

International Collaboration in Hematology/Oncology: Role of WBMT Salvador, Brazil 2013



St. Jude Children's
Research Hospital

ALSAC • Danny Thomas, Founder

Finding cures. Saving children.

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Pediatric Oncology in LMIC

- **Focus on the goal**
- **Finding cures**
- **Saving children**
- **Reaching out**
- **Scaling up**

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**What is the goal of international
pediatric oncology?**

Methods to achieve the goal

- **Meetings and networking**
- **Research and data analysis**
- **Technology transfer**
- **Education and training**
- **Case discussion with colleagues**

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Definitions of HIC, MIC, and LIC

Mean annual *per capita* income in 2010 USD

High-income country (HIC) >\$12,276

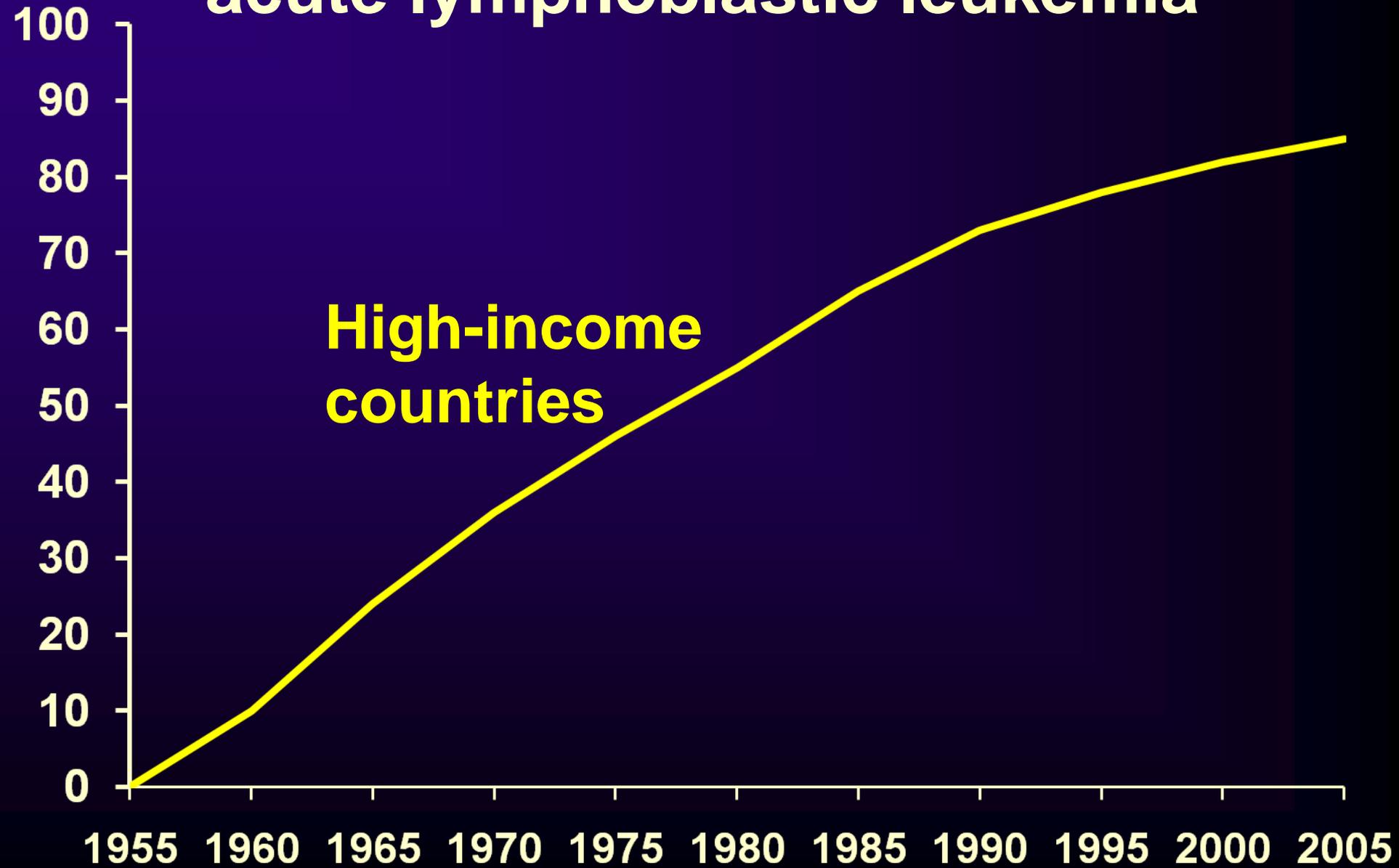
Middle-income country \$1,005-12,275

Upper MIC \$3,976 to \$12,275

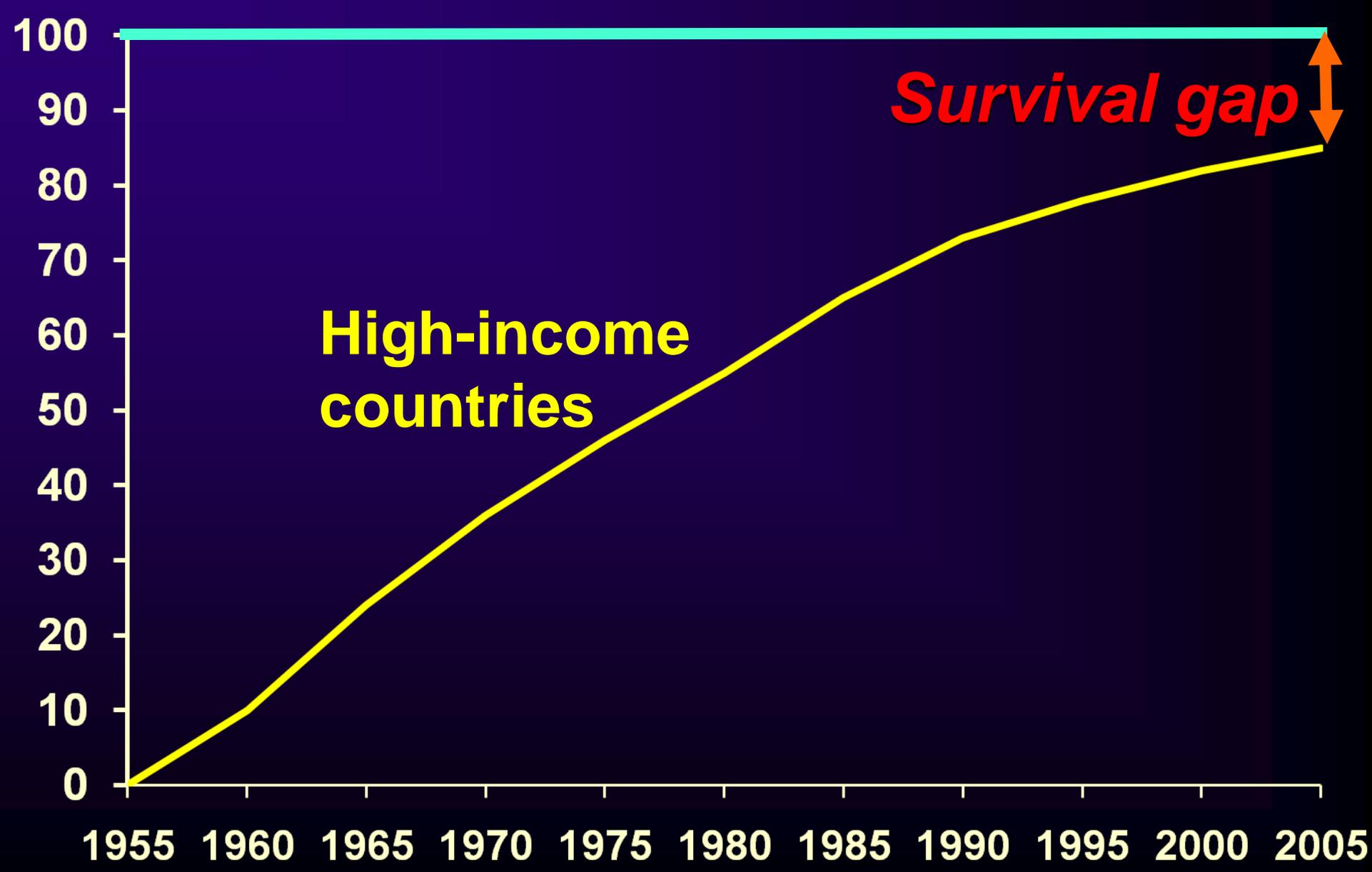
Lower MIC \$1,006 to \$3,975

Low-income country (LIC) <\$1,005

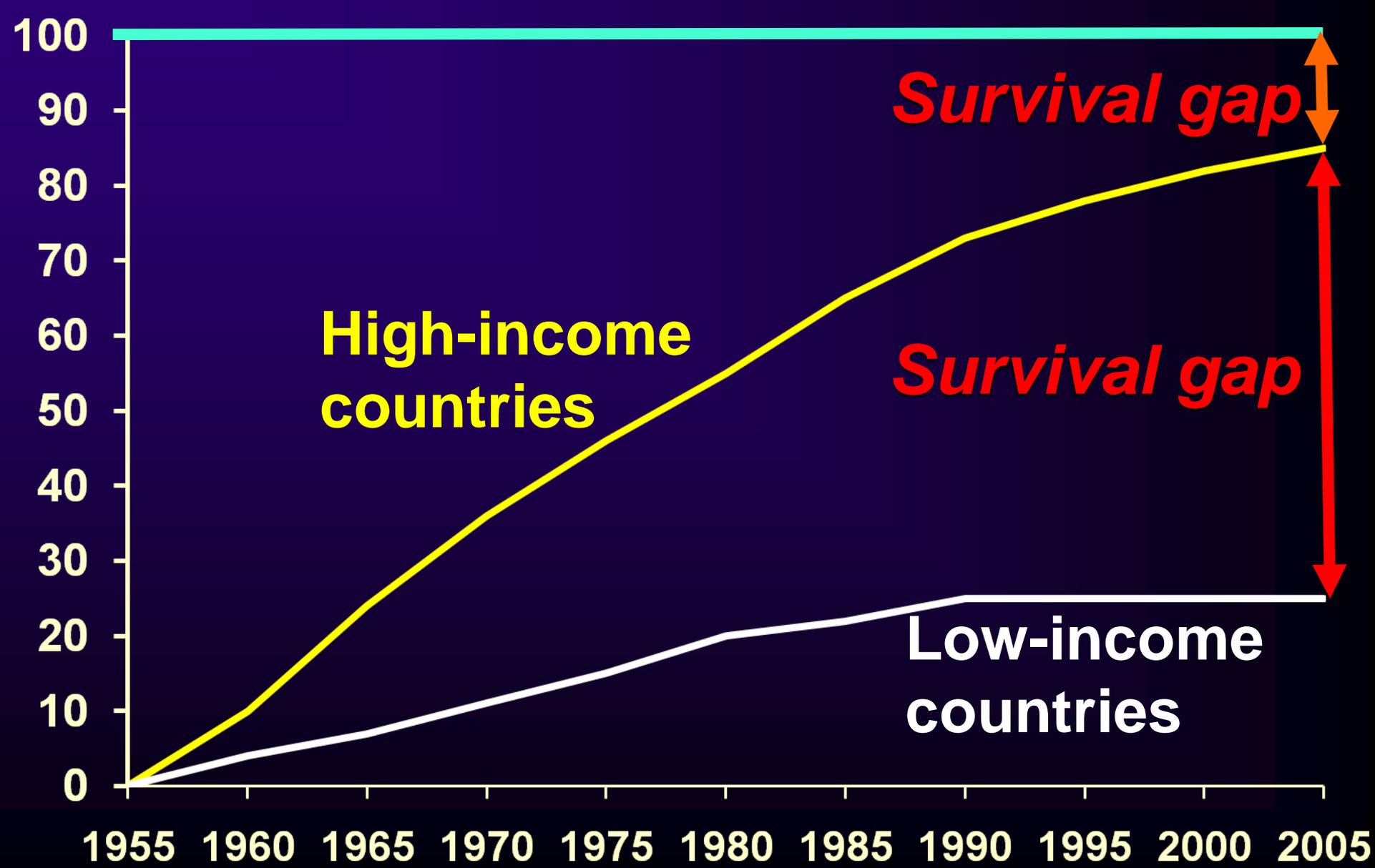
Event-free survival of children with acute lymphoblastic leukemia



