EPIDEMIOLOGY
OF INFLAMMATORY BOWEL DISEASE
IN RUSSIA

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Moscow
On behalf of Russian IBD study group
Prevalence and Incidence of IBD in the world

**Prevalence (per 100,000 of population)**
- UC: 21-268 cases
- CD: 9 – 199 cases

**Incidence (per 100,000 of population)**
- UC: 5-15 cases
- CD: 5-10 cases

Irvin E. et al. Scand J Gastroenterol. 2001
Langholz E. et al. Scand J Gastroenterol 1991
Common world trends of IBD epidemiology

Geographic trends

The north-south gradient of IBD prevalence and incidence with higher rates within North Europe and North America


Point of view

The north-south gradient in the near future will evened out and will changed to west-east direction- to East Europe, former Soviet Union, Far East and Asia
## Prevalence and incidence of IBD in different countries

(per 100 000 of population)

<table>
<thead>
<tr>
<th>Country</th>
<th>Ulcerative colitis</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>prevalence</td>
<td>incidence</td>
<td>prevalence</td>
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<tr>
<td>Sweden, Orebro 1992</td>
<td>234</td>
<td>11.1</td>
<td>146</td>
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<tr>
<td>Denmark, Copenhagen</td>
<td>161</td>
<td>9.8</td>
<td>54</td>
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<td>England, North Tees 1996</td>
<td>268</td>
<td>22.1</td>
<td>156</td>
</tr>
<tr>
<td>USA, Minnesota 2001</td>
<td>229</td>
<td>8.3</td>
<td>133</td>
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<tr>
<td>Canada, Manitoba 1999</td>
<td>170</td>
<td>14.3</td>
<td>199</td>
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<td>Italy, 1976,1996</td>
<td>13.8</td>
<td>1.9</td>
<td>1.9</td>
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<tr>
<td>North Portugal, 1988</td>
<td>13.6</td>
<td>1.58</td>
<td>9.9</td>
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<tr>
<td>Japan, 1990</td>
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<td>5.9</td>
</tr>
</tbody>
</table>
Demographic trends

• Age of disease onset: the predominant peak of UC and CD incidence is associated with the age of 20-40 years
  Irvin E. et al. Scand J Gastroenterol. 2001

• Gender: incidence of CD in female higher than in male,
  female: male = 1.3.
  Loftus E. et al. Gastroenterology
Common world trends of IBD epidemiology

Socialeconomic trends

• UC and CD are more common in industrial high developed counties than in predominantly agricult or less developed countries

• The incidence of UC and CD is higher in urban in compare with rural inhabitants

Bernstein C. et al. Gastroenterology
Loftus E. et al. Gut 2000
Ekbo A. Gastroenterology 1991
Common world trends of IBD epidemiology

Temporal trends
The different trends in incidence of CD and UC were observed over the last 40 years. Incidence dramatically increased in some countries (Danmark, Canada) or reached a plateau in the others.

- Bernstein C. et al. Gastroenterology 2001
- Ekbom A. Gastroenterology 1991
Population
Moscow region (excluded Moscow) 5 140 000
Krasnojarski region 2 960 000 (city 909 300, region 2 050 700)
Nizhni Novgorod region 3 500 000 (city 1 320 000, region 2 180 000)
Rostov-on-Don region 4 340 000 (city 1 060 100, region 2 688 000)
Novosibirsk 1 405 600
<table>
<thead>
<tr>
<th>Region</th>
<th>Authors</th>
<th>Years</th>
<th>Population</th>
<th>N of IBD patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moscow region (excluded Moscow)</td>
<td>Nikulina I. Belousova E. Zlatkina A.</td>
<td>1981-2005</td>
<td>5 140 000</td>
<td>UC 1453 CD 416</td>
</tr>
<tr>
<td>Krasnojarski region</td>
<td>Nikolaeva N Chechetkina I.</td>
<td>2000-2005</td>
<td>2 960 000</td>
<td>UC 292 CD 69</td>
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<tr>
<td>City of Novosibirsk</td>
<td>Svetlova I. Valujskich E. Kurilovitch S.</td>
<td>2003-2005</td>
<td>1 405 600</td>
<td>UC 308 CD 131</td>
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<td>Nizhni Novgorod region</td>
<td>Alexeeva O. Krishtopenko C.</td>
<td>2005</td>
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<td>UC 410 CD 121</td>
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<td>Rostov-na Donu region</td>
<td>Tkachev A. Kosenko V.</td>
<td>2004-2005</td>
<td>4 340 000</td>
<td>UC 578 CD 145</td>
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<tr>
<td></td>
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<td>UC 3041 CD 932</td>
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</table>
STUDIED EPIDEMIOLOGIC PARAMETERS

- **Prevalence** – number of IBD cases per 100000 of inhabitants at the determined territory at the given point of time
- **Incidence** - number of IBD cases per 100000 of inhabitants at the determined territory per 1 year
- **Mortality** - number of lethal IBD cases per 100000 of inhabitants per 1 year
- **Female: male ratio**
- **Urban: rural ratio**
- **Age of disease onset**
- **Frequency of complications and surgery**
Prevalence of UC in different regions of Russia

( per 100,000 of population)
Prevalence of CD in different regions of Russia

( per 100 000 of population)
Female: male ratio in IBD in different regions of Russia

- Moscow reg.
- Rostov
- Novosibirsk
- Krasnojarsk

<table>
<thead>
<tr>
<th>Region</th>
<th>UC</th>
<th>CD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moscow reg.</td>
<td>1.0</td>
<td>1.7</td>
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<tr>
<td>Rostov</td>
<td>0.8</td>
<td>1.3</td>
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<tr>
<td>Novosibirsk</td>
<td>1.0</td>
<td>1.3</td>
</tr>
<tr>
<td>Krasnojarsk</td>
<td>1.4</td>
<td>1.3</td>
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</tbody>
</table>
AGE OF DISEASE ONSET IN UC AND CD
Prevalence of UC and urban:rural ratio in different reg.

