ANNO 1910

PAULA STRADIŅA
KLĪNISKĀ UNIVERSITĀTES SLIMNĪCA

Infection risks for the HIV negative immunocompromised individuals

P. Aldins

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Klaipeda

Aim

Update immunodeficiency clinical problems in multidisciplinary hospital

Demonstrate the complicated clinical case

To discuss, how to manage such situations

Immunocompromised persons(1)

- Their number are growing!
- It is important to understand themselves
- It is important to recognize physicians

Immunocompromised persons(2)

- Primary immunodeficiency (congenital) syndroms
  - Children patients
  - Adults – more rare

Immunocompromised persons(3)

Secodary (acquired) immunodeficiency

Disorders of biochemical homeostasis

- Diabetes mellitus
- Dialysis
- Liver cirrhosis
- Malnutrition

Disorders of protein loss

- Nephrotic syndrome
- Peritoneal dialysis
- Protein-losing enteropathies

Secondary immunodeficiency due to underlying disease states, environmental exposures, and miscellaneous causes Author Francisco A Bonilla, MD, PhD Section Editor E Richard Stiehm, MD Deputy Editor Anna M Feldweg, MD

Immunocompromised persons(4)

Secodary (acquired) immunodeficiency

Infections

- HIV
- Measles
- Malaria
- Other

Trauma

- Burns

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Immunocompromised persons(5)

Secodary (acquired) immunodeficiency

Environmental exposures

- Ionizing radiation
- Ultraviolet radiation
- Toxic chemicals

Asplenism

Malignancy

- Hodgkin's lymphoma
- Chronic lymphocytic leukemia
- Multiple myeloma

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Immunocompromised persons(6)

Secodary (acquired) immunodeficiency

Autoimmune diseases

- Rheumatoid arthritis
- Systemic lupus erythematosus

Pregnancy

Aging

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Immunocompromised persons(7)

Secodary (acquired) immunodeficiency

Immunosupresive treatment

- Cytotoxic chemotherapy for malignancy
- Treatment or prophylaxis of graft-versus-host disease following bone marrow transplantation
- Treatment of rejection following solid organ transplantation
- Bone marrow ablation prior to transplantation
- Treatment of autoimmune disease

Secondary immunodeficiency induced by drugs and biologic therapies Authors Mark Ballow, MD Thomas A leisher, MD Section Editor E Richard Stiehm, MD Deputy Editor Anna M Feldweg, MD

Immunosupresive therapy

Antiinflammatory and immunosuppressive drugs
- Glucocorticosteroids
- Cyclosporine
- Tacrolimus
- Sirolimus
- Mycophenolate mofetil

Antimetabolites and alkylating drugs
- Methotrexate
- Azathioprine
- Cyclophosphamide
- Chlorambucil

Medications that cause hypogammaglobulinemia
- Gold containing drugs
- D-penicillamine
- Sulfasalazine

other

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BIOLOGIC IMMUNE RESPONSE MODULATORS

Anti-thymocyte globulin
Monoclonal antibodies to B cells
- Rituximab

Monoclonal antibodies to T cells
- Alemtuzumab

Anticytokine therapy inhibiting B-cell function
- Tocilizumab

Agents disrupting T cell costimulation
- Abatacept

Agents inhibiting leukocyte movement
- Natalizumab

Tumor necrosis factor inhibitors
- Infliximab

Monoclonal antibodies to complement proteins
- Eculizumab

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Clinical case

Patient data

- ✓M.L.
- ✓Male, 34Y
- ✓Rural inhabitant
- ✓Usual employee
- 1997, **Idiopathic thrombocytopenic purpura**
  - **Splenectomy!**
- 11. 2009, **Hepatitis C**
- **Systemic lupus erythematosus, nephrotic syndrome**
  - **Prednisolon 60mg/d!**

Causes of M.L. immunodeficiency

- Asplenia
- Systemic lupus
- Corticosteroid treatment

Season

- Late Autumn or early Winter
  - Influenza season!!!