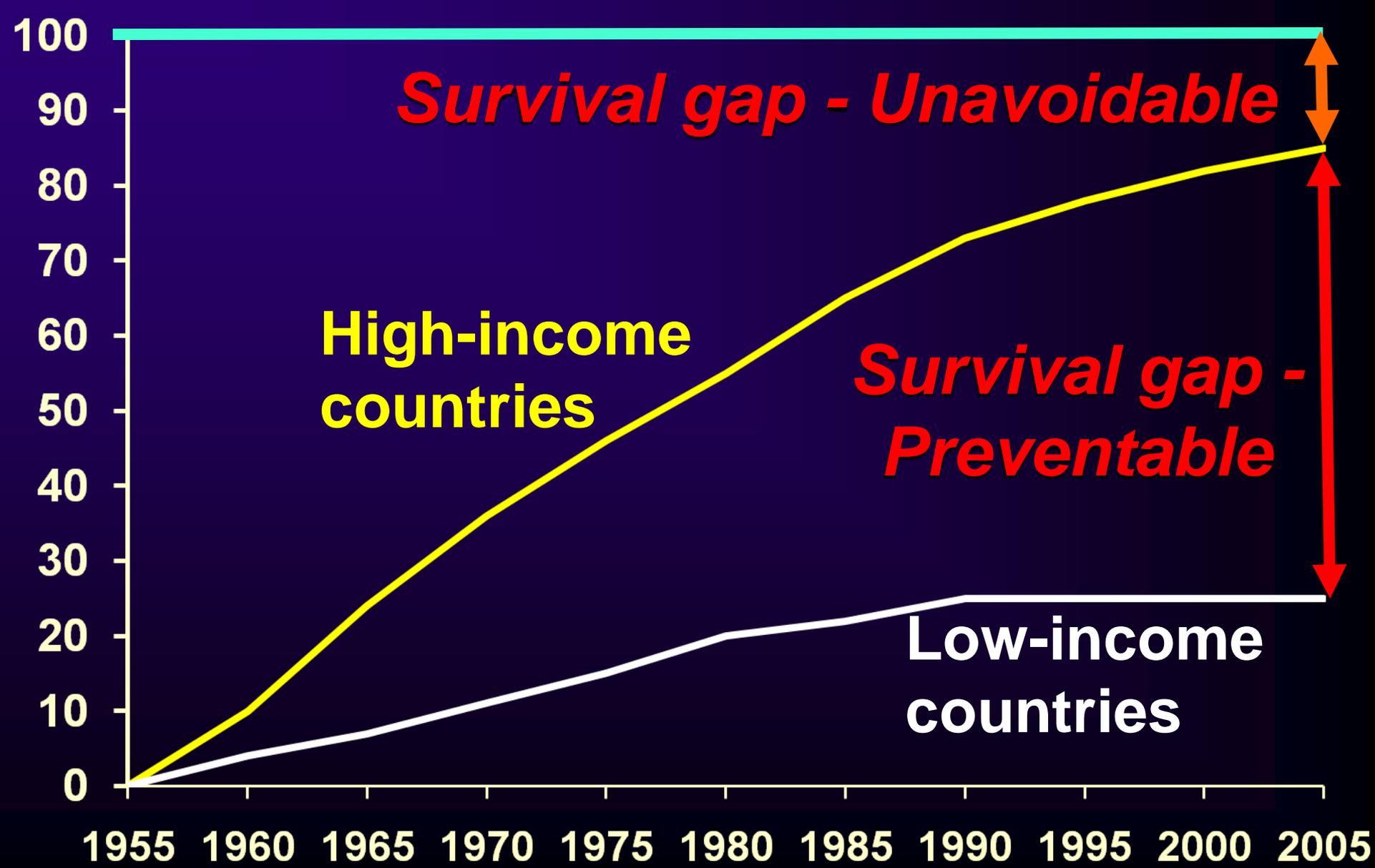
EFS of children with ALL



EFS of children with ALL



EFS of children with ALL



What comprises the survival gap?

???

Finding cures. Saving children.



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Childhood cancer survival and government annual healthcare spending *per capita*

Ribeiro et al. Lancet Oncol 2008

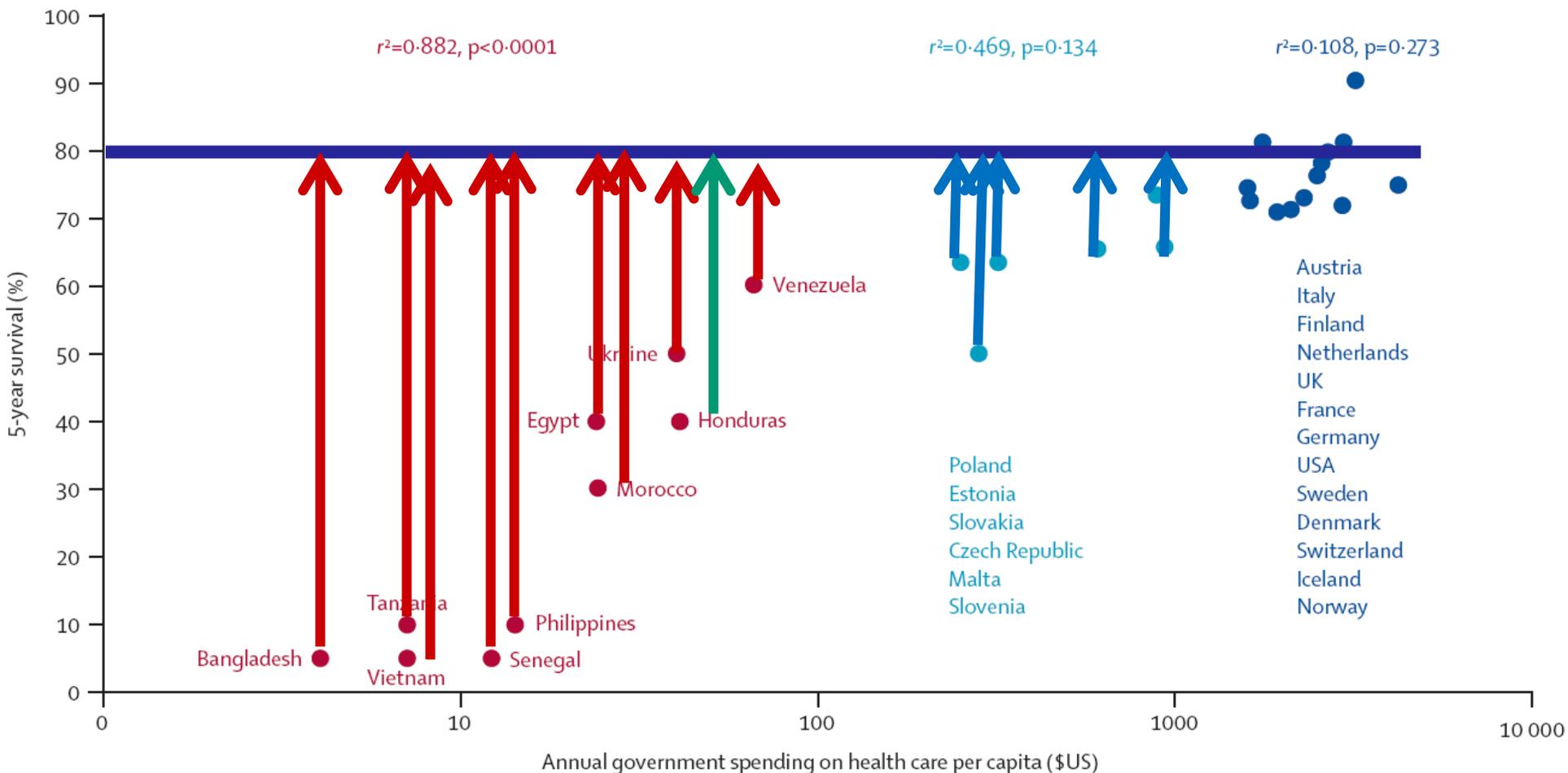
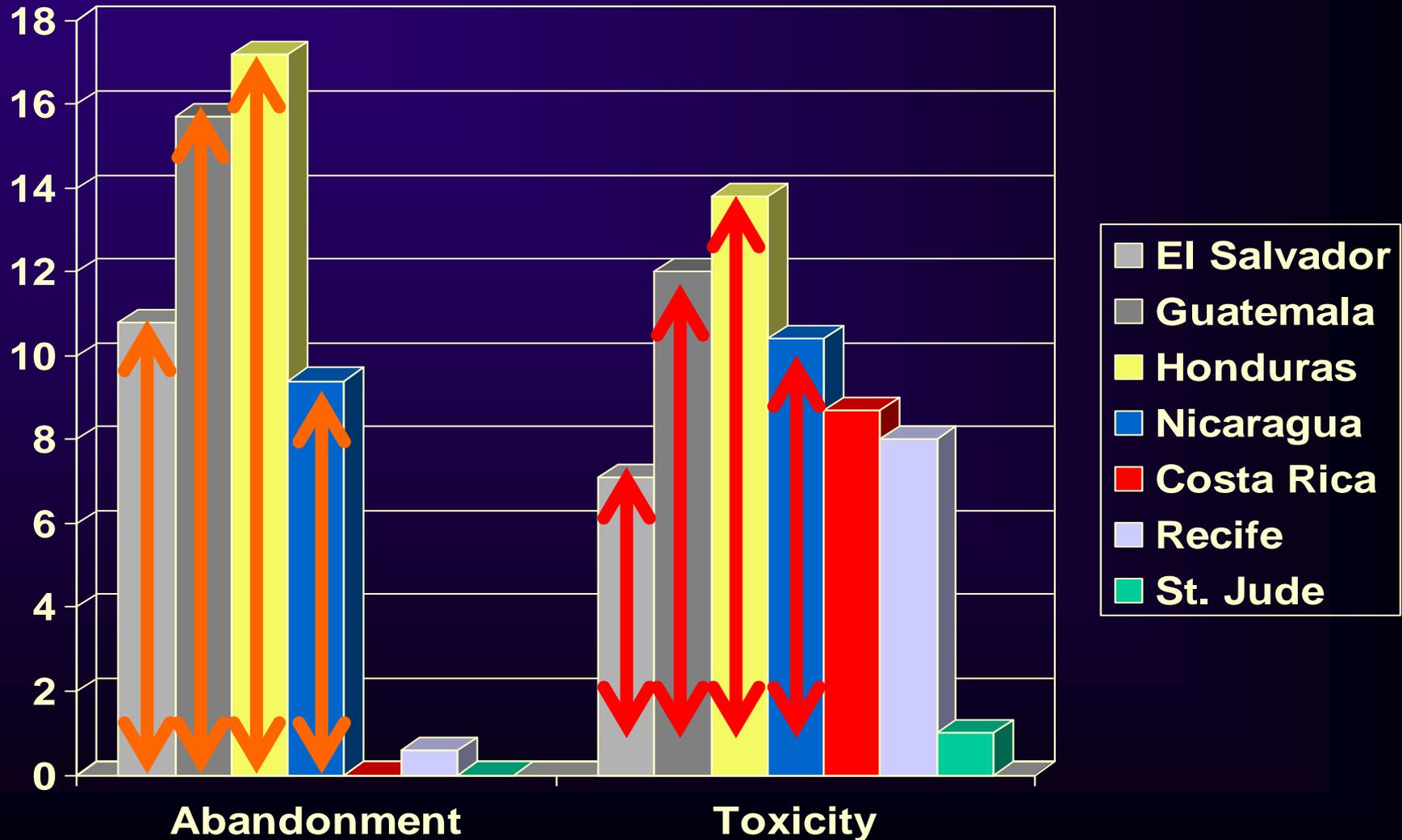
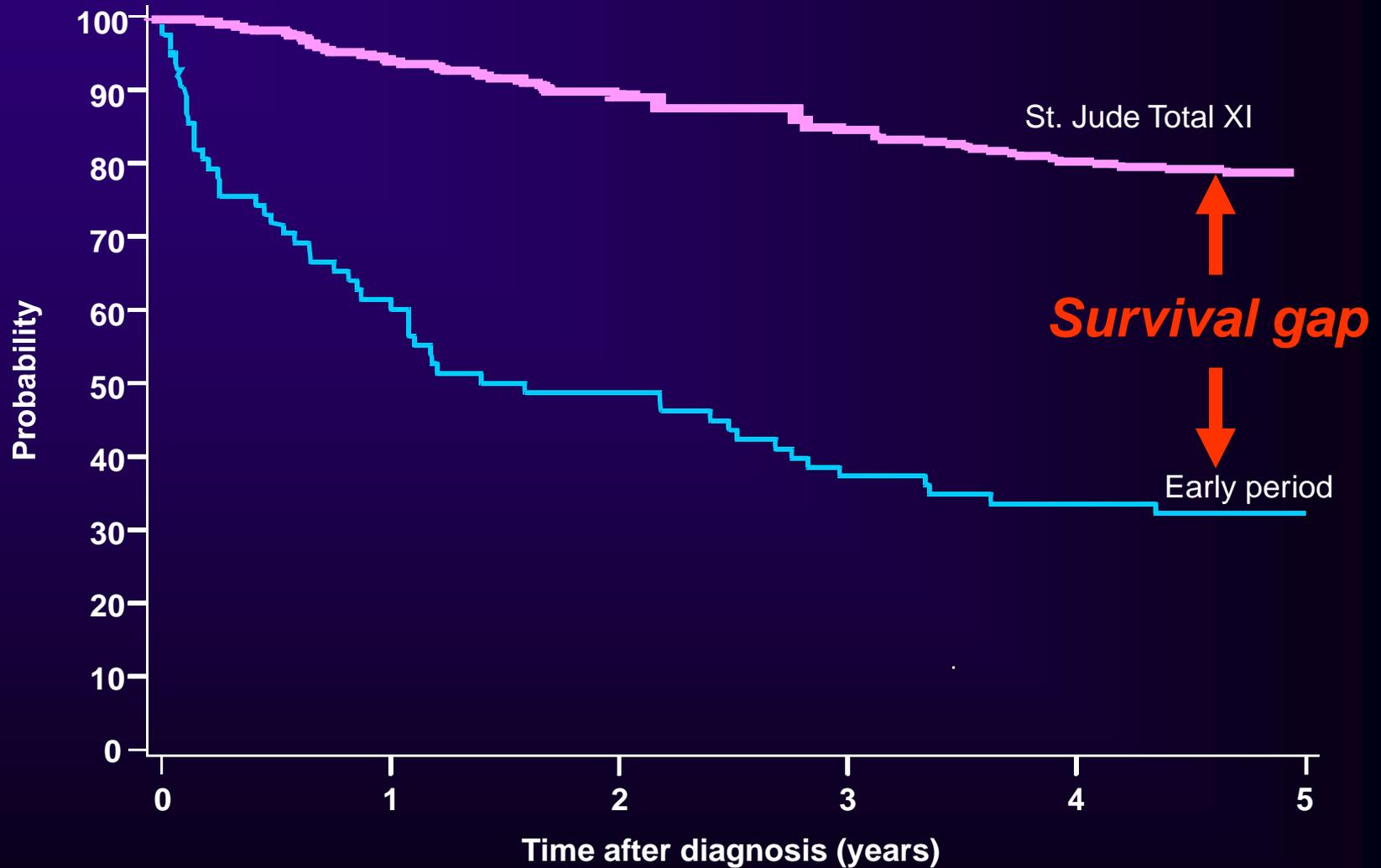


