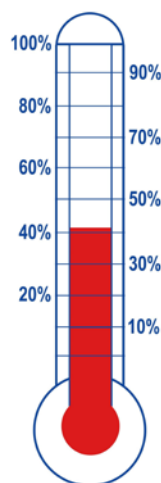


## Recruitment Update

As of December 27th, we have enrolled a total of 16,916 patients. Please see Figure 1 for a summary of the enrollment numbers by quarters and Tables 1 and 2 (page 3-6) for a more detailed enrollment summary.



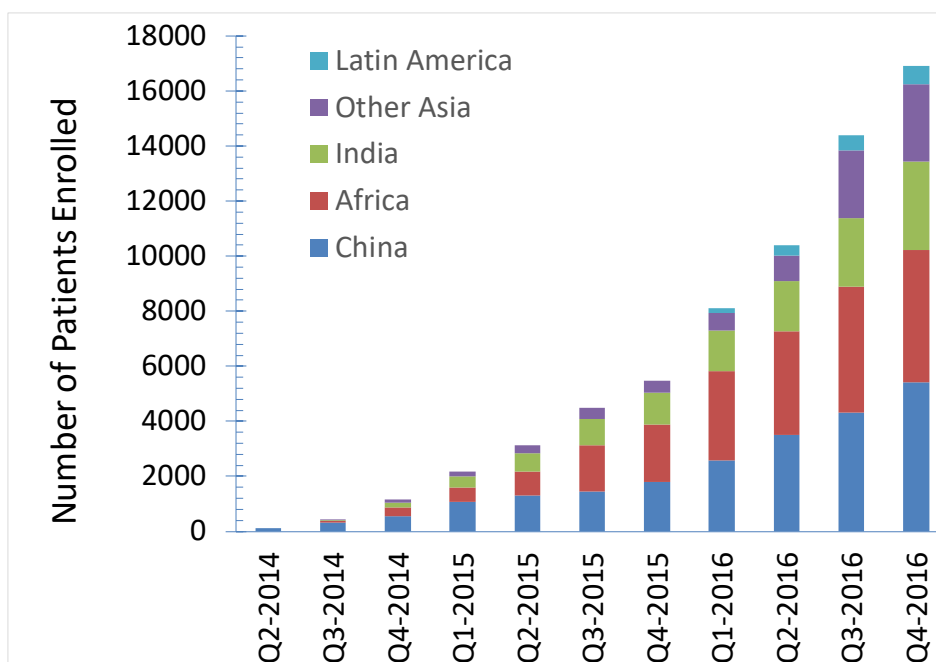
## Recruitment Target Update

We are at 42% of the total enrollment goal (16,916/40,000 patients enrolled).

## Clinical Site Update

Currently, 43 sites are recruiting (12 China, 11 India, 4 Kenya, 3 South Africa, 2 Tanzania, 1 Uganda, 1 Nigeria, 1 Botswana, 2 Vietnam, 2 Thailand, 1 Pakistan, 1 Nepal, 1 Mexico, and 1 Venezuela) in the INORMUS study. A further 37 sites are in the study start-up phase including sites in Uganda, Ghana, South Africa, Nigeria, Ethiopia, Zimbabwe, Bhutan, Philippines, Bangladesh, Thailand, Iran, Nepal, India, Mexico, Brazil, Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Peru, Bolivia, Paraguay, Uruguay, Argentina, and Haiti.

**Figure 1 - INORMUS Enrollment by Quarters**



## INORMUS Website

Please check out the INORMUS website! The website includes INORMUS documents, information on participating clinical sites, study newsletters, weekly enrollment update, and much more.