Evaluation and treatment plans

- Done kidney biopsy
- Add other basic medications: Azathioprine or Cyclophosphamide
- Clarify hepatitis C diagnose

All activities will come according to examination plans!

Patient is waiting at home – in outpatient.

After two weeks

09.12.2009

- Acute disease
- Fever (39,2°)
- Nonproductive and productive cough
- Immediate hospitalization
- **Influenza A H1N1** RNA identified!
- Oseltamivir treatment started

- X-ray: bilateral infiltration, possible abscess formation in left lung

	09.12.2009	12.12.2009
Leu	12 400	17 220
CRP	94,8mg/l	232,7mg/l
Albumin		20,9g/l
Urea	13,71mM/l	22,59mM/l
Creatinine	110mkM/l	144mkM/l

- Blood culture: **Str.pneumoniae**

Diagnosis

- **Influenza A H1N1**
- **Secondary postinfluenza pneumonia** *Str.pneumoniae*
- Systemic lupus, nephrotic syndrome
- Asplenia
- Hepatitis C

Treatment in this period

- Oseltamivir
- Ceftriaxone
- Ciprofloxacin
- Prednisolon
- Albumin
- Furosemide
- Omeprazole

01.2010

Kidney biopsy: diffuse segmental mesangioproliferative glomerulonephritis (lupus nephritis)

- Cyclophosphamide treatment started

- Recommendation to make dentistry

antiHAV IgG negative; antiHBc negative

- Recommendations for vaccination:
  - Hepatitis A and B
  - Pneumococcal infection
  - Influenza every Autumn

08.2011

Clinical stabilization

No edema

Rare cough, arthralgias, hypertension

- Prednisolon 2,5mg/d
- Cyclophosphamid

Patient is not a well adherent

09.2012

- Acute gastroenterocolitis, unspecified
- Hospital treatment for 4 days
  - Rehydration therapy
  - Ciprofloxacin
  - Prednisolon 10mg/d

10.2012

- Fever >39°
- Nonproductive cough
- Headache
- Oral trush
- **Anti TBE IgM positive**
- **Anti TBE IgG negative**

Patient not vaccinated against TBE!

- No data for meningitis

Diagnosis

- **Tick born encephalitis**
- **Oral trush**
- Systemic lupus
- Lupus nephritis
- Hepatitis C

02.2013

No complaints

- Prednisolon
- Azathioprine
- Plaquenil
- Perindopril

Diagnoses summary

- **Systemic lupus erythematosus**
- **Lupus nephritis**
- **Nephrotic syndrome**
- **Asplenia**
  - **Corticosteroids**
  - **Cyclophosphamide**
  - **Azathioprine**
  - **Plaquenil**

1. **Influenza A H1N1**
2. **Pneumonia *Str.pneumoniae***
3. **Acute gastroenterocolitis**
4. **Tick born encephalitis**

- **Oral trush**
- **Hepatitis C**

Conclusion on clinical case

- Five hospitalization episodes in five years period
- Four of the five reasons for hospitalization – vaccine preventable infections!
- Infections have caused life-threatening conditions in last years for patient in contrast to underlying deseases!

Our decision to change situation

Cooperation between different medical specialists

- Rheumathologists
- Infectologists
- Pneumonologists (TB physicians in Latvia)

Recommendations for immunosupresive rheumatological patients

- TB examination for latent TB identification and prophylactic treatment
- Vaccination
- Early infection signs interpretations
  - Clinical signs
  - Laboratory signs

Our standart immunization recommendations

- Pneumococcal infection
- Influenza
- Hepatitis B
- Hepatitis A
- Tick born encephalitis
- Diphteria/Tetanus
- Human Papiloma virus – for teenagers and young ladies