Figure: Pearson's correlation between annual government health-care expenditure (\$US) per capita and childhood-cancer survival
 5-year survival data were postulated for the ten low-income and mid-income countries surveyed in this study; the remaining data were obtained from EURO CARE.²³

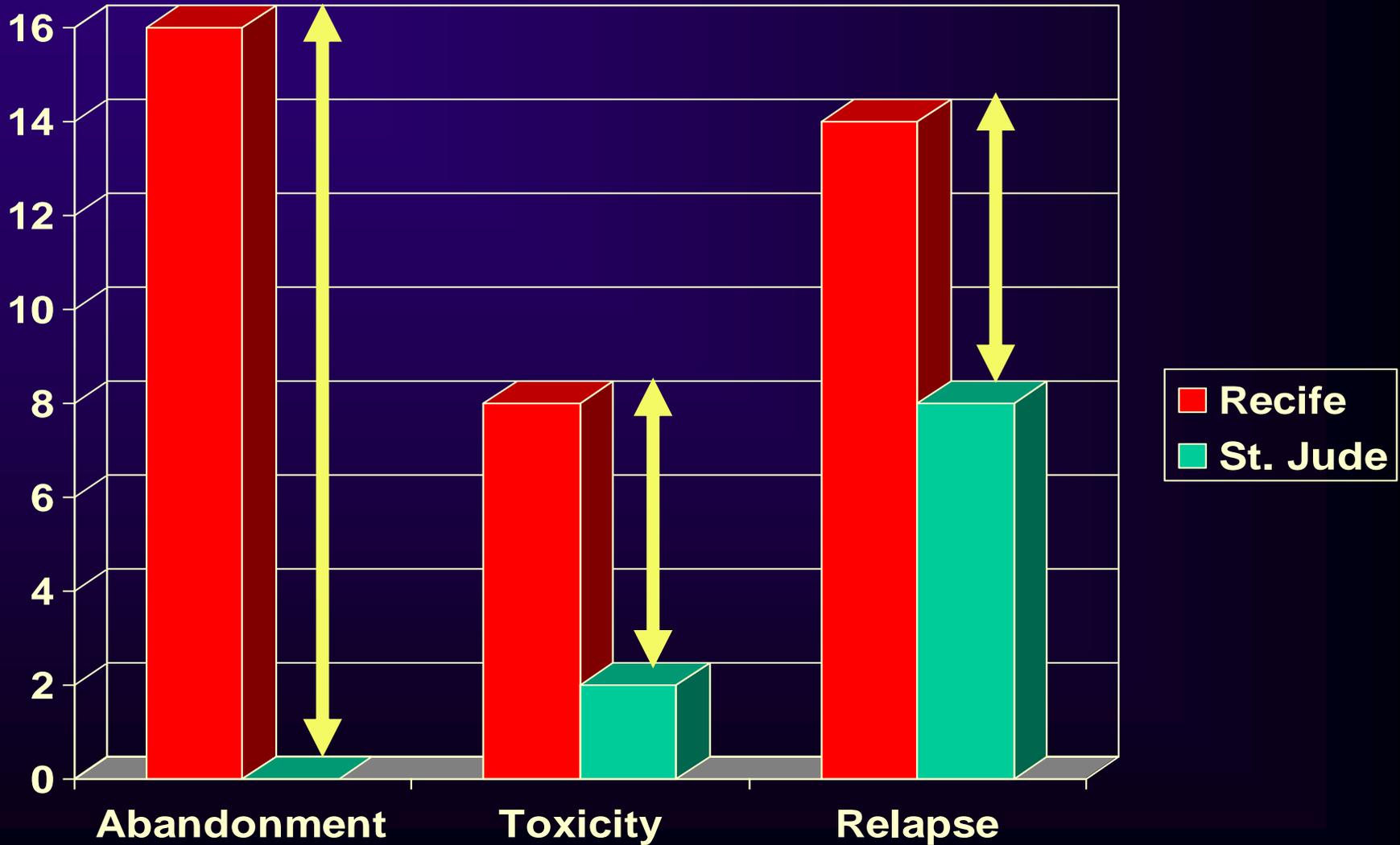
Excess treatment failure in the first year after diagnosis of ALL 6 Latin American Centers



EFS in Childhood ALL, Recife, 1980-1989



What causes the survival gap? ALL treatment failure in the 1980s





PEDIATRIC ONCOLOGY NETWORKED DATABASE

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Username:

Password:

Sign In

[Interested in Joining POND?](#)

What's POND?

POND is a clinical research data collection tool designed to permit users at multiple locations around the globe to collect and selectively share their data in a secure online environment. POND is provided as a free service.