[www.INORMUS.ca](http://www.INORMUS.ca)



### **Top Enrolling Sites**

1. Beijing Chaoyang Hospital, China: **1,281** patients
2. Rift Valley General Hospital, Kenya: **1,053** patients
3. Kiambu District Hospital, Kenya: **1,012** patients
4. Cho Ray Hospital, Vietnam: **1,005** patients
5. Viet Duc Hospital, Vietnam: **1,005** patients

### **Congratulations to the following sites that started enrolling in 2016:**

- Second Bethune Hospital of Jilin University, China
- Tianjin Hospital, China
- Harbin Medical University Second Hospital, China
- Shanghai No.10 People's Hospital, China
- Xiamen University affiliated First Hospital, China
- Muhimbili Orthopaedic Institute (MOI), Tanzania
- KCMC – Kilimanjaro Christian Medical Centre, Tanzania
- AIC Kijabe Hospital, Kenya
- Princess Marina Hospital, Botswana
- AIIMS, India
- CMC Vellore, India
- CMC Ludhiana, India
- Indian Institute for Spinal Care, India
- IGMC & RI, India
- St. John's Medical College, India
- Cho Ray Hospital, Vietnam
- Viet Duc Hospital, Vietnam
- Ramathibodi Hospital, Thailand
- Khon Kaen Hospital, Thailand
- Civil Hospital of Guadalajara, Mexico
- University Hospital of Caracas, Venezuela

thank  
you!

**Table 1 – Enrolling Sites**

Site	2016				2015			
	Q4	Q3	Q2	Q1	Q4	Q3	Q2	Q1
<b>China</b>	<b>5404</b>	<b>4326</b>	<b>3518</b>	<b>2566</b>	<b>1789</b>	<b>1458</b>	<b>1301</b>	<b>1059</b>
Beijing Chaoyang Hospital - Dr. Junlin Zhou	1281	1261	1160	1007	860	750	655	550
Langfang People's Hospital - Dr. Junlin Zhou and Dr. Zhentao Zhang	592	589	559	484	471	459	410	357
Langfang Aidebao General Hospital - Dr. Junlin Zhou and Dr. Yinghua Ma	273	273	273	273	247	247	236	152
Second Bethune Hospital of Jilin University – Dr. Yanguo Qin	190	190	190	145	-	-	-	-
Tianjin Hospital – Dr. Xinlong Ma	981	553	337	112	-	-	-	-
Beijing Anzhen Hospital - Dr. Sanbao Hu	192	138	53	40	38	-	-	-
Harbin Medical University Second Hospital – Dr. Baochang Qi	467	142	111	26	8	1	-	-
Shenyang Orthopaedic Hospital - Dr. Bo Wu and Dr. Chunsheng Zhi	995	758	436	254	96	1	-	-
Hanzhong People's Hospital - Dr. Wenjie Dai	148	148	145	82	45	-	-	-
Shanghai No.10 People's Hospital – Dr. Xinyu Cai	7	4	4	-	-	-	-	-
Xiamen University affiliated First Hospital – Dr. Gang Rui	36	28	8	1	-	-	-	-
The 2nd Affiliated Hospital of Wenzhou Medical University - Dr. Hua Chen	242	242	242	142	24	-	-	-
<b>Africa</b>	<b>4811</b>	<b>4567</b>	<b>3745</b>	<b>3263</b>	<b>2082</b>	<b>1664</b>	<b>876</b>	<b>532</b>
Mulago Hospital, Uganda - Dr. Tony Mutanda	988	988	988	988	977	964	688	532
Rift Valley Provincial General Hospital - Dr. Lutomia Mark B Lumbasi	1053	995	525	426	233	35	15	-
Kenyatta National Hospital, Kenya - Dr. Fred Otsyeno	682	682	663	544	473	376	82	-
Muhimbili Orthopaedic Institute (MOI), Tanzania – Dr. Paul Marealle	94	94	94	50	-	-	-	-
Kiambu District Hospital, Kenya - Dr. Benjamin Ndeleva	1012	1012	818	711	53	12	-	-
KCMC – Kilimanjaro Christian Medical Centre, Tanzania – Dr. Rogers Temu	253	127	1	-	-	-	-	-
Chris Hani Baragwanath Hospital, South Africa - Dr. Greg Firth and Dr. Johan Moolman	522	462	462	378	237	202	59	-
Charlotte Maxeke Johannesburg Academic Hospital, South Africa - Dr. Greg Firth and Prof. Mmampapatla Ramokgopa	60	60	60	60	59	39	31	-

