

Hersentumoren en de effecten van “straling”:

Wat zijn de invloeden van mobiele telefonie?

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Department of Pathology
Nijmegen, The Netherlands

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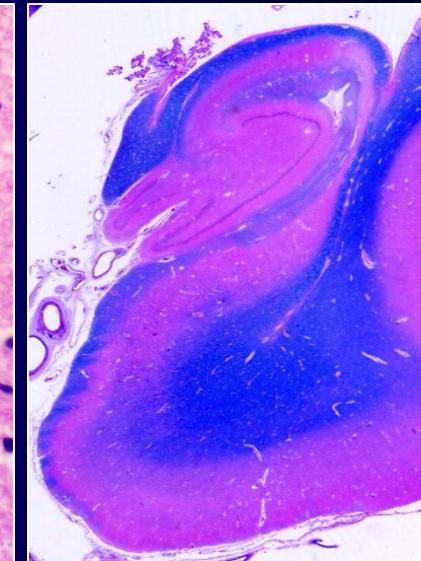
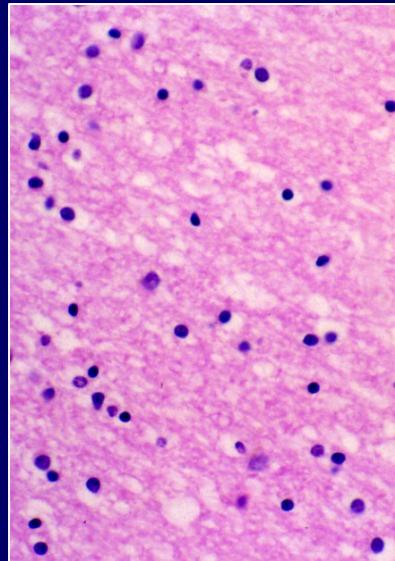
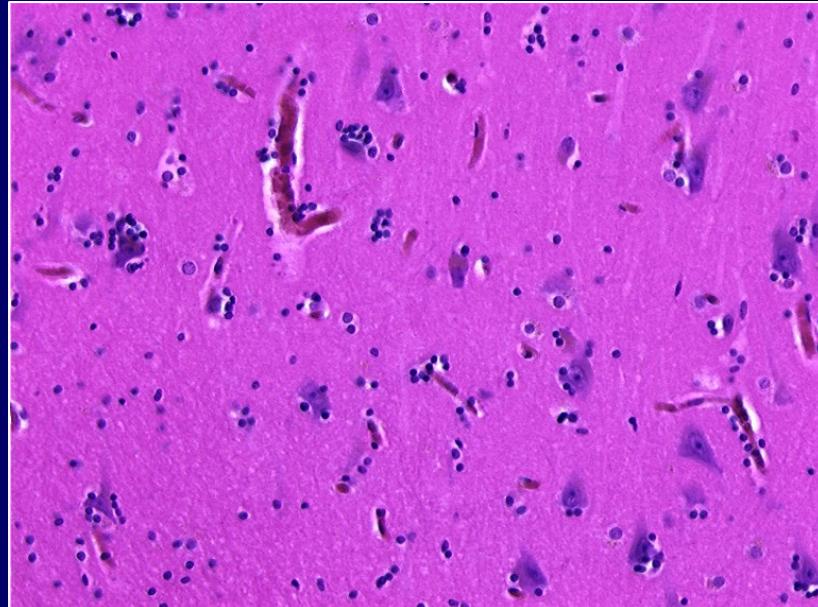
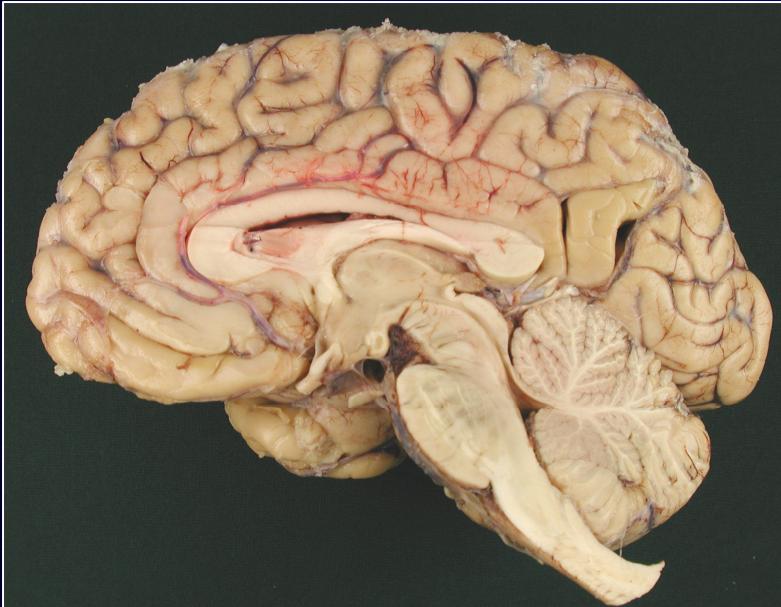
- 1. Hersentumoren**
- 2. Mobiele telefonie**
- 3. Relatie tussen 1 & 2**
- 4. Hoe verder?**

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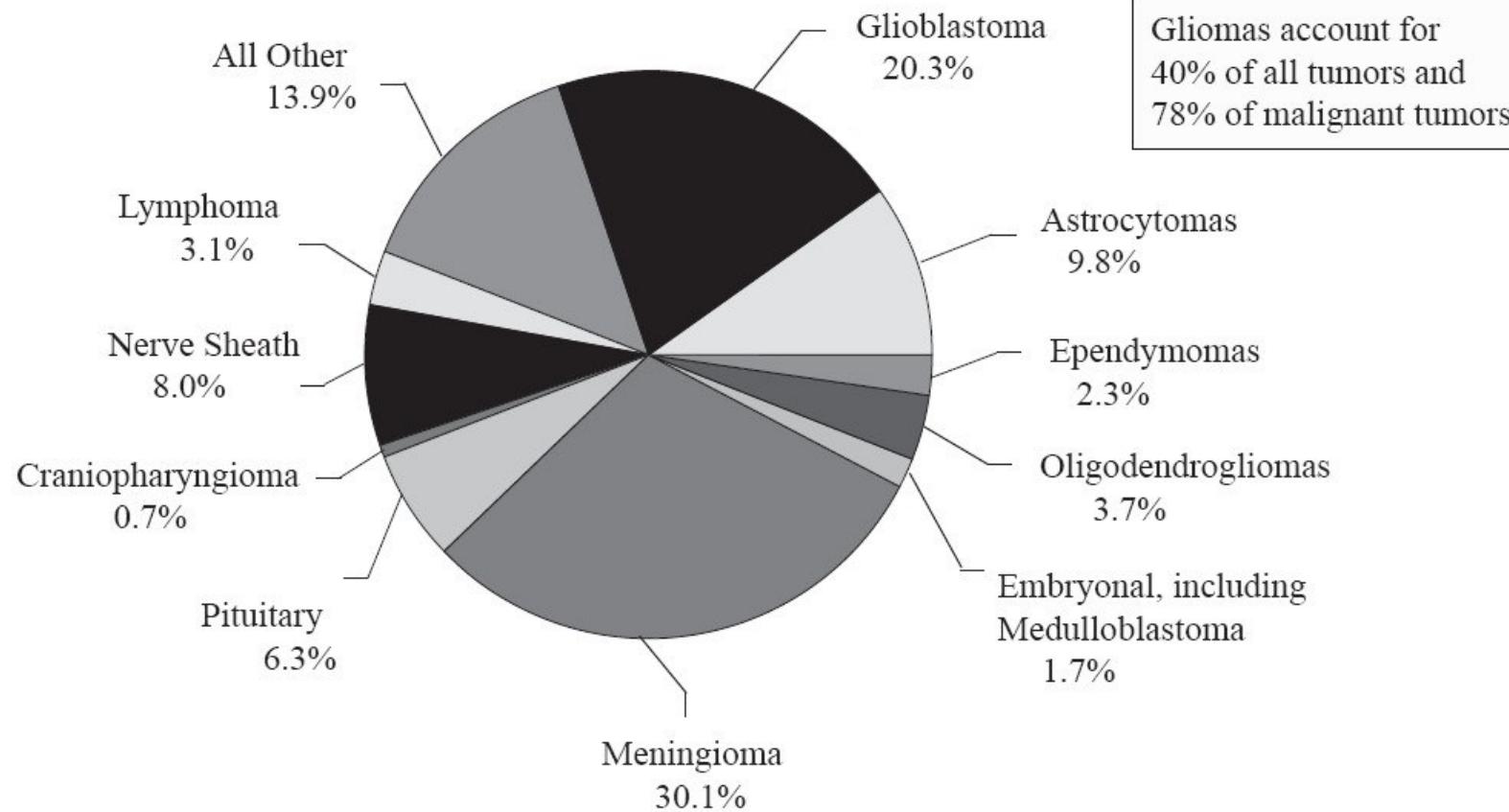
- 1. Hersentumoren**
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Cell types of the CNS