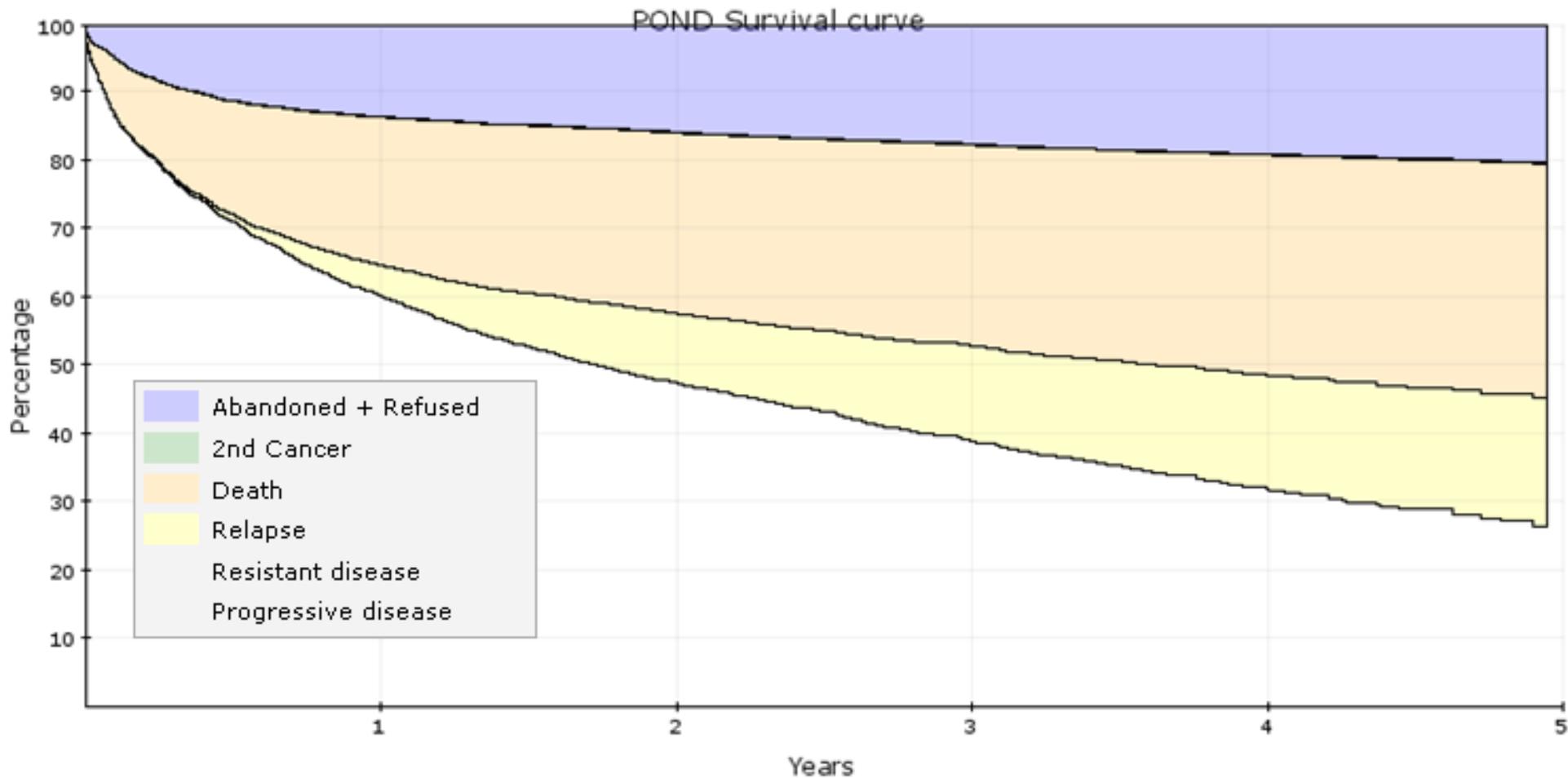
POND Online Tour

POND Presentation This presentation gives a brief overview of POND and describes its core features and functions.

[View Online](#)

[Download](#)

Event-free survival partitioned by cause of treatment failure All Cancers (Honduras)



What comprises the survival gap?

- **Abandonment**
- **Excess toxic death**
- **Excess relapse**
- **NOT second cancer (much)**

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- **Scaling up**

Finding cures. Saving children.



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Finding cures. Saving children.

Pediatric Oncology in LMIC

- **Focus on the goal**
- **Finding cures**
 - Identifying causes of treatment failure
 - Developing specific interventions
- **Saving children**
 - Abandonment is preventable
 - Toxic death is preventable
- **Reaching out**
- **Scaling up**