**Table 1 – Enrolling Sites, Continued**

	2016				2015			
	Q4	Q3	Q2	Q1	Q4	Q3	Q2	Q1
Helen Joseph Hospital, South Africa - Dr. Greg Firth and Ravi Bhaga	37	37	37	37	30	30	1	-
AIC Kijabe Hospital, Kenya – Dr. Geoffrey Chege Mwangi	13	13	-	-	-	-	-	-
Ondo State Trauma and Surgical Centre - Dr. Olufemi Temiloluwa	79	79	79	68	20	6	-	-
Princess Marina Hospital, Botswana – Dr. Panchu Subramanian	18	18	18	1	-	-	-	-
<b>India</b>	<b>3212</b>	<b>2483</b>	<b>1901</b>	<b>1466</b>	<b>1163</b>	<b>954</b>	<b>662</b>	<b>408</b>
Sancheti Institute of Orthopaedics - Dr. Parag Sancheti	700	700	681	656	656	551	341	228
Dr L H Hiranandani Hospital - Dr. Vijay Shetty	63	62	58	52	47	47	47	47
Noble Hospital - Dr. Sampat Dumbre Patil	533	490	435	363	316	276	212	133
Bharati Vidyapeeth University Medical College - Dr. Sanjay Patil & Dr. Gopal Agrawal	268	202	132	99	10	-	-	-
Datta Meghe Institute of Medical Sciences - Dr. Sandeep Shrivastava	380	278	212	135	134	80	62	0
AIIMS – Dr. Ravi Mittal	284	211	93	27	-	-	-	-
CMC Vellore – Dr. VM Cherian & Dr. Thilak Jepeganam	223	6	-	-	-	-	-	-
CMC Ludhiana – Prof Anupam Mahajan	69	1	-	-	-	-	-	-
Indian Institute for Spinal Care – Dr. HS Chhabra	38	26	7	-	-	-	-	-
IGMC & RI - Dr. N Rajgopalan	344	290	202	110	-	-	-	-
St. John's Medical College – Dr. Amaravathy	310	217	81	24	-	-	-	-
<b>Other Asia</b>	<b>2818</b>	<b>2476</b>	<b>949</b>	<b>653</b>	<b>442</b>	<b>407</b>	<b>291</b>	<b>182</b>
Northwest General Hospital & Research, Pakistan - Dr. Imran Bukhari	408	408	408	380	265	261	261	162
Lumbini Medical College, Nepal - Dr. Subin Byanjankar	207	207	163	163	163	146	30	20
Cho Ray Hospital, Vietnam – Dr. Nguyen Van Khoi & Dr. La Ngoc Quang	1005	990	2	-	-	-	-	-
Viet Duc Hospital, Vietnam – Dr. Nguyen Duc Chinh & Dr. La Ngoc Quang	1005	738	350	110	14	-	-	-
Ramathibodi Hospital, Thailand – Dr. Paphon Sangasoongsong	24	5	4	-	-	-	-	-

**Table 1 – Enrolling Sites, Continued**

	2016				2015			
	Q4	Q3	Q2	Q1	Q4	Q3	Q2	Q1
Khon Kaen Hospital, Thailand – Dr. Wanjak Pongsamkthai	169	128	22	-	-	-	-	-
<b>Latin America</b>	<b>671</b>	<b>544</b>	<b>380</b>	<b>146</b>	-	-	-	-
Civil Hospital of Guadalajara – Dr. Jose de Jesus Martinez Ruiz	623	544	380	146	-	-	-	-
University Hospital of Caracas – Dr. Igor A. Escalante	48	-	-	-	-	-	-	-
<b>Total</b>	<b>16916</b>	<b>14396</b>	<b>10494</b>	<b>8095</b>	<b>5477</b>	<b>4484</b>	<b>3131</b>	<b>2181</b>

\* Enrollment reporting in Table 1 are cumulative.

