,000
2015	6,023	0	0%	6,023	100%	0	0%	0	0%	6,040
Hudson										
2013	15,021	0	0%	3,048	20%	1	0%	11,972	80%	14,756
2014	14,795	0	0%	2,497	17%	32	0%	12,266	83%	14,319
2015	15,725	0	0%	9,486	60%	0	0%	6,239	40%	15,372
Hunterdon & Somerset										
2013	6,505	4,357	67%	10	0%	525	8%	1,613	25%	6,486
2014	6,338	4,140	65%	2	0%	522	8%	1,674	27%	6,360
2015	6,209	3,744	60%	0	0%	697	11%	1,768	29%	6,200
Mercer										
2013	13,210	0	0%	6,292	48%	0	0%	6,918	52%	13,079
2014	11,939	0	0%	6,046	51%	221	2%	5,672	47%	11,790
2015	10,966	0	0%	8,239	75%	2,065	19%	662	6%	10,980

TABLE XI (Continued)
DISTRIBUTION OF BLOOD TO TRANSFUSION SERVICES BY COUNTY (as reported by the hospitals)

County	Incoming Supply	Hospital Donors	%	American Red Cross Penn-Jersey Region	%	New Jersey Blood Services /NYBC	%	Community Blood Centers	%	Available Supply
Middlesex										
2013	37,335	1,593	4%	5,533	15%	3,883	10%	26,326	71%	37,358
2014	36,976	1,786	5%	1,780	5%	7,813	21%	25,597	69%	37,332
2015	35,646	2,236	6%	5,757	16%	11,072	31%	16,581	47%	35,046
Monmouth										
2013	22,390	0	0%	3,452	15%	9	0%	18,929	85%	21,981
2014	20,177	0	0%	3,745	19%	2	0%	16,430	81%	20,031
2015	20,791	0	0%	3,568	17%	3	0%	17,220	83%	20,393
Morris										
2013	23,250	3,183	14%	6,693	29%	0	0%	13,374	57%	23,234
2014	23,130	3,212	14%	4,568	20%	45	0%	15,305	66%	22,664
2015	22,522	4,071	18%	4,415	20%	1,153	5%	12,883	57%	21,706
Ocean										
2013	18,808	0	0%	12,492	66%	0	0%	6,316	34%	18,699
2014	18,672	0	0%	12,159	65%	0	0%	6,513	35%	18,611
2015	17,983	0	0%	10,953	61%	0	0%	7,030	39%	17,919
Passaic										
2013	14,152	641	5%	0	0%	0	0%	13,511	95%	14,058
2014	13,129	0	0%	0	0%	64	0%	13,065	100%	13,116
2015	13,414	0	0%	2,354	18%	0	0%	11,060	82%	13,281

TABLE XI (Continued)
DISTRIBUTION OF BLOOD TO TRANSFUSION SERVICES BY COUNTY (as reported by the hospitals)

County	Incoming Supply	Hospital Donors	%	American Red Cross Penn-Jersey Region	%	New Jersey Blood Services /NYBC	%	Community Blood Centers	%	Available Supply
Salem										
2013	2,146	0	0%	1,885	88%	233	11%	28	1%	1,957
2014	2,094	0	0%	2,086	100%	0	0%	8	0%	1,963
2015	1,922	0	0%	1,918	100%	0	0%	4	0%	1,743
Sussex										
2013	2,479	0	0%	157	6%	0	0%	2,322	94%	2,351
2014	2,568	0	0%	22	1%	0	0%	2,546	99%	2,558
2015	2,582	0	0%	22	1%	0	0%	2,560	99%	2,523
Union										
2013	16,216	1,396	9%	0	0%	11	0%	14,809	91%	16,170
2014	15,602	1,160	7%	0	0%	16	0%	14,426	93%	15,554
2015	14,744	11	0%	0	0%	2,385	16%	12,348	84%	14,684
Warren										
2013	3,295	0	0%	0	0%	0	0%	3,295	100%	2,972
2014	3,394	0	0%	0	0%	0	0%	3,394	100%	2,929
2015	3,350	0	0%	0	0%	0	0%	3,350	100%	2,575
GRAND TOTAL:										
2013	319,239	13,147	4%	129,717	41%	18,646	6%	157,729	49%	316,830
2014	307,492	11,023	3%	115,915	38%	24,879	8%	155,675	51%	305,715
2015	297,091	10,104	3%	129,198	44%	32,808	11%	124,981	42%	278,140