Improved ALL Outcome in Recife, Brazil

Housing, social work, dentistry, PT/OT



**Francisco and
Arli Pedrosa**

NACC

JAMA 2004

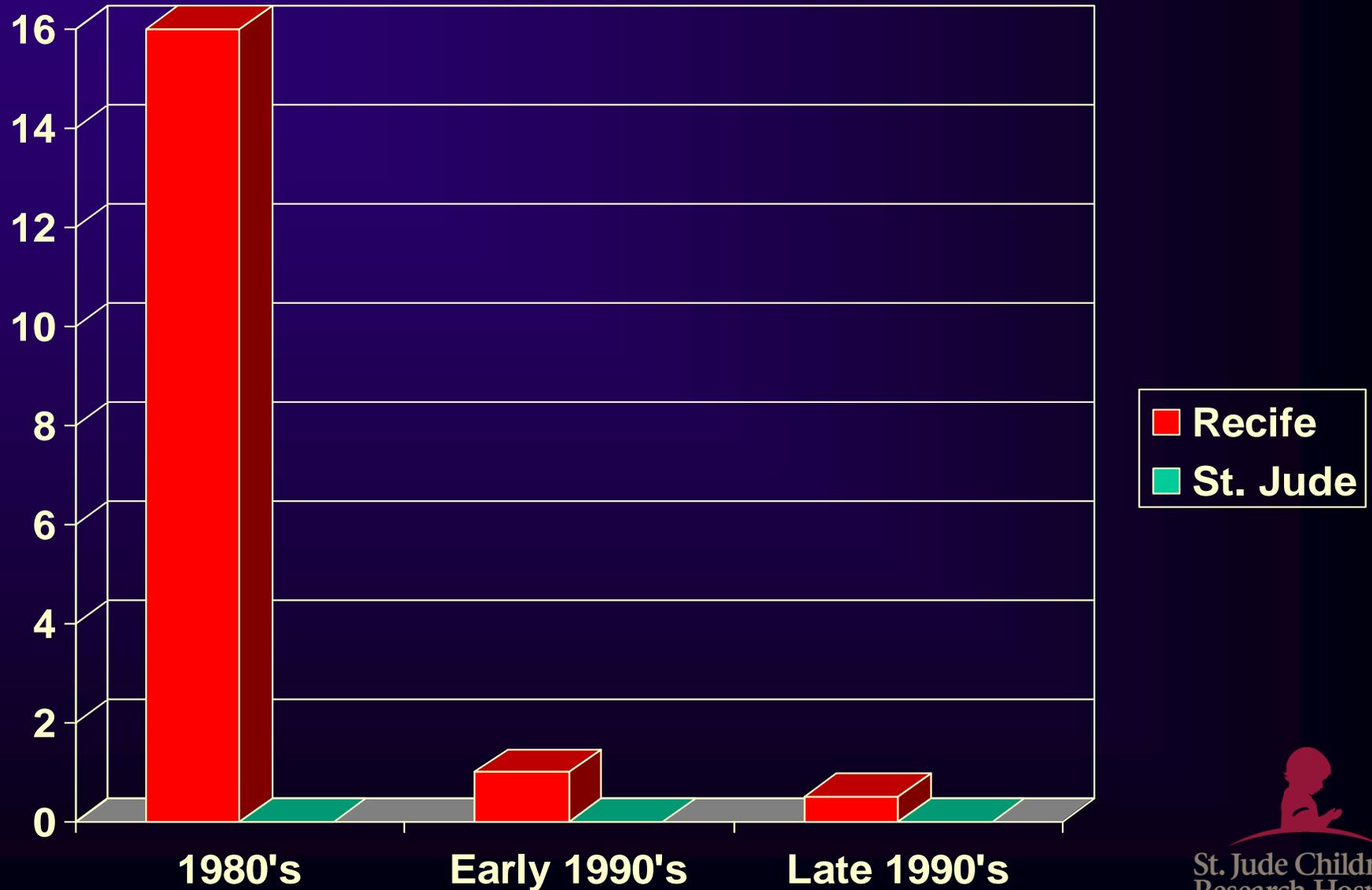
Improved ALL Outcome in Recife, Brazil

Transportation, food, social worker, family and community education



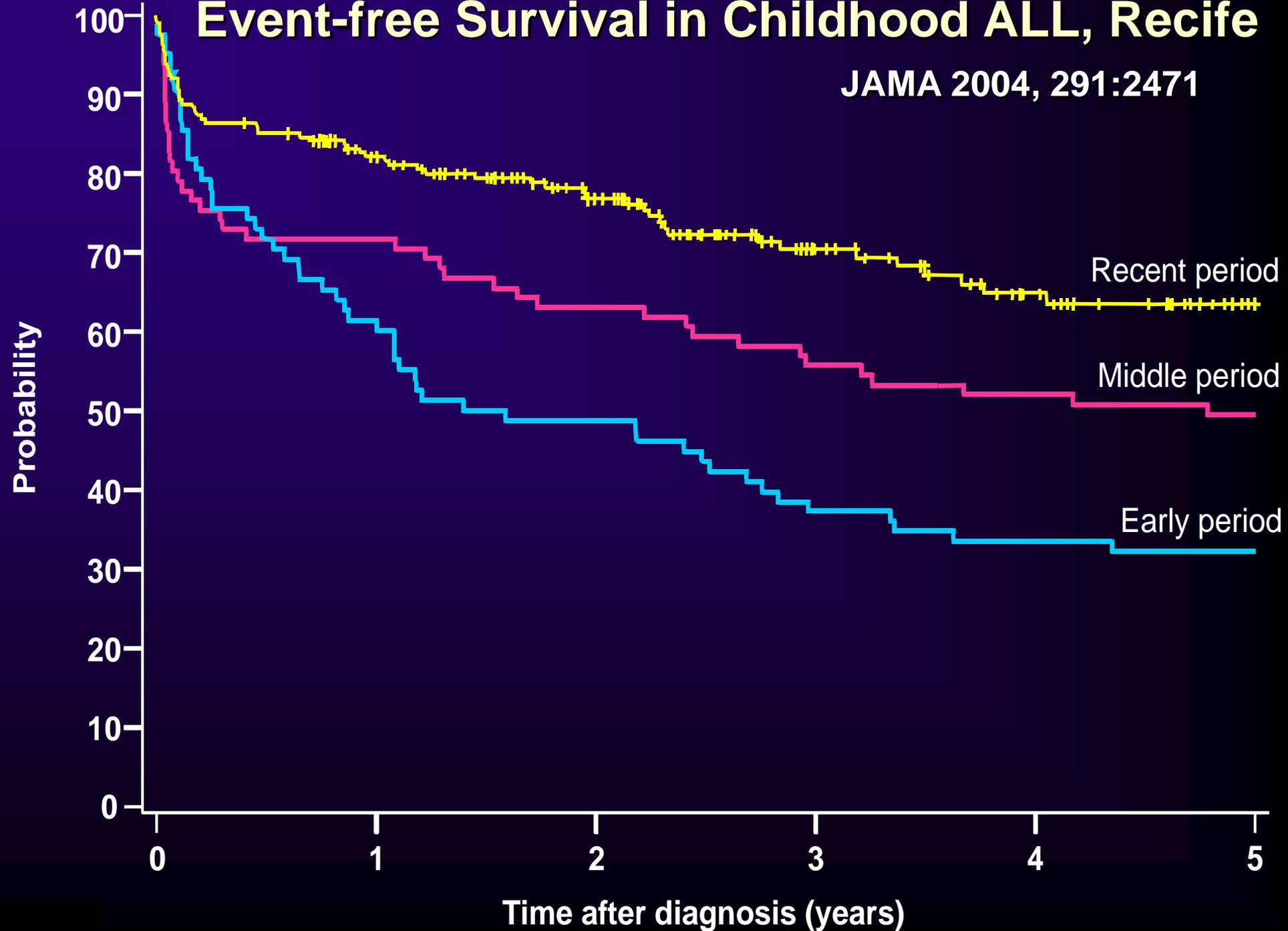
Closing the survival gap

Abandonment

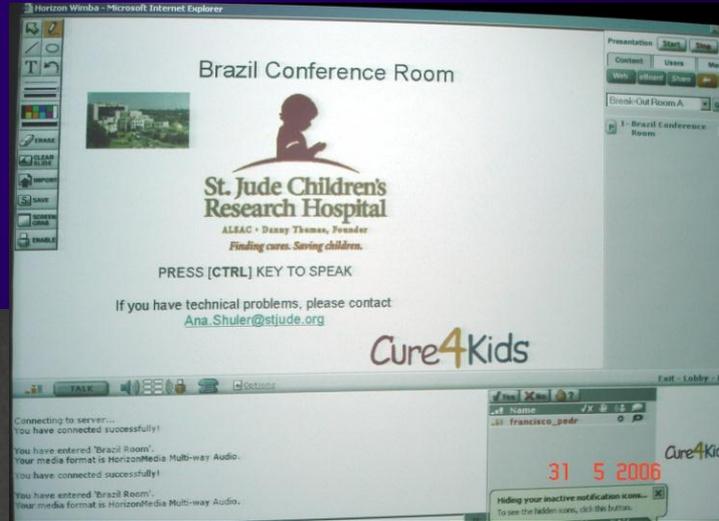


Event-free Survival in Childhood ALL, Recife

JAMA 2004, 291:2471



International Online Conference via www.Cure4Kids.org

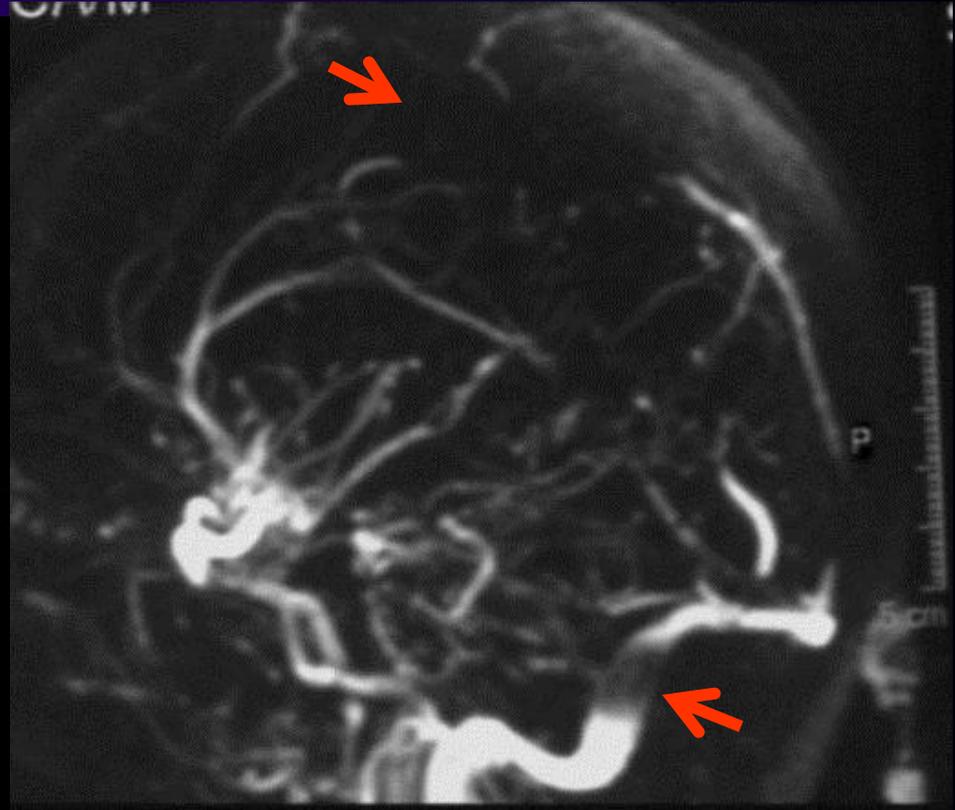
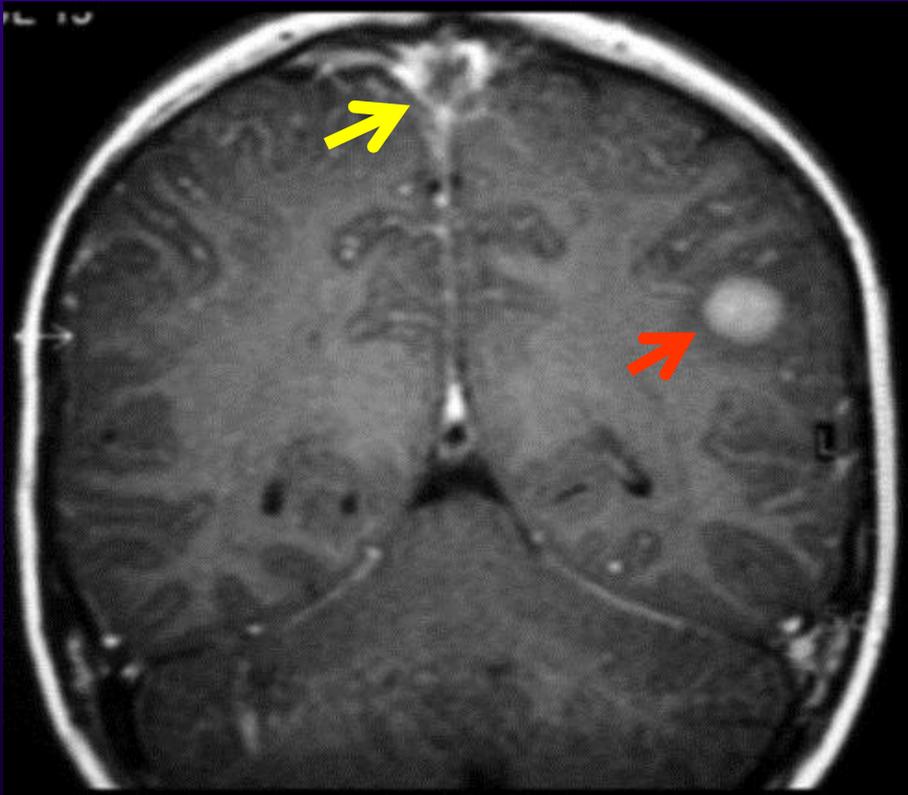


Recife, Brazil

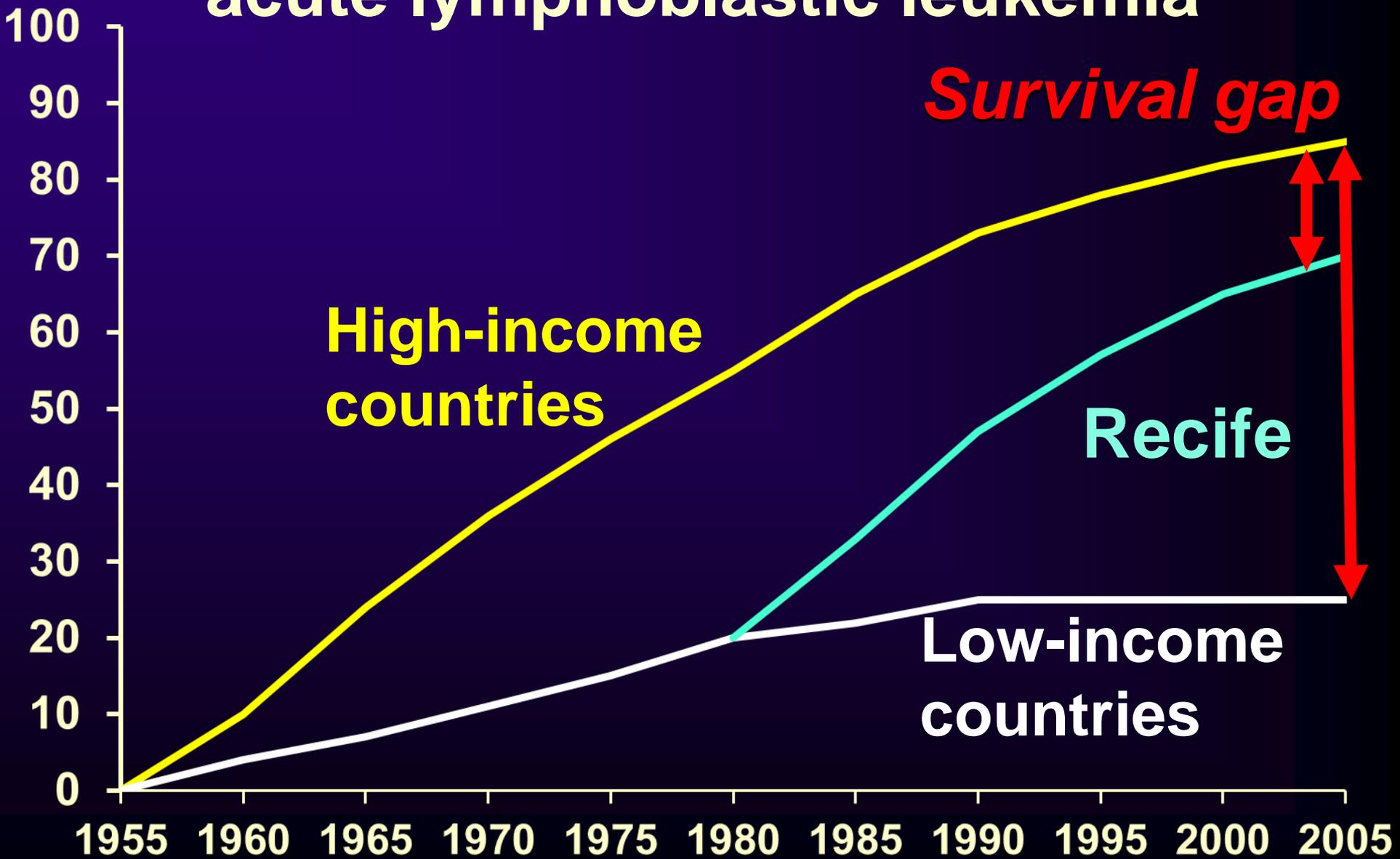


Memphis, USA

Emergency head scan – cerebral thrombosis



Event-free survival of children with acute lymphoblastic leukemia



Summary so far

- **Finding cures – research in LMIC identifies abandonment and toxic death as the 2 most common causes of treatment failure**
- **Abandonment is PREVENTABLE**
- **Toxic death is PREVENTABLE (more later)**
- **How can we prevent these PREVENTABLE treatment failures in LMIC?**