**Table 2 – Sites in Start-Up**

Site Name	Principal Investigator(s)	Location	Status
Fort Portal Regional Referral Hospital	Dr. Pariyo Bonane	Uganda	Pending ethics approval
KATH (Komfo Anokye Teaching Hospital)	Dr. Dominic Konadu-Yeboah	Ghana	Ready to enroll
Kole Bu	Dr. Michael Segbefia	Ghana	Site evaluation
Grays Hospital	Reitze Rodseth and Leonard Marais	South Africa	Pending ethics approval
National Orthopaedic Hospital Enugu	Gerald Oguzie	Nigeria	Received ethics approval
Federal Medical Center, Owerri	Gerald Oguzie	Nigeria	Received ethics approval
Black Lion Hospital	Dr. Samuel Hailu	Ethiopia	Pending ethics approval
Parirenyatwa Group of Hospitals	Dr. Valentine Mandizvidza	Zimbabwe	Site evaluation
JDW National Referral Hospital	Dr. Kuenzang Wangdi	Bhutan	Site evaluation
University of the Phil-Phil General Hospital	Dr. Irewin Tabu	Philippines	Ready to enroll
National Institute of Traumatology and Orthopaedic Rehabilitation (NITOR)	Dr. Arbus Sabur	Bangladesh	Site evaluation
Police Hospital	Dr. Vajarin Phiphobmongkol	Thailand	Contracts finalized
University of Tehran	Saam Morshed	Iran	Contracting
Nepal Medical College Teaching Hospital	Shrestha Praphulla	Nepal	Site evaluation
Post Graduate Institute of Medical Education and Research (PGIMER)	Dr. Mandeep Dhillon and Dr. Sarvdeep Dhatt	India	Ready to enroll

**Table 2 – Sites in Start-Up, Continued**

Site Name	Principal Investigator	Location	Status
Instituto Mexicano del Seguro Social, Guadalajara	Edgar Mercado	Mexico	Site evaluation
Instituto Mexicano del Seguro Social, Mexico City	Fryda Medina	Mexico	Site evaluation
Instituto Mexicano del Seguro Social, Monterrey	Gerardo Aguilar	Mexico	Site evaluation
Clinica Medica Sur	Jorge Rubio Avila	Mexico	Site evaluation
Hospital de Clínicas - UNICAMP	William Dias Belangero José Ricardo Lenzi Mariolani	Brazil	Site evaluation
Universidade Federal de São Paulo (Unifesp)	Fernando Baldy	Brazil	Site evaluation
Hospital das Clínicas da Faculdade de Medicina da USP	Marco Kawamura Demange	Brazil	Site evaluation
Hospital das Clínicas da Faculdade de Medicina de Ribeirão Preto da USP - HCFMRP	Mauricio Kfuri	Brazil	Site evaluation
Hospital das Clínicas, Ribeirão Preto School of Medicine, University of Sao Paulo	Fabricio Fogagnolo	Brazil	Site evaluation
Institute of Orthopedics and Traumatology - University of Sao Paulo	Kodi Kojima	Brazil	Site evaluation
University of Rio de Janeiro State, Vila Velha Hospital	Nelson Elias	Brazil	Site evaluation
Hospital Escuela Antonio Lenin Fonseca (public)	Dino Aguilar Martinez	Nicaragua	Site evaluation
Hospital San Juan de Dios	Fernando Contreras	Costa Rica	Site evaluation
Hospital Santo Tomás	Mario Garuz	Panama	Site evaluation
Hospital Universitario San Jorge	Jose Eduardo Quintero	Colombia	Site evaluation
Hospital de la Policia Guayaquil	Gavino Merchan	Ecuador	Site evaluation
Clinica Anglo Americana	Christian Lozano	Peru	Site evaluation
Clinica del sur	Sergio Antonio Iriarte Vincenti	Bolivia	Site evaluation
Instituto De Prevision Social, Servicio de Ortopedia Y Traumatologia	Julio Segoiva Altieri	Paraguay	Site evaluation
Asociación Española Primera de Socorros Mutuos	Antonio Barquet	Uruguay	Site evaluation
Hospital General de Agudos Juan A. Fernandez	Carlos Amanquez	Argentina	Site evaluation
Université d'Etat d'Haïti	Georges Beauvoir	Haiti	Site evaluation