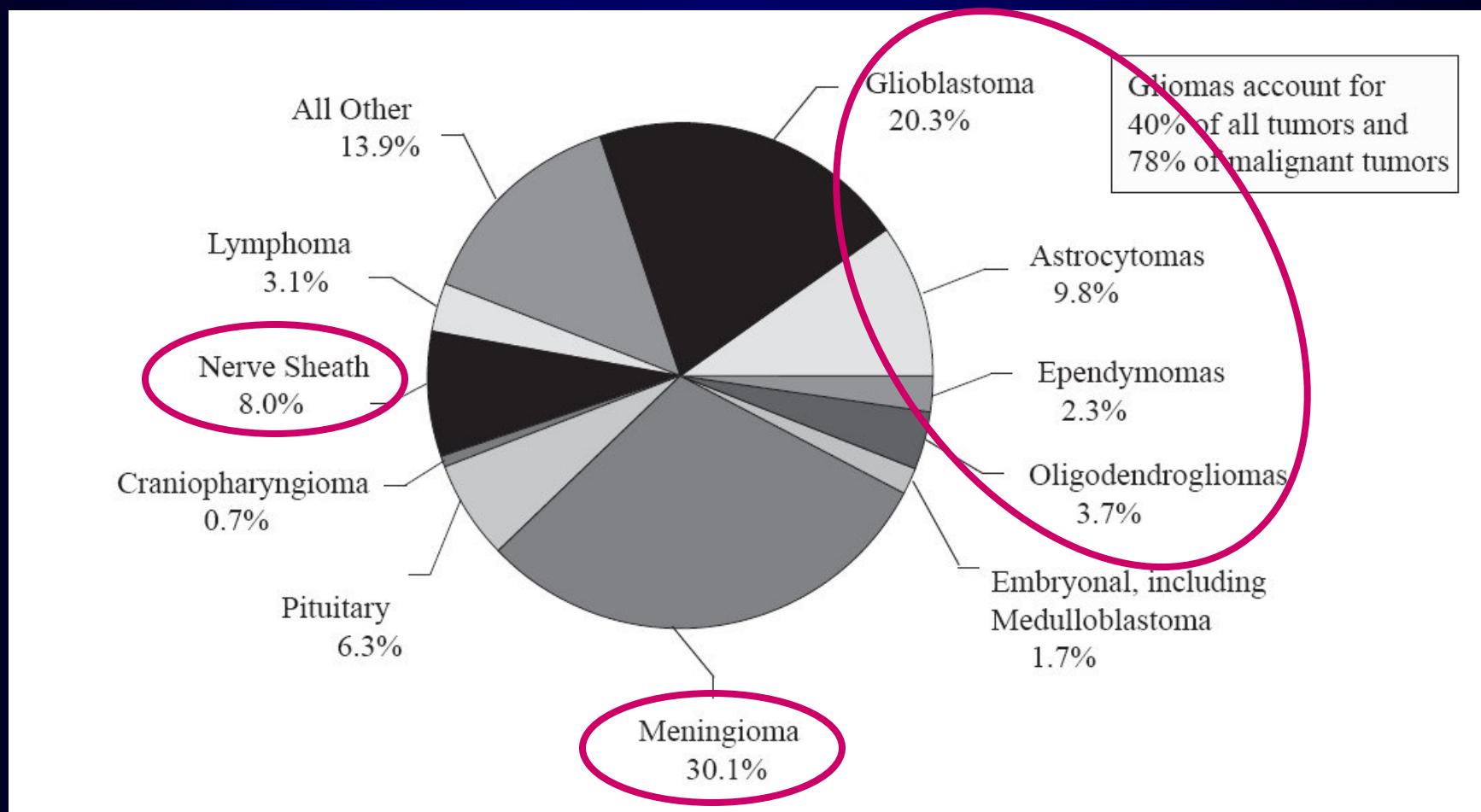
Distribution of all primary CNS tumors by histology

CBTRUS 1998-2002 ($n=63,698$)



Distribution of all primary CNS tumors by histology

CBTRUS 1998-2002 ($n=63,698$)