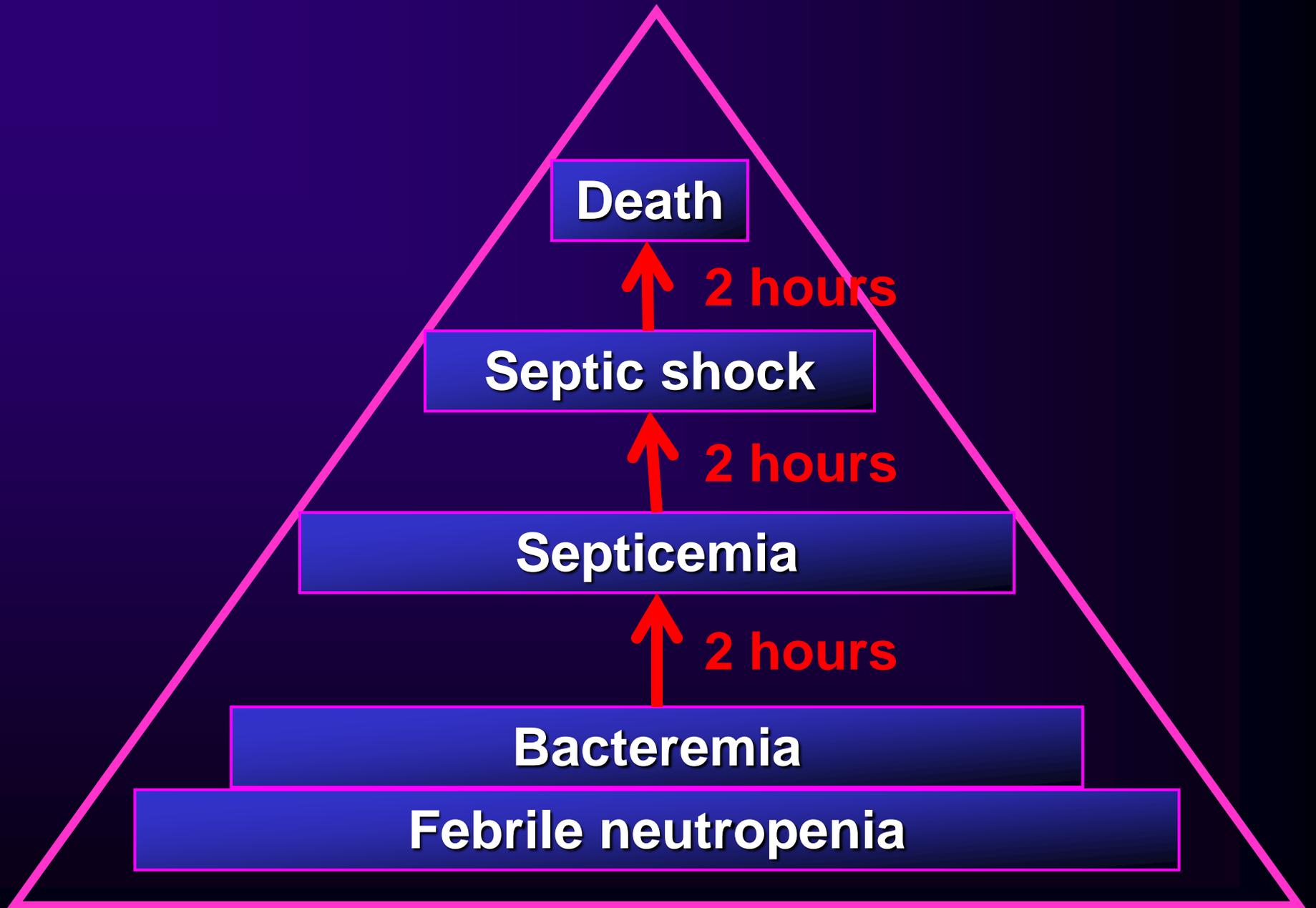
Pediatric cancer outcome evaluation

Toxic death from infection

- **Patient outcomes – death, sepsis, bacteremia**
- **Processes**
 - **Parent’s ability to identify fever**
 - **Time to seek care (decision, arrival)**
 - **Time to assessment by a nurse/doctor, time to first antibiotic administration, appropriate antibiotic prescribed, blood culture obtained**
- **Infrastructure adequacy – written plan for management of febrile neutropenia, availability of antibiotic (present, affordable)**

Bacterial growth and clinical manifestations in neutropenic patients

Time (hrs)	Number of organisms	Clinical Manifestations
0	1	None
0.5	2	None
1.0	4	None
2.0	16	None
4.0	256	None
6.0	4096	Fever
8.0	65,536	Sepsis
10.0	1,048,576	Septic shock
12.0	16,777,216	Death



Outcome evaluation: toxic death

Low Socioeconomic Status Is Associated with Prolonged Times to Assessment and Treatment, Sepsis and Infectious Death in Pediatric Fever in El Salvador

Ronald Gavidia¹, Soad L. Fuentes¹, Roberto Vasquez¹, Miguel Bonilla¹, Marie-Chantal Ethier², Caroline Diorio², Miguela Caniza^{4,6}, Scott C. Howard^{5,6}, Lillian Sung^{2,3*}

1 Pediatric Oncology, Benjamin Bloom National Children's Hospital, San Salvador, El Salvador, **2** Child Health Evaluative Sciences, The Hospital for Sick Children, Toronto, Canada, **3** Division of Haematology/Oncology, The Hospital for Sick Children, Toronto, Canada, **4** Department of Infectious Diseases, St. Jude Children's Research Hospital, Memphis, Tennessee, United States of America, **5** Department of Oncology, St. Jude Children's Research Hospital, Memphis, Tennessee, United States of America, **6** International Outreach Program, St. Jude Children's Research Hospital, Memphis, Tennessee, United States of America

Abstract

Background: Infection remains the most common cause of death from toxicity in children with cancer in low- and middle-income countries. Rapid administration of antibiotics when fever develops can prevent progression to sepsis and shock, and serves as an important indicator of the quality of care in children with acute lymphoblastic leukemia and acute myeloid leukemia. We analyzed factors associated with (1) Longer times from fever onset to hospital presentation/antibiotic treatment and (2) Sepsis and infection-related mortality.

Method: This prospective cohort study included children aged 0–16 years with newly diagnosed acute leukemia treated at Benjamin Bloom Hospital, San Salvador. We interviewed parents/caregivers within one month of diagnosis and at the onset of each new febrile episode. Times from initial fever to first antibiotic administration and occurrence of sepsis and infection-related mortality were documented.

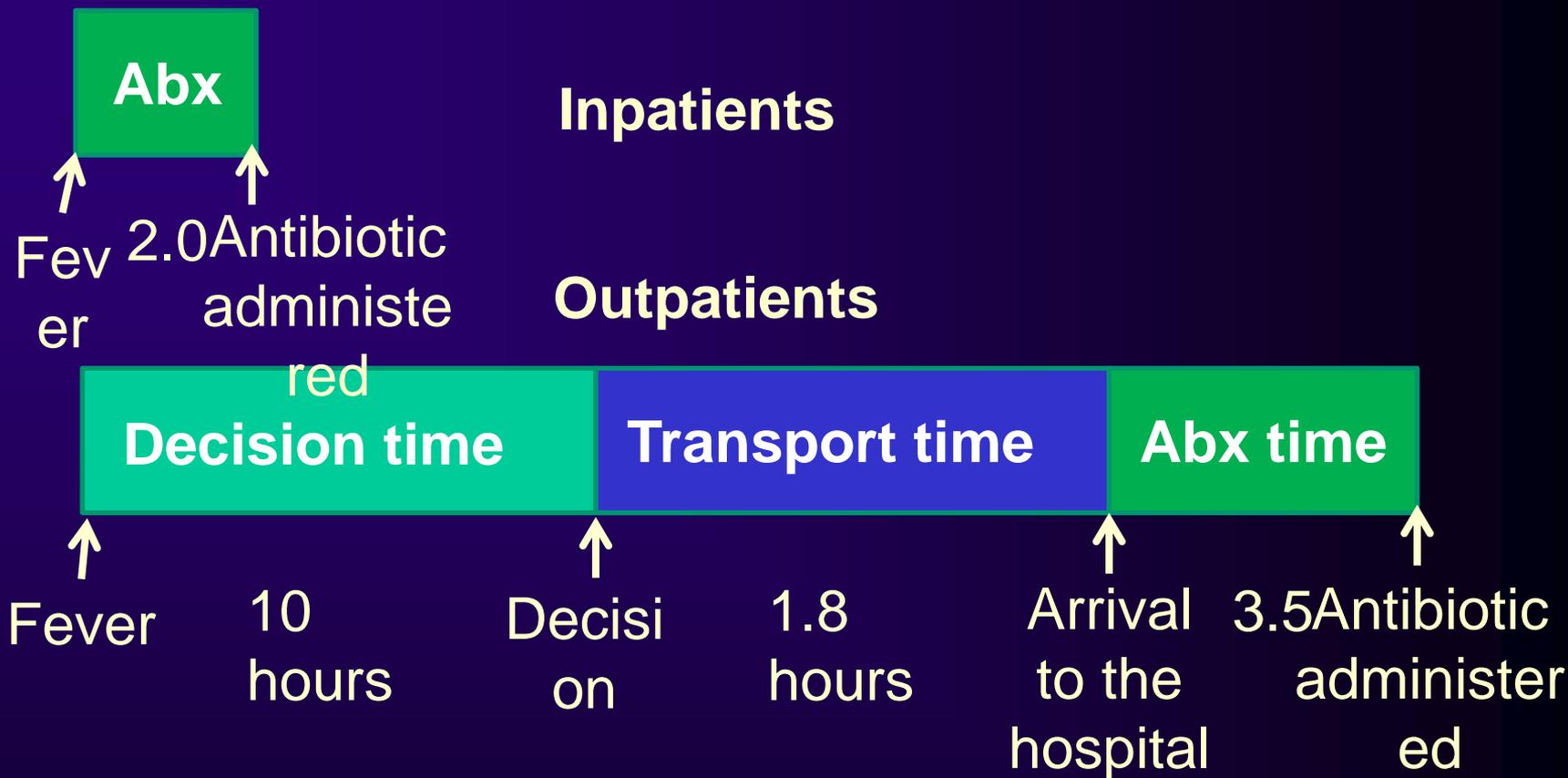
Findings: Of 251 children enrolled, 215 had acute lymphoblastic leukemia (85.7%). Among 269 outpatient febrile episodes