## **A MESSAGE FROM DR. MOHIT BHANDARI, INORMUS OVERALL PI**



*Dear INORMUS Collaborators:*

*Thank you for being a part of the International Orthopaedic Multicenter Study in Fracture Care (INORMUS) study. This important initiative would not be possible without the tireless effort from the staff at each clinical site. INORMUS will certainly have a tremendous impact on fracture care worldwide and we hope all of the clinical sites will continue to contribute to its global success.*

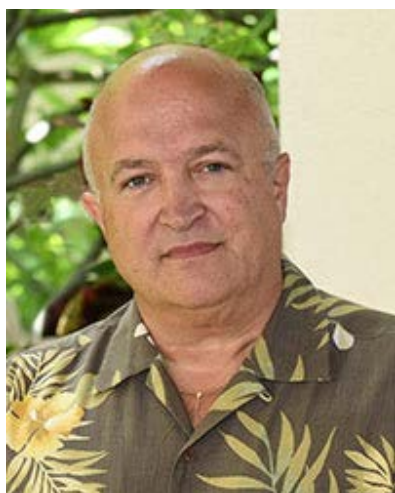
*We are pleased you have chosen to join us in INORMUS and look forward to a successful collaboration.*

*Sincerely,*

A handwritten signature in black ink, appearing to read "M Bhandari".

*Mohit Bhandari, MD, PhD, FRCSC  
Professor of Orthopaedic Surgery  
Division Head and Chair of Orthopaedic Surgery  
McMaster University, Canada*

## **A MESSAGE FROM DR. PAUL MOROZ, INORMUS AFRICA LEAD PI**



I am pleased to have this opportunity to report on the status of the INORMUS Study in Africa. We are nearing the halfway point of our current goal of 10,000 subjects from continental Africa, with nearly 5,000 subjects entered into the database as of December 2016. We still have some completion and follow-up data to collect on some of these first 5,000, but we are pleased with the efforts our centers in Africa are making.

We continue to recruit centers interested in contributing to the African INORMUS database. We are especially pleased at the inclusion of some African centers outside of East Africa, with new centers from Ghana in Western Africa joining INORMUS. We are also glad to have been able to overcome challenges and to welcome Zimbabwe as a partner. Africa has some of the highest rates of road- traffic trauma in the World and regions

here are quite deficient in orthopedic surgical services. It is not unusual for me to receive an email out of the blue from an African orthopedic surgeon who has heard of INORMUS through the grapevine and wonder if they can get involved.

Certainly the impact of some of INORMUS's pilot project data at the Lancet Commission over the last 18 months has helped surgeons to learn about the impact of big data research such as INORMUS. Our work continues to appeal to many in the orthopaedic community in Africa and worldwide because it is one of the few large studies looking at the details of orthopedic surgical fracture care. All orthopedic surgeons, but perhaps mostly those in the busy district hospitals, know of the huge burden of disease we face from orthopedic trauma, mostly on account of the road traffic crash pandemic. Our orthopedic colleagues require help in procuring the necessary equipment and implants required for the modern treatment of orthopedic trauma, and studies such as INORMUS help to give supportive data for this effort.

Recruitment of INORMUS subjects in Africa has not been without some glitches over the past one year. I wonder if this is a sign of the times? With the price of oil and commodities down in Africa many economies have suffered there and I wonder if this has had a ripple effect on medical research in low-resourced countries. Some centers have had trouble with data collection and processing and this certainly happens to research projects in high-resourced regions as well.