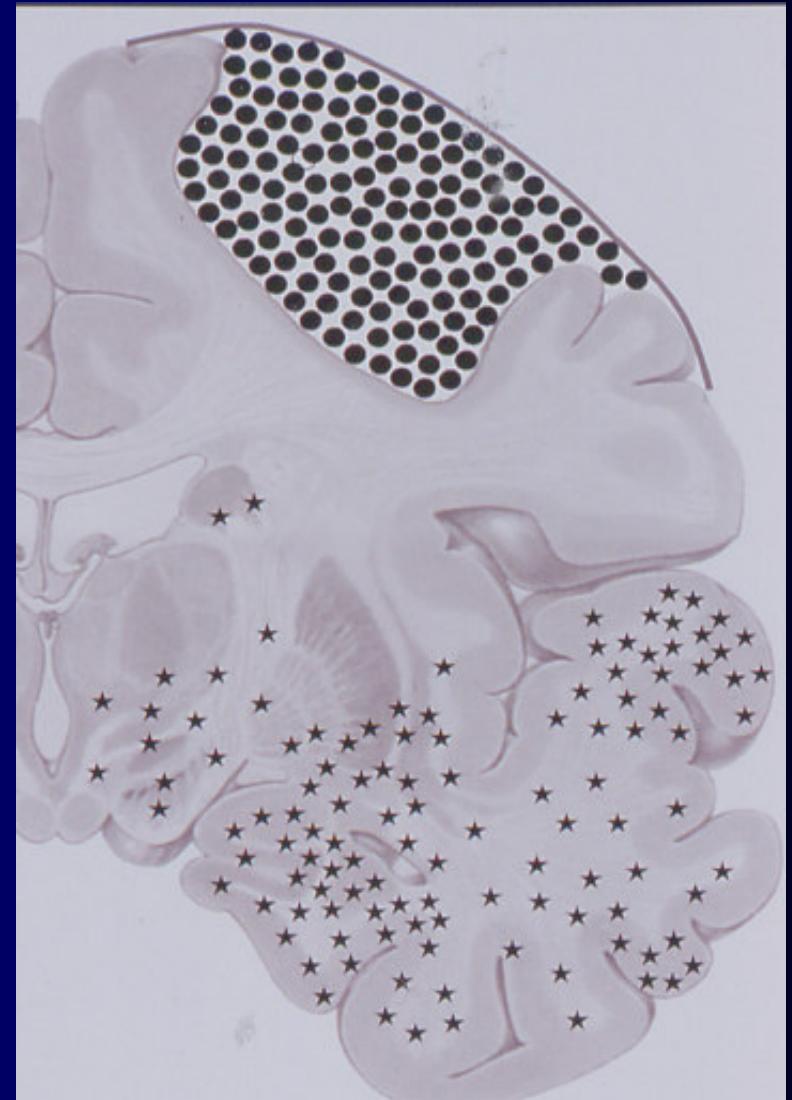
Meningioma & Glioma



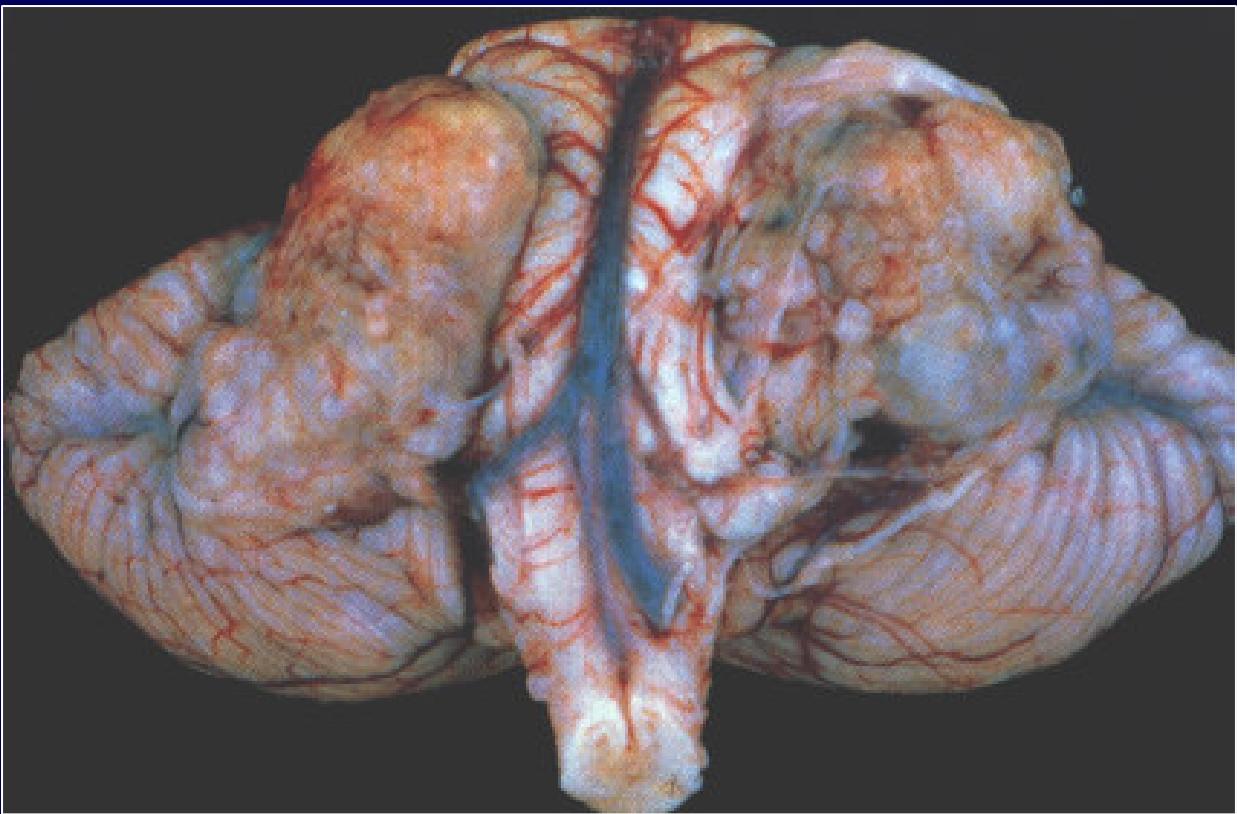
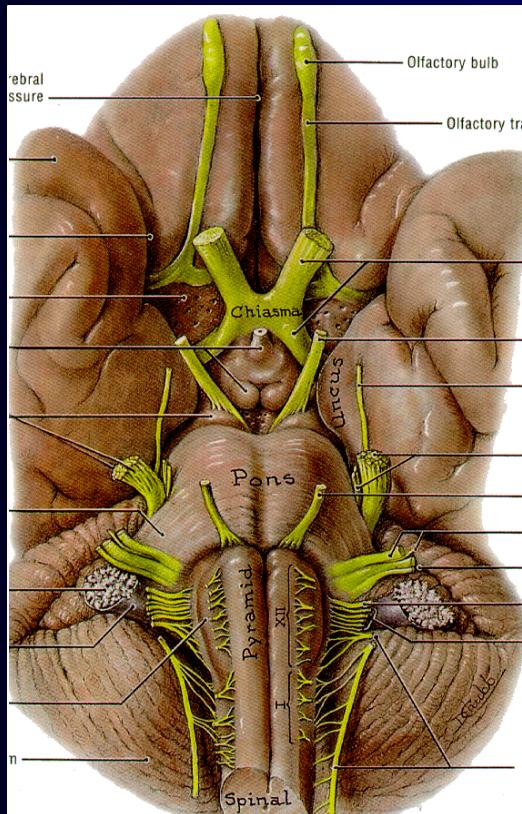
meningioma
expansive



glioma
**diffuse
infiltrative**

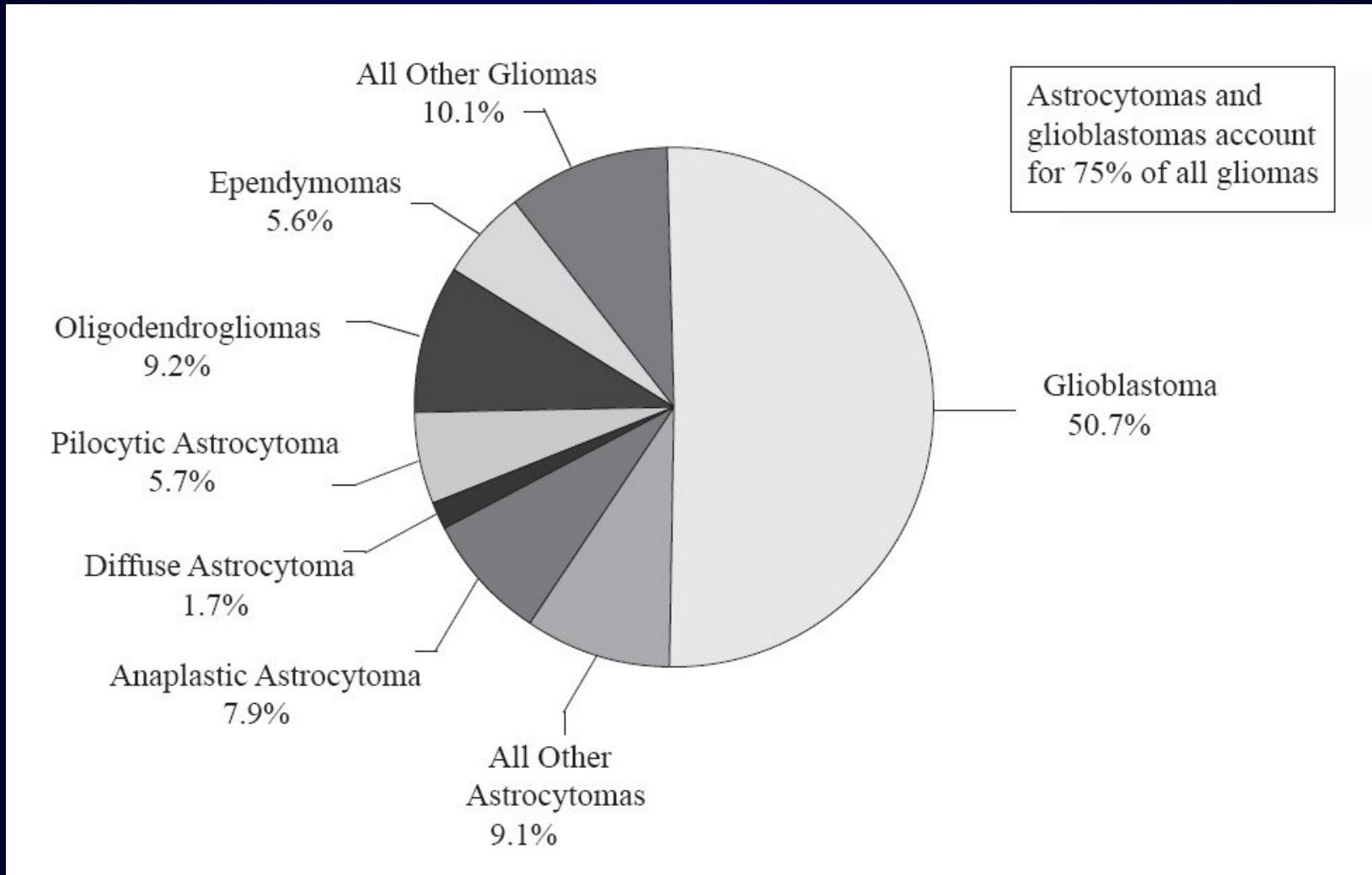


Schwannoma

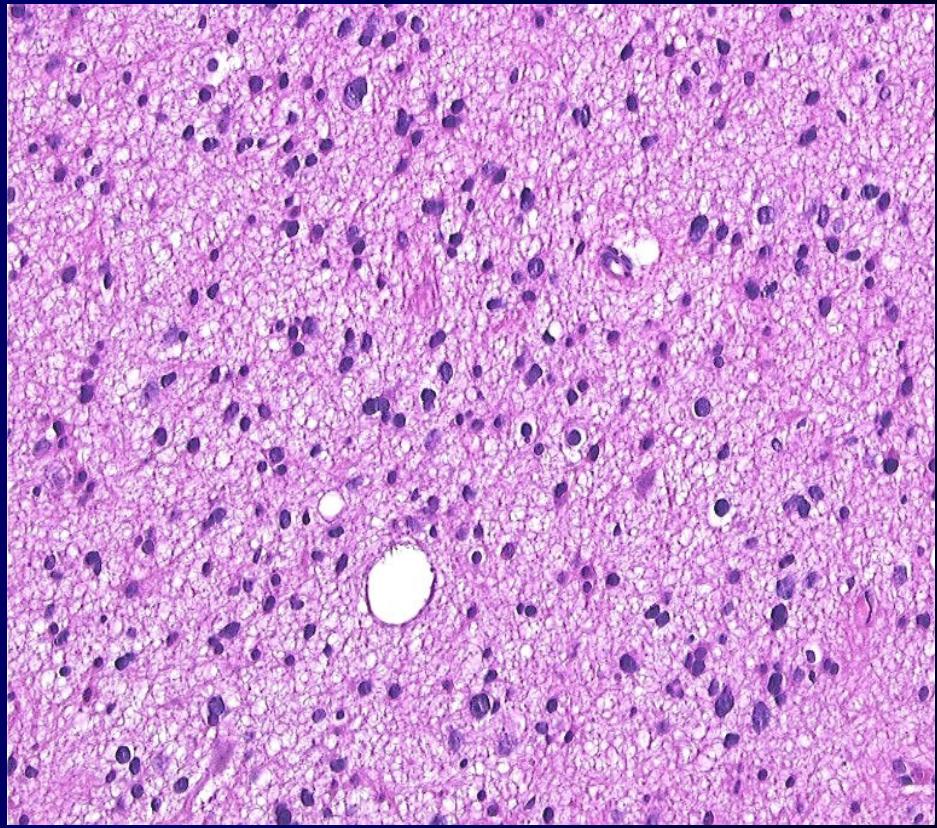
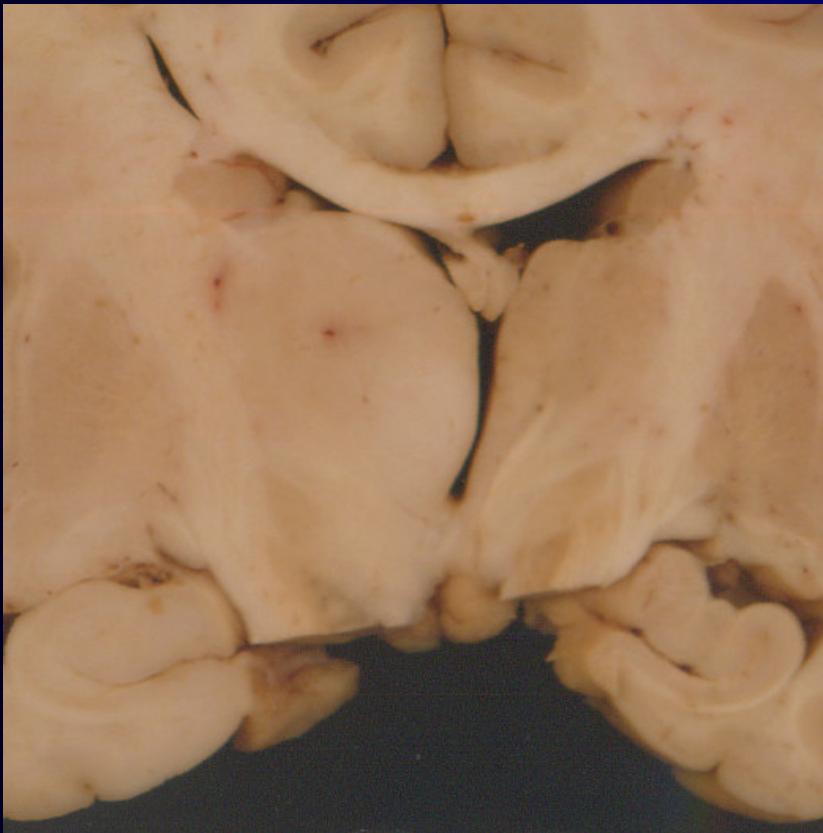