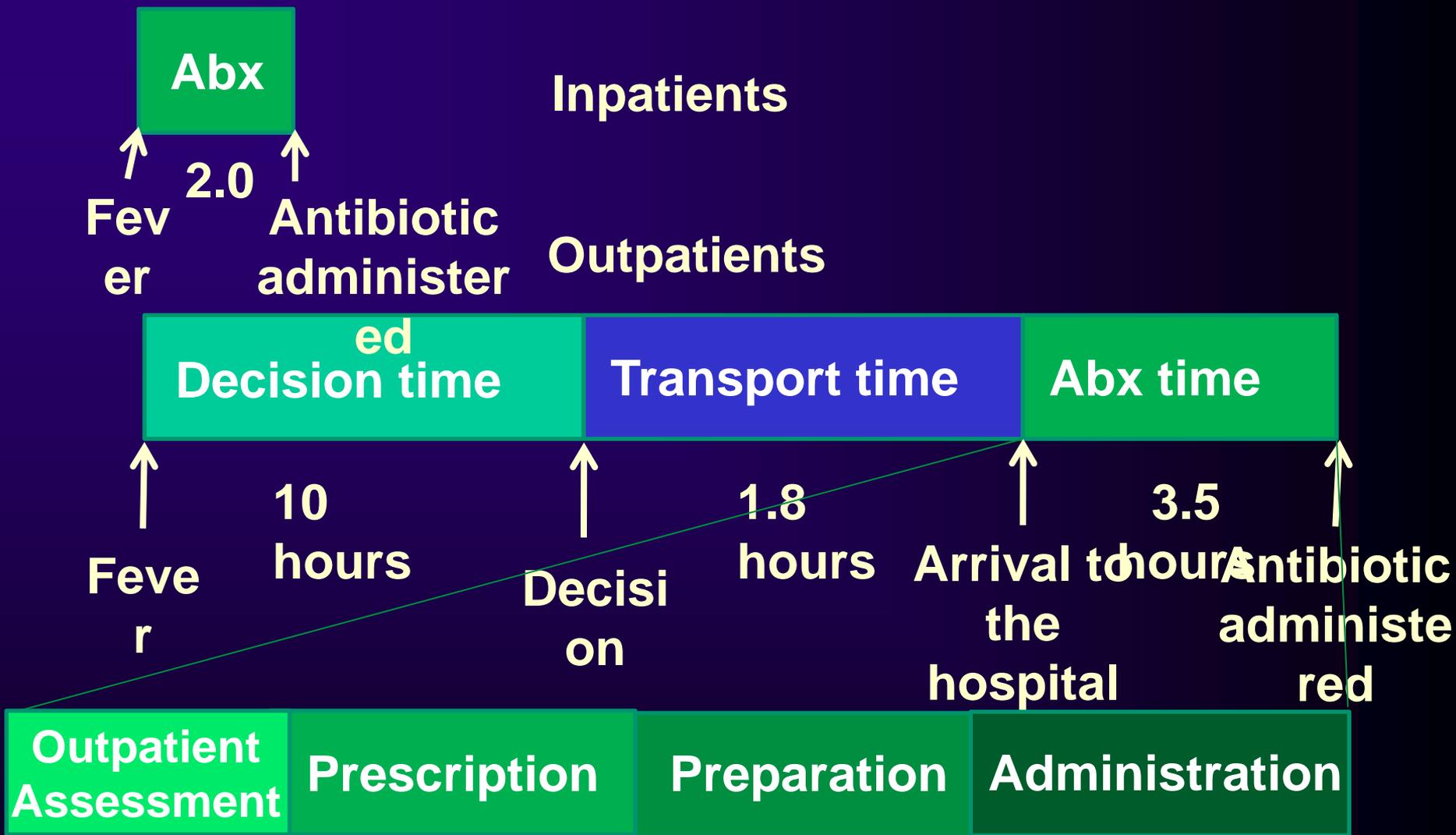
Abx

Inpatients

Fever
2.0
Antibiotic
administered







**Antibiotic Time Subcomponents
(Outpatients)**

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Netherland

(Nusa Belanda)

16 million
people

(Courtesy prof Bing Tan)

Indonesia

230 million
people



Twinning Programs

Success factors – key individuals



ing

PEDIATRICS®

OFF Health and Quality of Life



Psycho-Oncology

Rese *Psycho-Oncology* (2009)

Published online in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/pon.1578

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EUROPEAN JOURNAL OF CANCER 45 (2009) 414-419



ELSEVIER

Parental Experiences of Childhood Leukemia Treatment in Indonesia

Saskia Mostert, MD,* Mei N. Sitaresmi, MD,† Chad M. Gundy, MS,‡ Sutaryo, MD, PhD,† and Anjo J. P. Veerman, MD, PhD*

Address: Oncology Institut Medicin

Email: Mei Nei
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Does aid reach 1 leukaemia outre

Saskia Mostert^{a,*}, Mei I

^aPaediatric Haematology Oncology I
^bPaediatric Haematology Oncology D
^cDepartment of Psycho-Social Resea
The Netherlands

Summary: In our study, we examined socioeconomic, treatment-related, and psychologic experiences of parents during the acute lymphoblastic leukemia treatment of their children in an academic hospital in Indonesia. Children were treated with the WK-ALL-2000 protocol and received donated chemotherapy. From November 2004 to April 2006, 51 parents were interviewed by psychologists using semi-structured questionnaires. The family income had decreased (69%) since the start of treatment. Parents lost their jobs (29% of fathers and 8% of mothers), most of whom stated that this loss of employment was caused by the leukemia of their child (87% of fathers and 100% of mothers). Treatment costs resulted in financial difficulties (78%), debts (65%), and forced parents either to postpone or withdraw from parts of treatment (18%). Parents mentioned needing more information (86%) from and contact (77%) with

with a life-threatening illness.¹ In developing countries, the diagnosis of childhood leukemia also has an enormous socioeconomic impact on most families, who are confronted with high treatment costs for 2 years.²⁻⁴

The cure rate of childhood leukemia is as high as 80% in developed countries, and frequently less than 35% in developing nations. A substantial shortfall in survival occurs where there is poverty, poor communication between doctors and patients, and a low standard of parental education. This difference in survival is primarily due to treatment abandonment, an almost unknown problem in developed countries.⁵⁻¹³ Communication and parental education are of the utmost importance to ensure cooperation and compliance with chemotherapeutic regimens and to prevent treatment abandonment.^{2,5,14-19}

Reaching Out

The river flows both ways

- **Frequent communication is critical**
- **Knowledge transfer in BOTH directions**
- **Many patients helped in LMIC**
- **Many patients helped in HIC**
- **Many doctors educated in LMIC**
- **Many doctors educated in HIC**