Pneumococcal vaccination schedule

For pneumococcal vaccination naïve

PCV13 ⟶ ≥8 weeks ⟶ PPSV23

For previosly vaccinated PPSV23

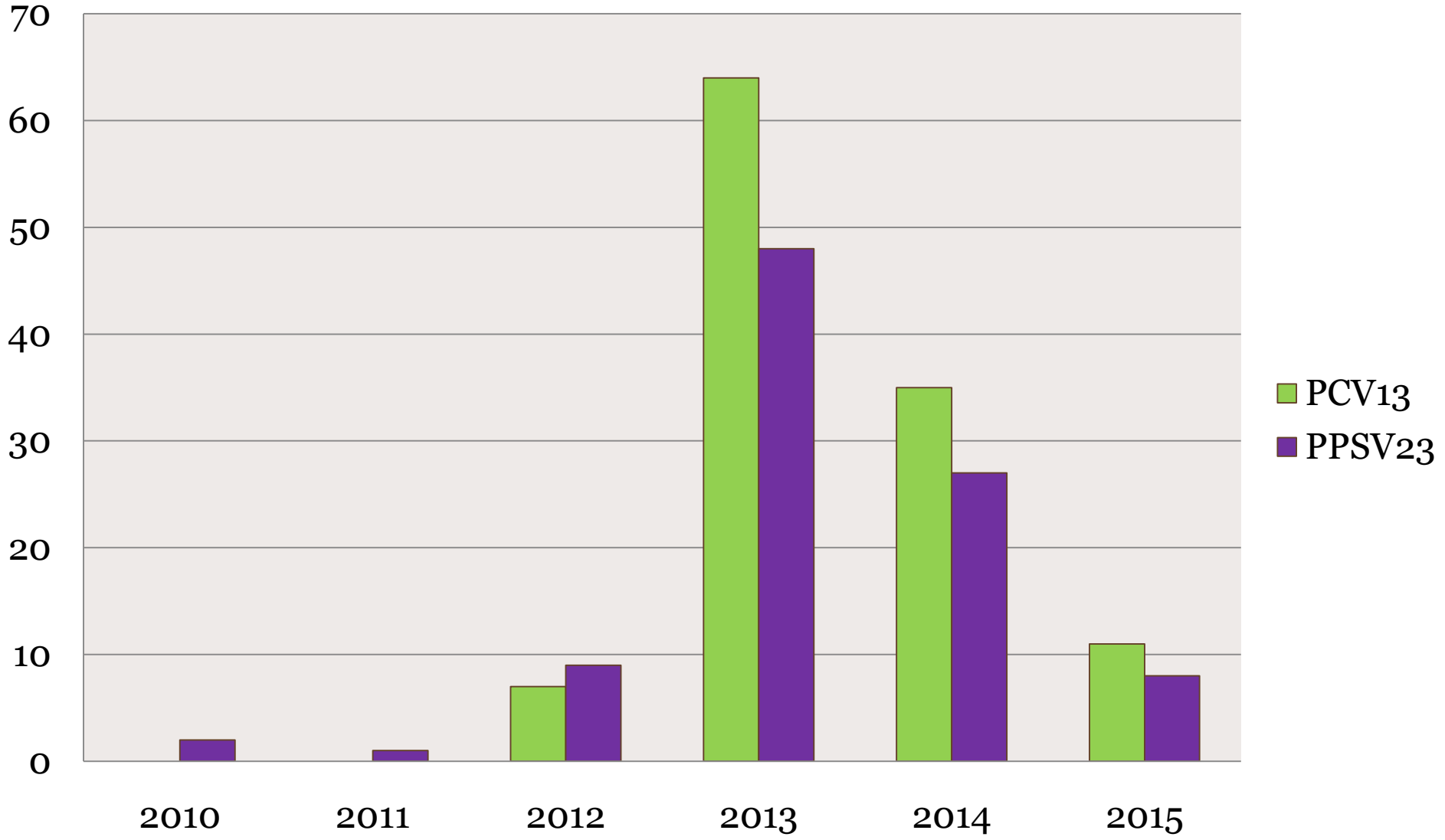
PCV13

Just before and during influenza season

PCV13+Trivalent influenza vaccine

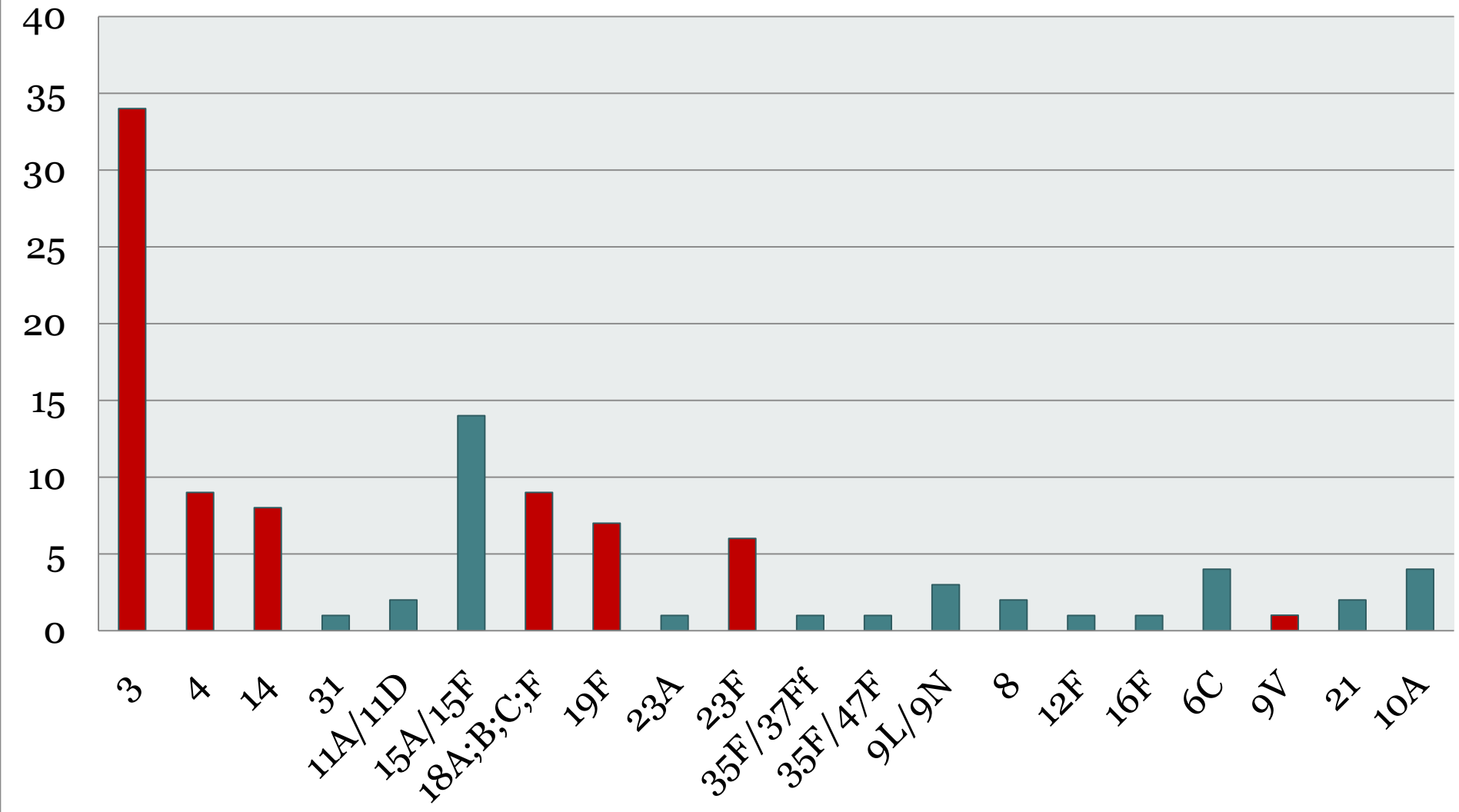
⟶ ≥8 weeks ⟶ PPSV23

Pneumococcal vacination in PSCUH



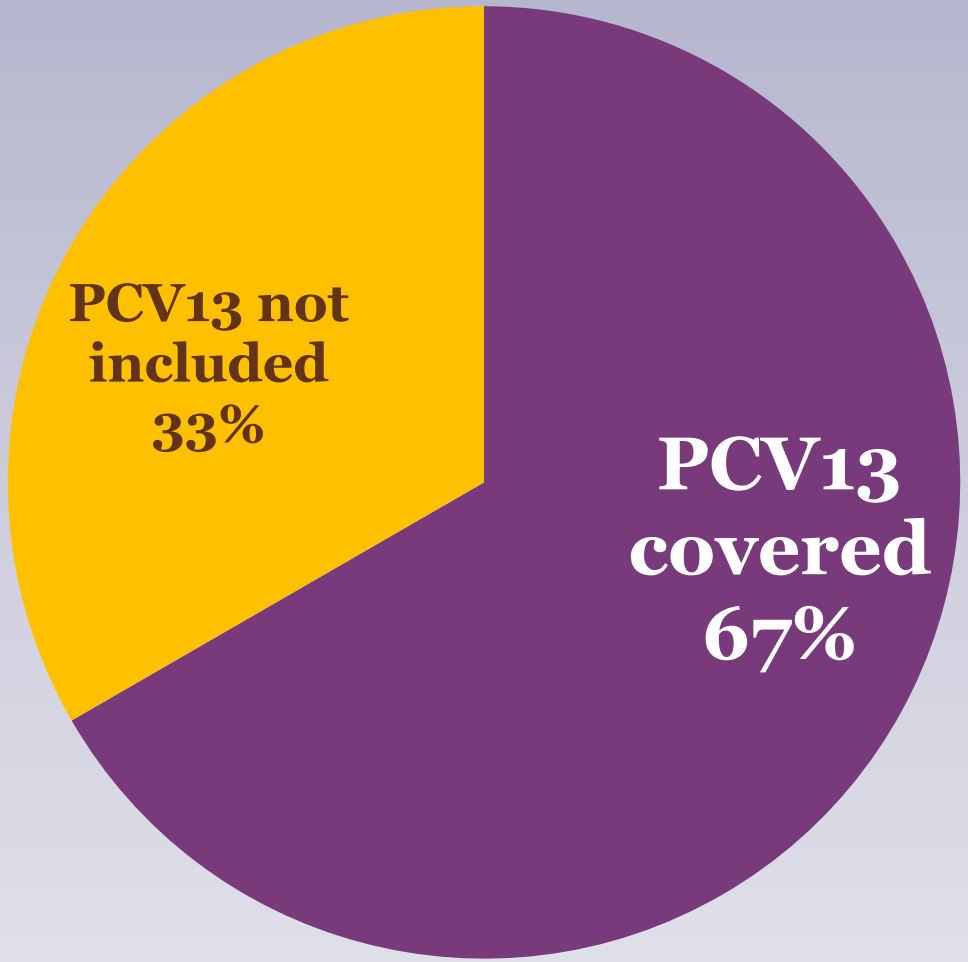
P. Stradins Clinical University hospital data

Detected Pneumococcal serotypes 2011-2013 at PSCUH and Gailezers hospital



Unpublished data. A. Balode P.Stradins Clinical University hospital

PCV13 included strains coverage



Results

- No cases of invasive pneumococcal diseases in vaccinated group
- No hospitalizations for community acquired pneumonia for vaccinated persons
- No cases, when the vaccine would exacerbated underlying disease
- No severe side effects of pneumococcal vaccination
- Significantly improved collaboration with rheumathologists

Summary

- We have introduced special infectious diseases prophylaxis protocol for rheumatological patients in our hospital, especially, before biological drugs treatment
- Our plans for future – cooperation with other immunocompromised patients
- To prepare national recommendations for immunocompromised persons infectious diseases prophylaxis

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Thank you!