Distribution of all primary gliomas by histology subtypes

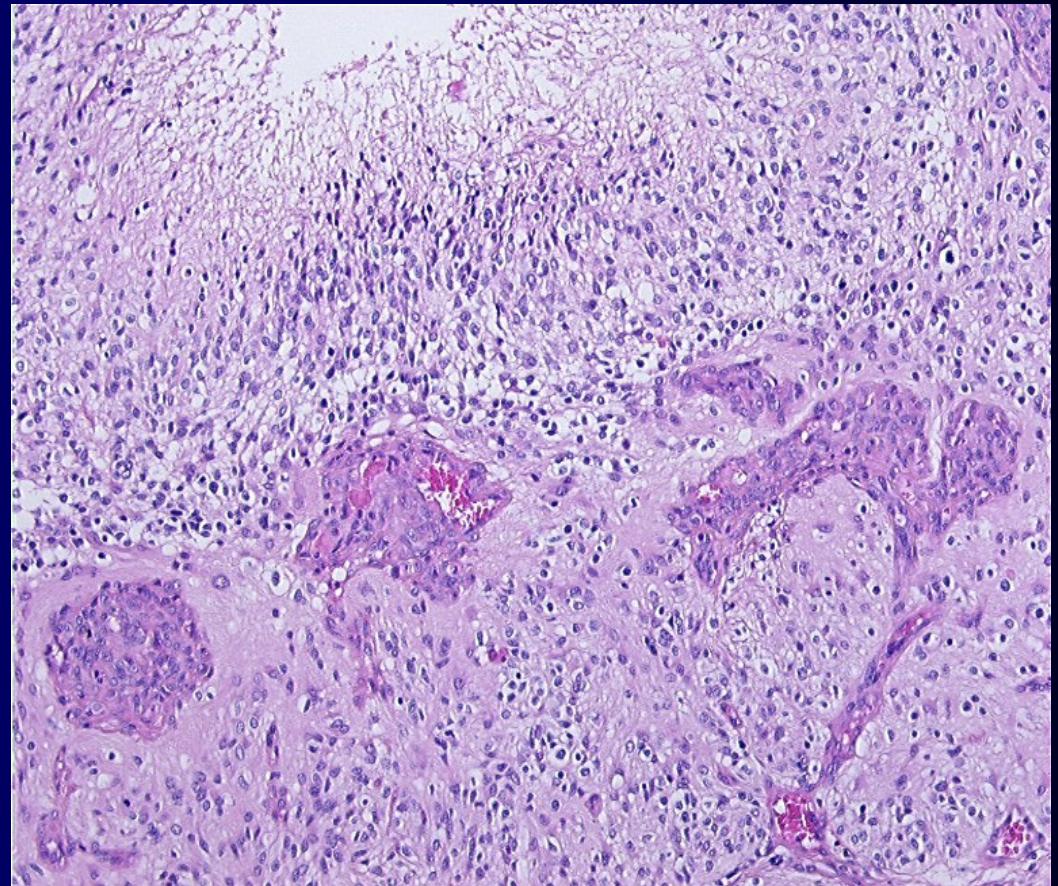
CBTRUS 1998-2002 ($n=25,539$)



Low grade astrocytoma (Grade II)

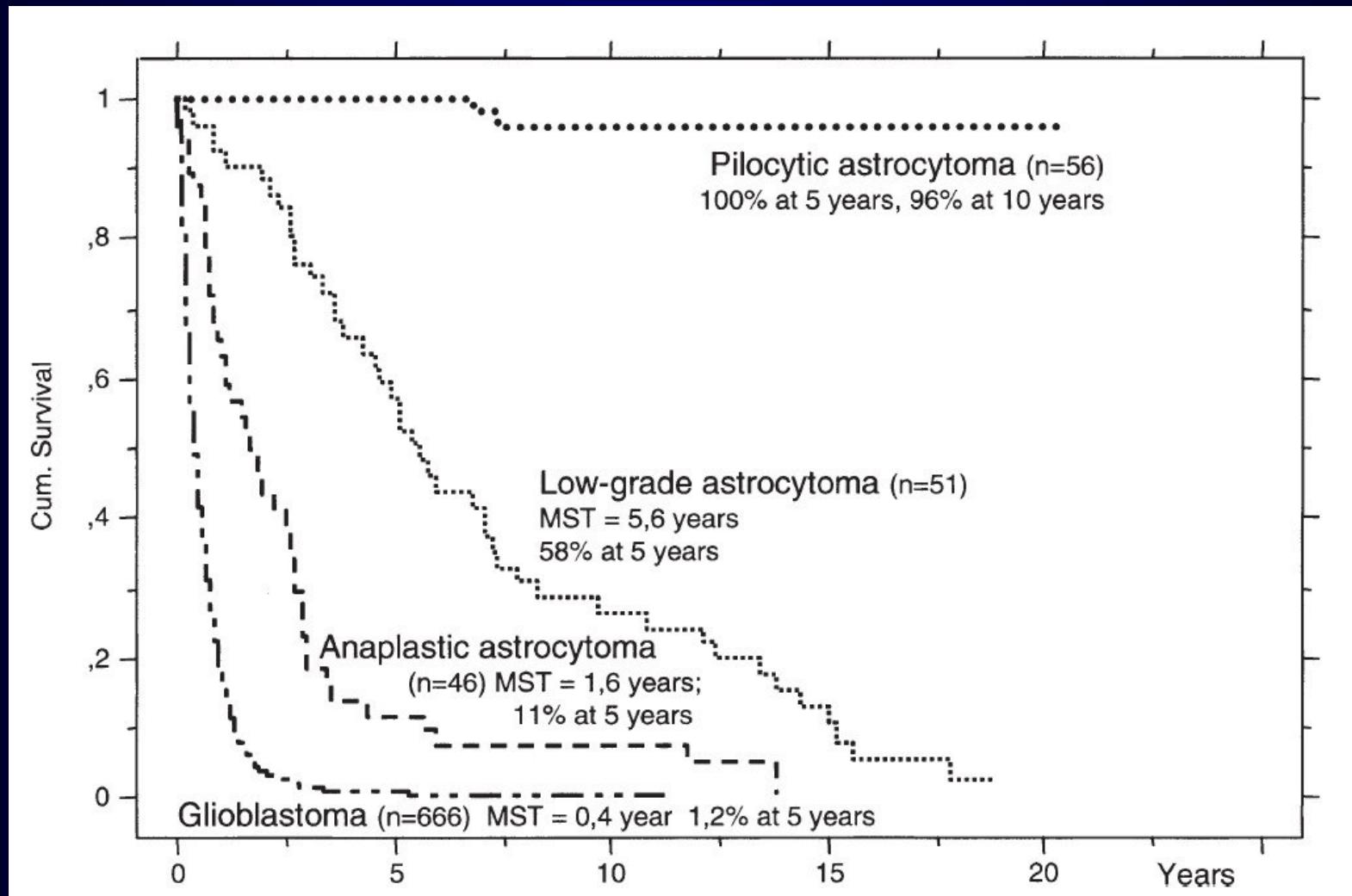


Glioblastoma multiforme (WHO grade IV)