- **U:R = 1.1:1**
  - Moscow reg.: 28.3, 30.2, 26.6
  - U:R ratio = 1.1:1

- **U:R = 5.9:1**
  - Moscow reg.: 13.3, 19.5
  - U:R ratio = 5.9:1

- **U:R = 1.9:1**
  - Moscow reg.: 14.6, 16.2
  - U:R ratio = 1.9:1

Legend:
- **common**
- **urban**
- **rural**
Prevalence of CD and urban:rural ratio in different regions:

- Moscow reg.
  - U:R = 1.1:1
  - Common: 8.1
  - Rural: 6.8

- Rostov
  - U:R = 3.4:1
  - Common: 4.7
  - Rural: 1.4

- N.Novgorod
  - U:R = 5.1:1
  - Common: 4.3
  - Rural: 1.7
Prevalence of UC and CD in capitals of regions (per 100000 of population)

- Krasnojarsk: UC 27.3, CD 7.5
- Novosibirsk: UC 22, CD 9.0
- Rostov: UC 22.3, CD 8.5
- N.Novgorod: UC 8.7, CD 8.7
INCIDENCE OF UC IN DIFFERENT REGIONS OF RUSSIA
IN 2001-2005 (per 100 000 of population)
INCIDENCE OF CD IN DIFFERENT REGIONS OF RUSSIA IN 2001-2005 (per 100 000 of population)
Dynamic of IBD incidence in Moscow region in 1981-2005 (per 100000 of population)

UC:CD ~ 4

UC:CD ~ 6

UC:CD ~ 2.1

UC
CD

1981-1984
1985-1988
1989-1992
1993-1996
1997-2000
2001-2004
2005
<table>
<thead>
<tr>
<th>Region</th>
<th>Years</th>
<th>UC Prevalence</th>
<th>UC Incidence</th>
<th>CD Prevalence</th>
<th>CD Incidence</th>
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</thead>
<tbody>
<tr>
<td>Moscow region</td>
<td>28.3</td>
<td>1.6</td>
<td>8.1</td>
<td>0.7</td>
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<tr>
<td>Krasnojarski region</td>
<td>12.6</td>
<td>1.3</td>
<td>3.0</td>
<td>0.4</td>
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<td>Novosibirsk</td>
<td>22.0</td>
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<td>9.0</td>
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<tr>
<td>Rostov-na-Donu region</td>
<td>14.6</td>
<td>1.1</td>
<td>4.3</td>
<td>0.2</td>
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<td>Niznij Novgorod</td>
<td>13.3</td>
<td></td>
<td>3.4</td>
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<td>Portugal (Taravela)</td>
<td>1988</td>
<td>13.6</td>
<td>9.9</td>
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<td>Italy (Lanfranchi)</td>
<td>1976</td>
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<td>Spain</td>
<td>1991</td>
<td>13.5</td>
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<td>Japan (Yoshida)</td>
<td>1990</td>
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<td>5.9</td>
<td>0.5</td>
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</tbody>
</table>
Complications, surgery and mortality* in UC in 2001-2005

* Mortality is indicated in % per UC patients and per $10^5$ of population.
Complications, surgery and mortality* in CD in 2001-2005

* Mortality is indicated in % per CD patients and per 10^5 of population.
Frequency of complications in UC

% of patients

- Moscow reg.
  - bleeding: 4.2%
  - toxic megacolon: 1.7%
  - perforation: 3.5%
  - colon cancer: 1.1%

- Novosibirsk
  - bleeding: 10.2%
  - toxic megacolon: 4.1%
  - perforation: 3.4%
Frequency of complications in CD

% of patients

- stenosis
- colon obstruction
- fistulas
- anal fissures
- abdominal infiltrate
- intestinal abscess
- paraproctitis
- bleeding

Moscow reg. vs Novosibirsk

0 5 10 15 20 25 30
% of patients
CONCLUSION

• The prevalence and incidence of UC and CD in Russia is 3 to 8-fold lower than in the majority of countries in middle and north Europe, USA and Canada.

• The prevalence and incidence of IBD in Russia less or more correspond to the early data from South Europe (Spain, Portugal, Italy) and from Japan.

• The prevalence of UC and CD is equal in different regions of Russia except Moscow region.
CONCLUSION

• In Moscow region the prevalence of both disease is two-fold higher than in other regions and urban:rural prevalence does non differ. It may reflect the influence of Moscow megapolis and urbanization of population around Moscow.

• The female: male prevalence of UC does not differ in all regions, but in CD female prevalence is significantly higher than in male.

• The main age of disease onset in UC and CD in all regions is associated with the age of 20-40 years according to the world.
NEXT STEPS OF STUDY

• The evaluation of IBD prevalence and incidence in other regions (North, South, Far East)

• The evaluation of prevalence and incidence in smoking and nonsmoking

• The evaluation of prevalence and incidence in children

• The evaluation of severity and extension of inflammation in UC

• The evaluation of severity and location in CD
THANK YOU