To address some of the problems experienced at INORMUS sites in Africa we thought we might benefit from some help with site visits, and were very pleased when Dr. Milton Mutto agreed to assist us. Milton is a PhD based in Uganda with training in epidemiology and survey science from the Karolinska Institute in Sweden. In June of 2016 Dr. Mutto traveled to a few of our African INORMUS centers that were having some problems with data collection, acquisition and processing. His expertise and recommendations were very valuable in assisting with these centers. Milton has done similar work for a number of NGOs and for the WHO in Africa and we are very grateful that high level scientific help is available in Africa for Africans. Thanks go to Drs. Olive Kobusingye and Rebecca Ivers for recommending Dr. Mutto for this task.



**Dr. Joel Mbutu**

I am heartened to end this year's message to the INORMUS Africa community on a sad note but I am compelled to. I am sad to report the death of a young, promising orthopedic surgeon who himself died in a road traffic crash along the Kitale-Eldoret route in Kenya on 18 July 2016. Dr. Joel Namunguba Mbutu, MD, FCS(ECSA) took his COSECSA (College of Surgeons of East, Central and Southern Africa) orthopedic exams and graduated in 2014 in Dar es Salaam, Tanzania, and since finishing he was an orthopedic surgeon working hard at the Kitale District Hospital in Kenya. I met Dr. Mbutu in Dar es Salaam in 2014 as I was an external examiner for COSECSA that year.

The COSECSA President Dr. Milliard Derbew of Ethiopia recently wrote: "It is a shocking news for all of us. A big loss to his family, his country and to Africa. He was fighting the odds of trauma and RTA. Unfortunately, he became the victim himself."

Our thoughts go to Dr. Mbutu's wife, two children, his friends and orthopedic colleagues. The entire INORMUS community joins COSECSA in wishing them strength.



## A MESSAGE FROM DR. REBECCA IVERS, INORMUS ASIA PI



Dear INORMUS Asian Collaborators:

Many thanks for joining in the study and for your excellent work in recruitment of patients. We now have sites running or in start-up phase across China, India, Nepal, Vietnam, Thailand and the Philippines and it is very exciting to see the volume of patients coming in. Large studies like INORMUS can only be successful due to collaboration with multiple clinicians and we thank you for your willingness to join the team. Best wishes for the holiday season, and we look forward to working with you in 2017.

## A MESSAGE FROM DR. TED MICLAU, INORMUS LATIN AMERICA LEAD PI



We are excited to continue to develop the INORMUS project in Latin America. In an effort to provide support to the new INORMUS centers, Drs. Bhandari and Miclau resubmitted a grant to the National Institutes of Health, where 10 clinical sites from 7 countries (Mexico, Brazil, Uruguay, Peru, Venezuela, Ecuador, and Bolivia) were included. The goal was to provide additional funding for the recruitment of INORMUS patients. Although the resubmission was returned with comments, the reviews were positive and the preparation has helped us bring more centers ready to recruit patients. In 2017, several additional new sites will begin to enroll patients, including several sites throughout Brazil. These new patients will also provide additional justification for the NIH grant resubmission. Congratulations to the new site PIs and we look forward to a productive 2017!

## Methods Centre Contacts

Please do not hesitate to contact your Methods Centre with any questions or concerns you may have.

McMaster Methods Centre (Global)	George Institute Research Center		
	Main	China Office	India Office
<b>Silvia Li</b> <a href="mailto:silviali@mcmaster.ca">silviali@mcmaster.ca</a> Tel: +1-289-237-4507	<b>Dr. Jagnoor Jagnoor</b> <a href="mailto:jjagnoor@georgeinstitute.org.au">jjagnoor@georgeinstitute.org.au</a> Tel: +61-4-50-161-295	<b>Jing Zhang</b> <a href="mailto:zjing@georgeinstitute.org.cn">zjing@georgeinstitute.org.cn</a> Tel: +86-13810454698	<b>Lalit Yadav</b> <a href="mailto:lyadav@georgeinstitute.org.in">lyadav@georgeinstitute.org.in</a> Tel: +91-8527-944733

*Thank You For Your Support!!!*