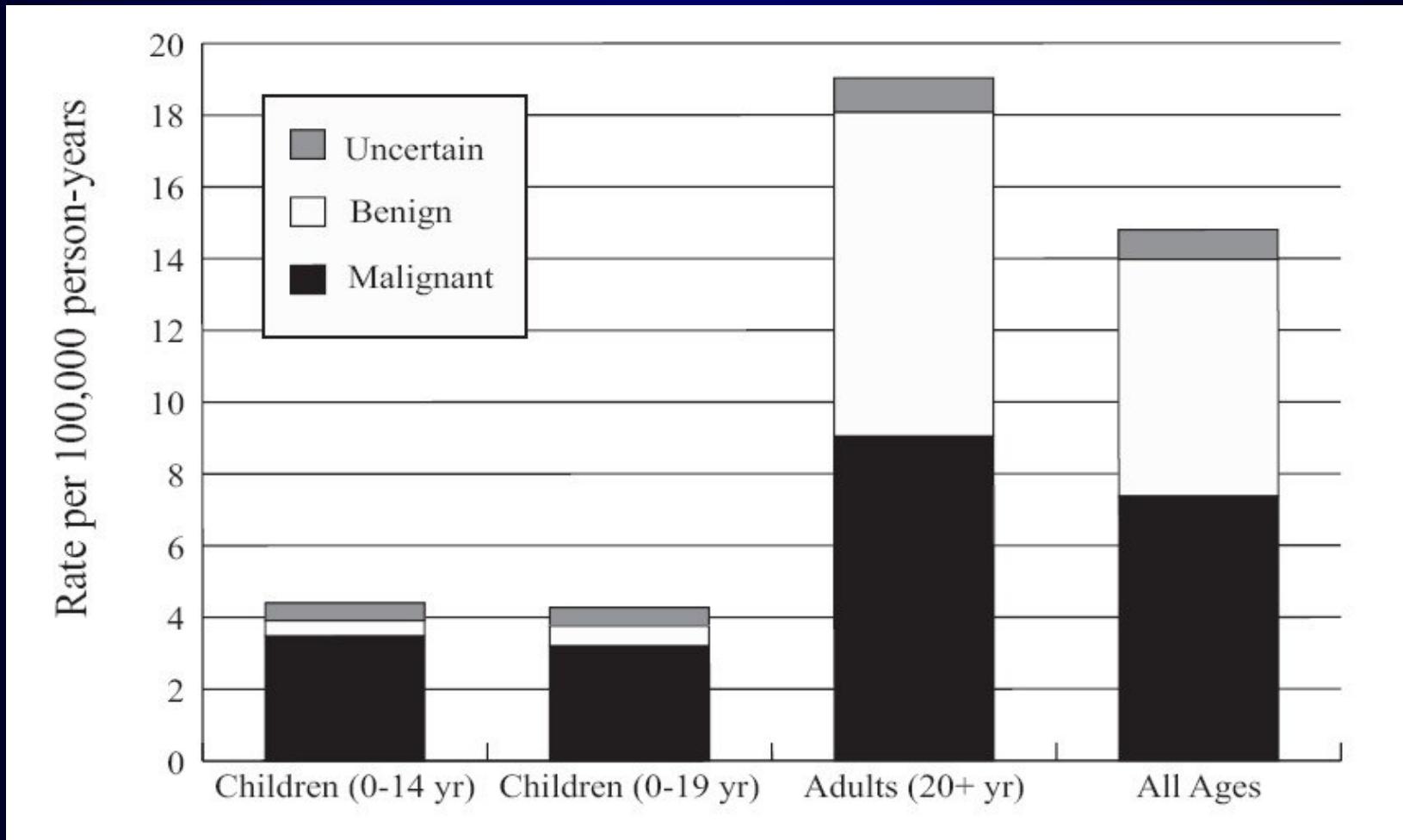
Survival of patients with astrocytic tumors

Ohgaki H, Kleihues P, J Neuropathol Exp Neurol (2005) 64:479-489



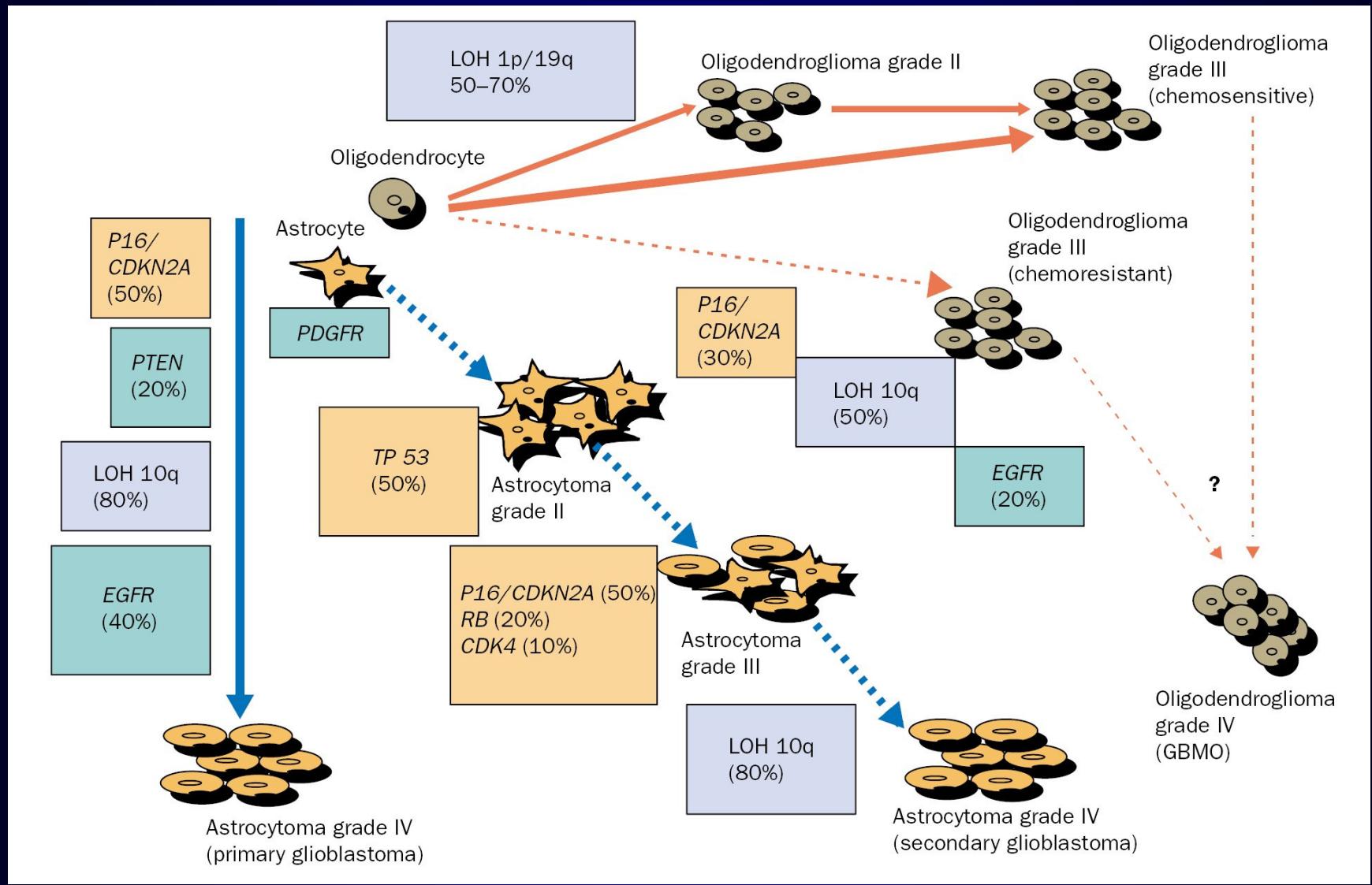
Total average annual age-adjusted incidence rates of primary CNS tumors by age and proportionally by behavior

CBTRUS 1998-2002 ($n=63,698$)