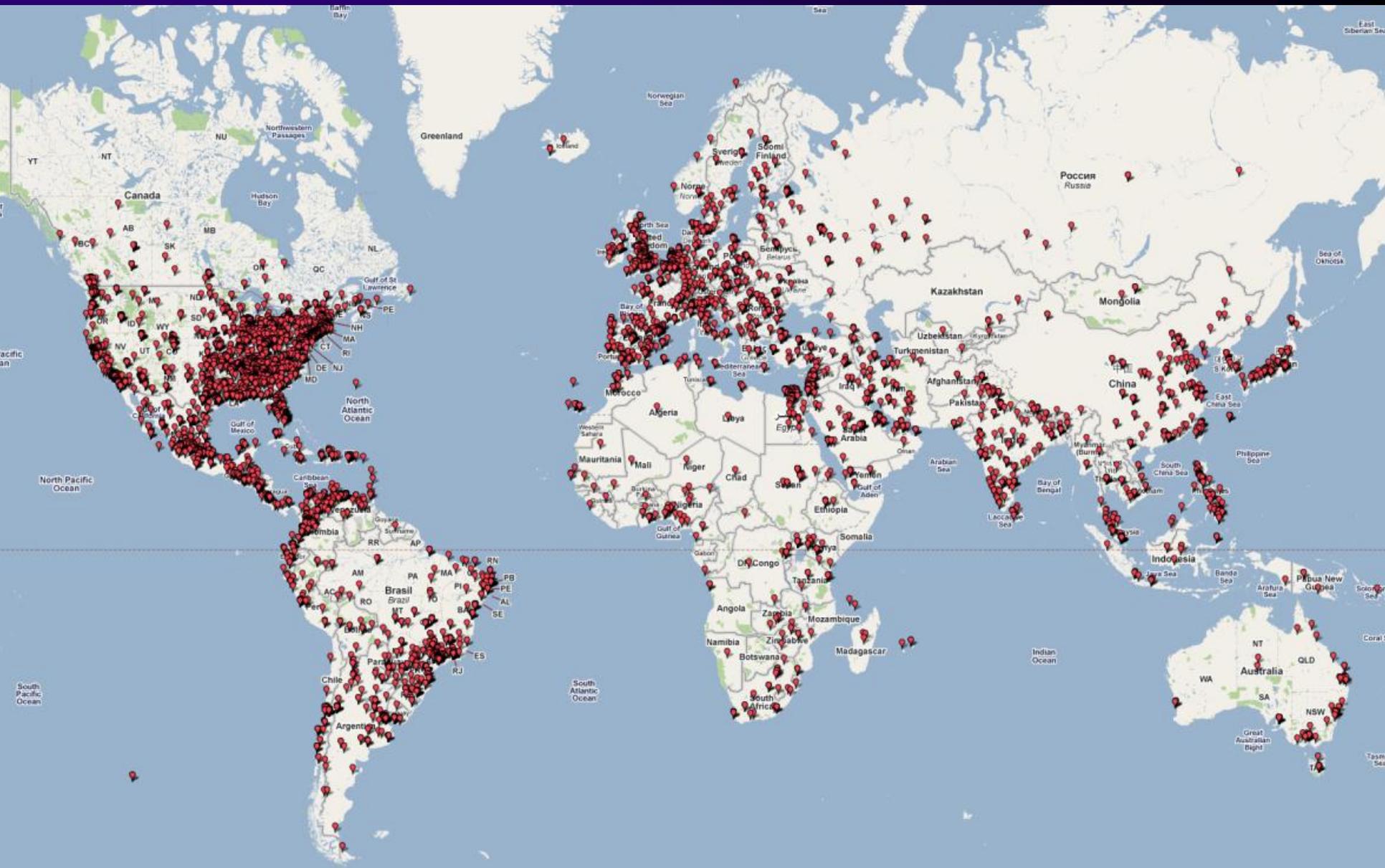
Cure4Kids



www.cure4kids.org

www.Cure4Kids.org 2002-2013

37,000 professionals, 187 countries



Online Live Meetings



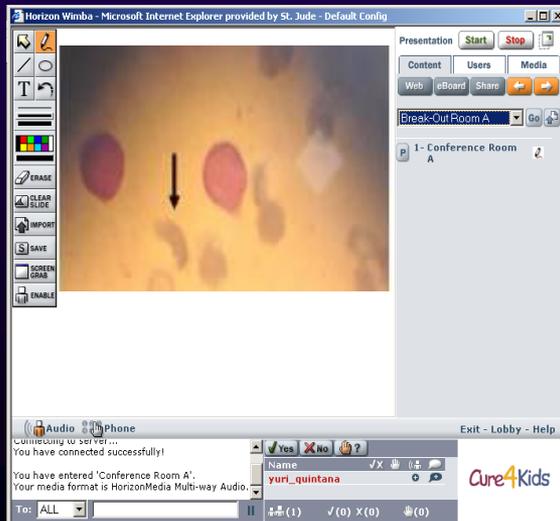
Rabat, Morocco



Casablanca, Morocco



St. Jude, USA



Central America

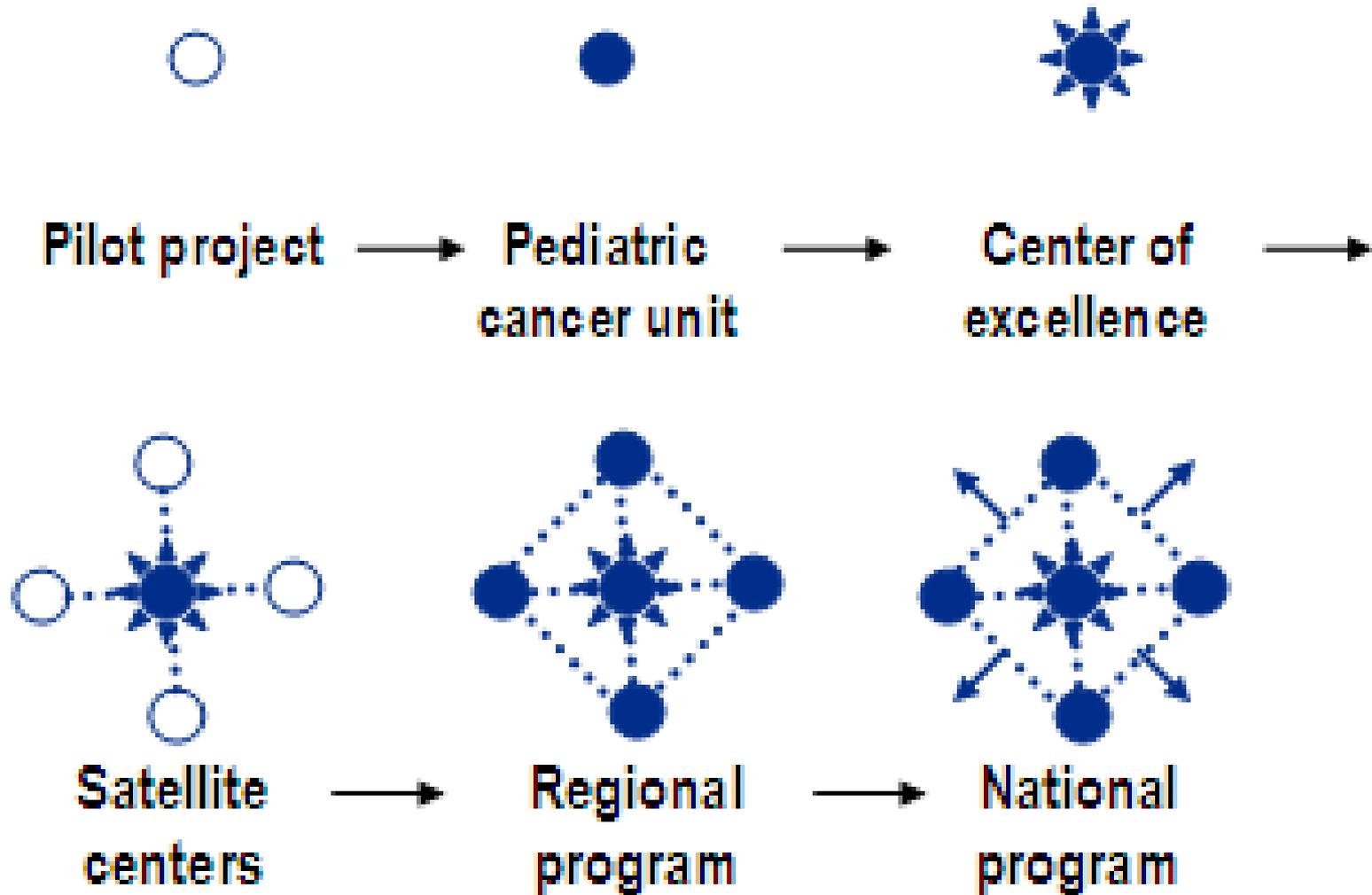
From 2002
through 2009,
Cure4Kids online
meeting rooms
were accessed
over 70,000 times

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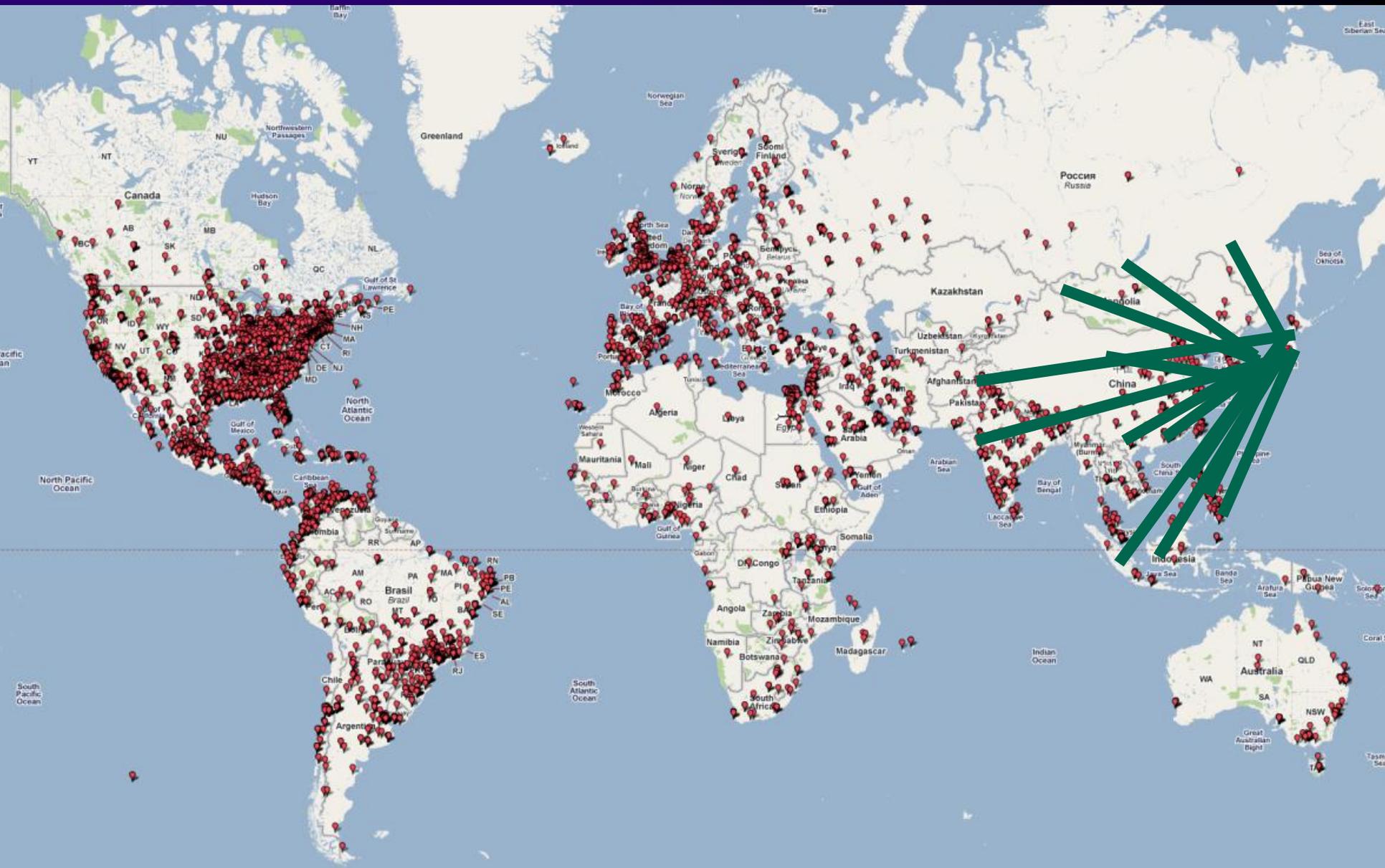
Steps To Implementation Of A National Pediatric Oncology Program In Low-Income Countries

From S.C.Howard & al. Strategies to improve outcomes of children with cancer in low-income countries. *Eur J Cancer*, 2005, 41, 1584-1587



www.Cure4Kids.org 2002-2013

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International Collaboration in Hematology/Oncology Salvador, Brazil 2013



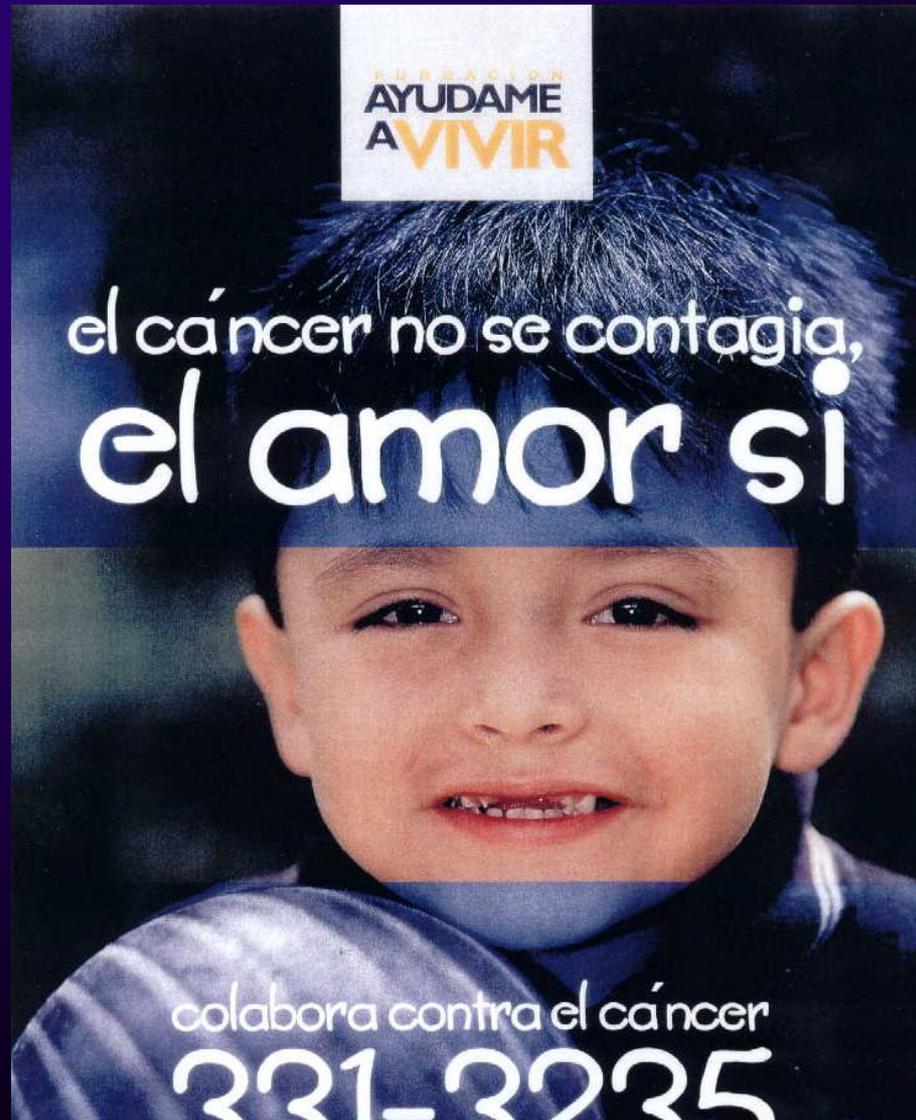
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がんは伝染しませんが、愛は伝染します。



“Cancer is not contagious, love is”