Moleculaire achtergrond van gliomen

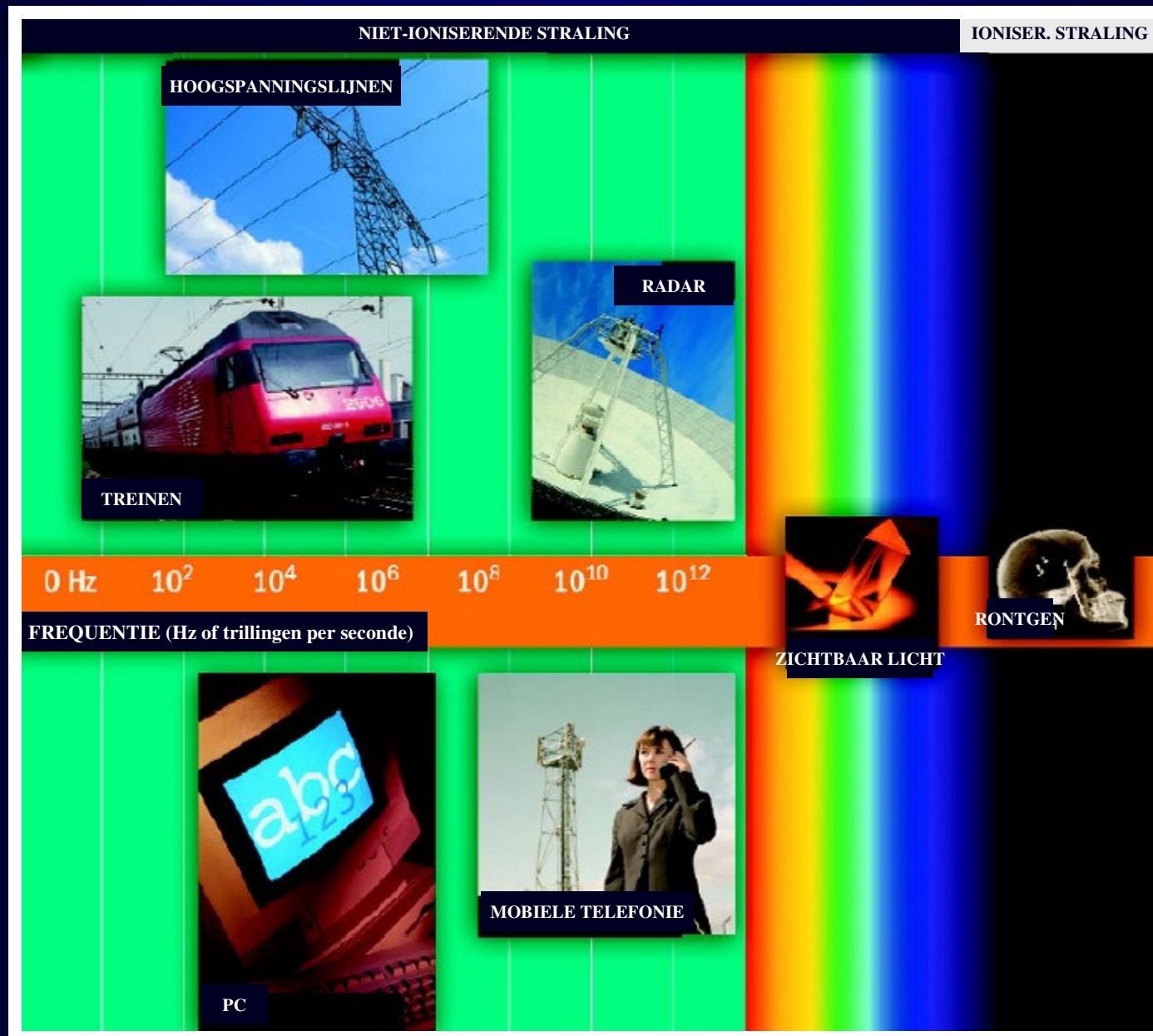
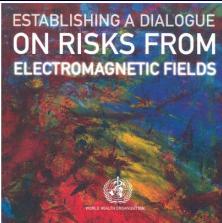
Behin A et al, Lancet (2003)361:323-331



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Mobile phone systems



- first generation: analog
(450-900 MHz)
- second generation: digital
(1,800-1,900 MHz)
- currently: UMTS*
(1,900-2,200 MHz)



* Universal Mobile Telecommunication System

Annual proportion of mobile phone subscribers in four nordic countries

Lönn S et al, *Int J Cancer* (2004) 108:450-455

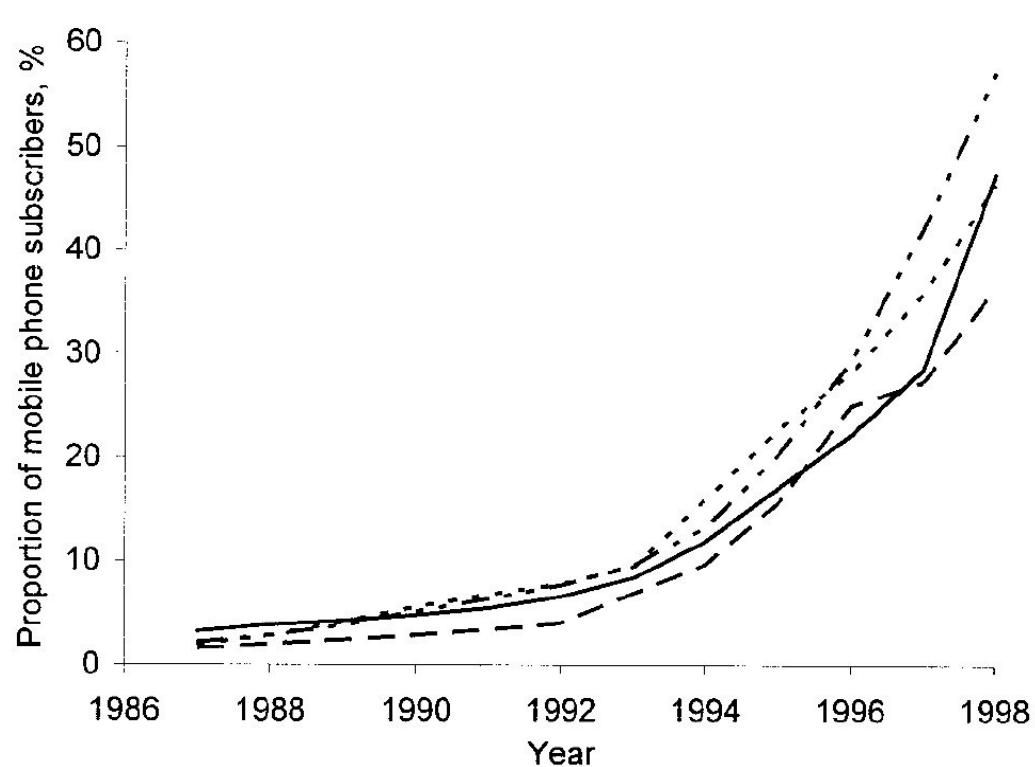


FIGURE 1 – Annual proportion of mobile phone subscribers in four Nordic populations during 1987-98. Denmark is indicated as— —, Finland as- - - -, Norway as — — and Sweden as - - - .



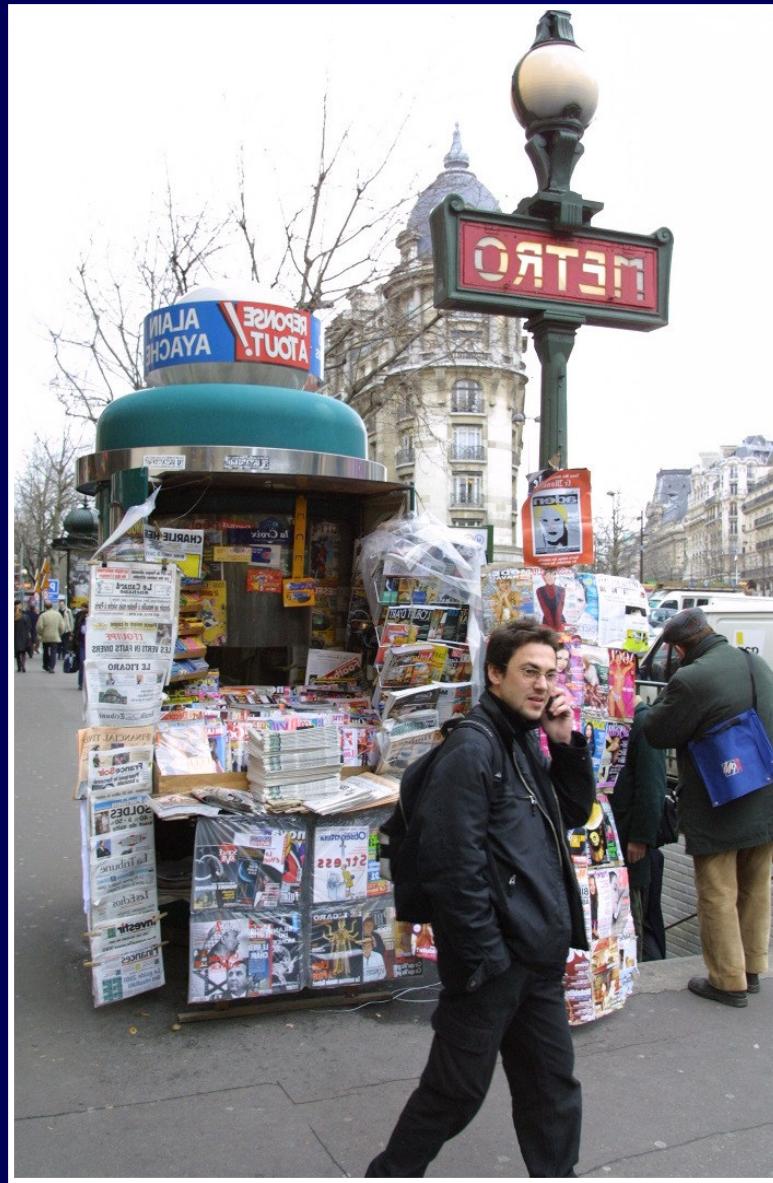
“k Ben bijna thuis”



“Het is gelukt!!!”

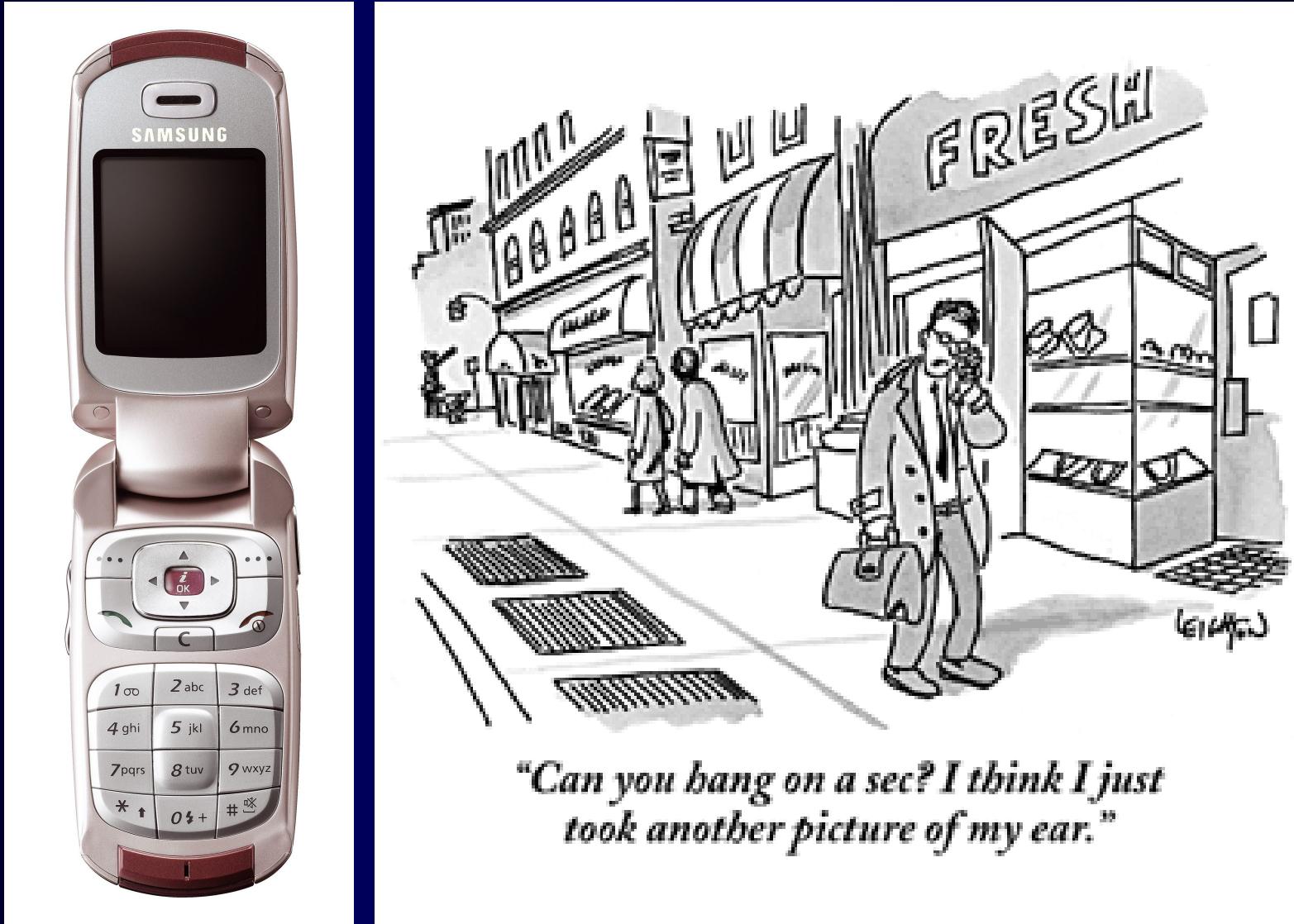


“Nee, ‘k zie hier niets van die oproer...”



“Doe die maar met die bloemetjes ...”





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NEWS

Published online: 21 December 2004; | doi:10.1038/news041220-6

Mobile-phone radiation damages lab DNA

[Helen Pearson](#)

European studies point to cellular harm.

Radiation from mobile or cellular phones harms the DNA in human cells, according to an extensive, pan-European laboratory study.

The research does not provide definitive proof that equivalent radiation harms people who use mobile phones. But the researchers emphasize that more extensive studies to test this link should be done, and that, until then, phone users should be cautious.

Controversy has raged for years over whether the electromagnetic radiation emitted by mobile phones can trigger tumours or Alzheimer's disease, or can otherwise harm human health. But the evidence showing whether and how radiation damages cells, and so might cause disease, has been scant and contradictory.



Phone users should exercise caution, researchers warn.

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Summary of studies of mobile phone use and risk of brain tumors

Ahlbom A et al, *Environ Health Perspect* (2004) 112:1741-1754

Reference (study design)	Study population	Tumor type (nos. of cases/controls)	Exposure assessment	Mobile phone type; duration of use in controls	Mobile phone ever used [RR (95% CI)]
Hardell et al. 1999 (case-control)	Sweden Cases: 20–80 years of age Controls: regional population registers, Uppsala-Orebro 1994–1996, Stockholm 1995–1996	All tumors (209/425) Acoustic neuroma	Recalled mobile phone use by questionnaire and interview	Mainly analog 450 or 900 MHz; 16% > 5 years	1.0 (0.7–1.4) ^a 0.8 (0.1–4.2)
Muscat et al. 2000 (case-control)	United States: hospital inpatients, New York, Providence, Boston Cases: 18–80 years, 1994–1998 Controls: malignant and nonmalignant conditions	Malignant brain tumor (469/422)	Recalled mobile phone use via interview	Mainly analog 800–900 MHz; 5% > 4 years	0.9 (0.6–1.2)
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Auvinen et al. 2002 (case-control)	Finland Cases: 20–69 years of age, 1996 Controls: national population register	All tumors (398/1,986) Glioma (198/989) Benign (129/643) Salivary gland (34/170)	Duration of private cellular network subscription	Analog, average 2–3 years subscription; digital, average < 1 year subscription	1.3 (0.9–1.8) 1.5 (1.0–2.4) 1.1 (0.5–2.4) 1.3 (0.4–4.7)
Hardell et al. 2002 (case-control)	Sweden Cases: 20–80 years of age, 1997–2000 Controls: four regional population registers	All tumors (1,303/1,303)	Recalled mobile phone use via questionnaire	Analog 450 or 900 MHz, median 8 years Digital 1,900 MHz, median 3 years	1.3 (1.0–1.6) ^a 1.0 (0.8–1.2)
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Johansen et al. 2002 (cohort)	Denmark: private cellular network subscribers, 1982–1995 Cases: ≥ 18 years of age, 1982–1996	All tumors (154) Glioma (66) Meningioma (16)	Duration of subscription	Analog 450 or 900 MHz or digital; up to 15 year follow-up	SIR 1.0 (0.8–1.1) 0.9 (0.7–1.2) 0.9 (0.5–1.4)
Christensen et al. 2004	Denmark: population-based case-control	Acoustic neuroma (106); population controls (212)	—	—	0.90 (0.51–1.6)

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Mobile phone use and the risk of acoustic neuroma

Lönn S, Ahlbom A, Hall P, Feychtung M, Epidemiology (2004)15:653-659

- population-based control study Sweden
- cases with acoustic neuroma during 1999-2002
- age 20-69 years
- detailed information of 148 (93%) cases and 604 (72% controls)
- overall odds ratio for acoustic neuroma 1.0 (95% c.i. 0.6 – 1.5)
- 10 years after start of mobile phone use 1.9 (0.9 – 4.1)
- for ipsilateral tumors 3.9 (1.6 – 9.5)

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NEWS

Published online: 14 October 2004; | doi:10.1038/news041011-11

Mobile phone risk revealed

Federica Castellani

Long-term phone use doubles occurrence of rare tumour.

Using a mobile phone for ten or more years doubles the risk of getting a type of benign head tumour, a Swedish study has found.

The study is relatively small, it looked at 148 patients and 600 controls, and the effect will need to be confirmed with larger groups. But it is the first to show clear evidence that mobile phone use could increase the risk of getting tumours.

"We were surprised about the results, but the outcome is quite clear," says Anders Ahlbom, an epidemiologist at the Karolinska Institute, who was involved in the study.



All of the extra tumours seemed to occur on the same side of the head to which the patients normally held their phone.

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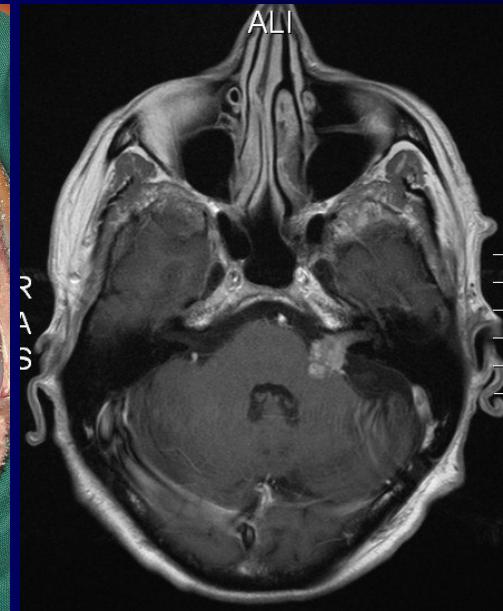
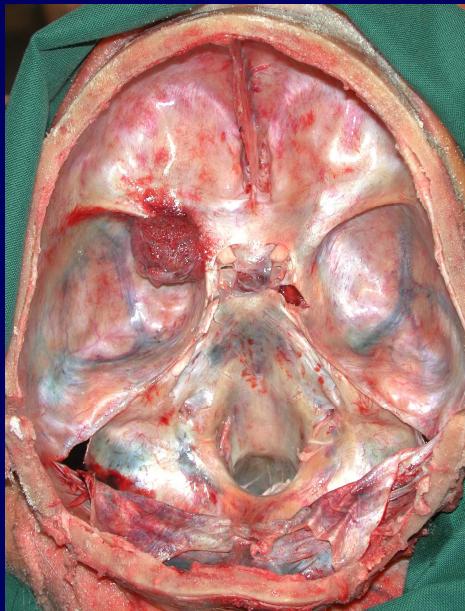
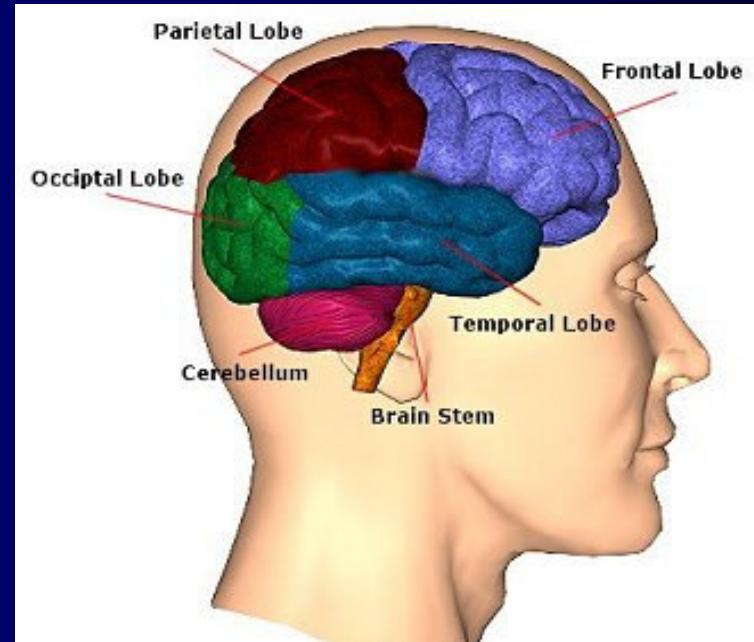
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Ipsilateral > Contralateral?



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Cave

- selection bias
- recall bias
- duration

Cite this article as: BMJ, doi:10.1136/bmj.38720.687975.55 (published 20 January 2006)

Research

Mobile phone use and risk of glioma in adults: case-control study

Sarah J Hepworth, Minouk J Schoemaker, Kenneth R Muir, Anthony J Swerdlow, Martie J A van Tongeren, Patricia A McKinney

Abstract

Objective To investigate the risk of glioma in adults in relation to mobile phone use.

Design Population based case-control study with collection of personal interview data.

Setting Five areas of the United Kingdom.

Participants 966 people aged 18 to 69 years diagnosed with a glioma from 1 December 2000 to 29 February 2004 and 1716 controls randomly selected from general practitioner lists.

Main outcome measures Odds ratios for risk of glioma in relation to mobile phone use.

Results The overall odds ratio for regular phone use was 0.94 (95% confidence interval 0.78 to 1.13). There was no relation for risk of glioma and time since first use, lifetime years of use, and cumulative number of calls and hours of use. A significant excess risk for reported phone use ipsilateral to the tumour (1.24, 1.02 to 1.52) was paralleled by a significant reduction in risk (0.75, 0.61 to 0.93) for contralateral use.

Conclusions Use of a mobile phone, either in the short or medium term, is not associated with an increased risk of glioma. This is consistent with most but not all published studies. The complementary positive and negative risks associated with ipsilateral and contralateral use of the phone in relation to the side of the tumour might be due to recall bias.

of 13 countries investigating mobile phone use and the risk of intracranial tumours.

What is already known on this topic

Gliomas are a specific type of brain tumour for which the causes are generally unknown, but concern has been expressed over a possible link with using a mobile phone

What this study adds

This large case-control study found no increased risk of developing a glioma associated with mobile phone use either in the short or medium term

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 [DECT telefoons](#) worden momenteel erg voordelig aangeboden.
[Lees a.u.b. eerst dit artikel voor u een draadloze huistelefoon gaat kopen.](#)

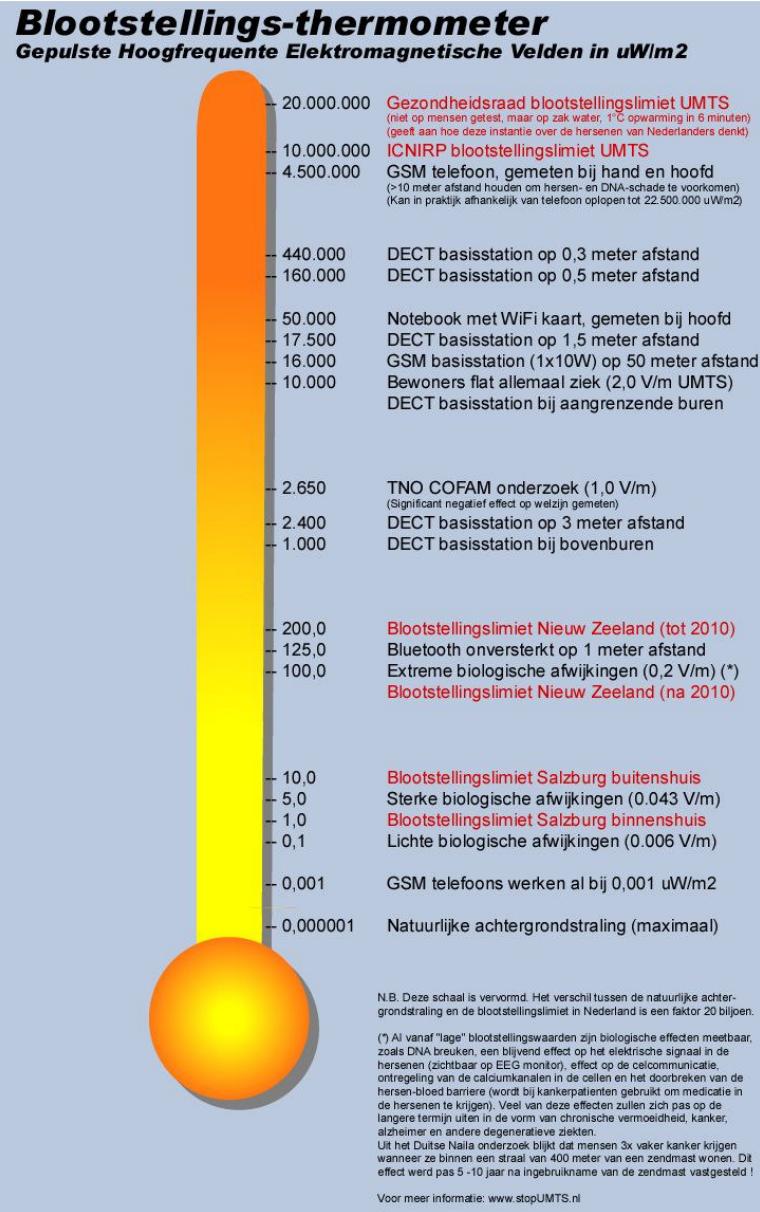
Ervaringen van mensen die blootgesteld zijn aan straling (meer)
Lees het verhaal van: [Etwald Goes \(webmaster\)](#), [bewoners van het Nassauplein](#),
[een arts \(DECT\)](#), [familie Luyat \(Amsterdam\)](#), [170 politieagenten \(C2000\)](#)

Wetenschappelijke studies en aanwijzingen (meer)
Veel wetenschappelijke studies tonen schadelijkheid aan | [Beknopte samenvatting](#)
[Folder met alle provocatie onderzoeken](#) | [Folder met alle epidemiologische onderzoeken](#)
[Artsen en professors wereldwijd luiden massaal de noodklok](#)

De gemeentes en woningbouwverenigingen/corporaties die UMTS weren



www.stopumts.nl



www.antennebureau.nl

The screenshot shows the homepage of the Antenne Bureau website. At the top, there is a navigation bar with the following path: > Burger > Gemeente > Gebouweigenaar > Zorgverlener > Antenne-eigenaar. To the right of the navigation is a small thumbnail image of a person wearing a blue shirt. On the right side of the page, there is a sidebar with links for 'Antenne register', 'Contact', 'Info' (with the phone number 0900-2683663), and a search bar with a 'Zoek' button. Below these links is a photo of a woman talking on a mobile phone. To the right of the photo are links for 'Over ons', 'Pers', 'Colofon', and 'English'. The main content area features a large banner with a cityscape background and a white antenna tower in the foreground. Overlaid on the banner is the word 'WELKOM BIJ' in large, bold, white letters. Below the banner is the Antenne Bureau logo, which consists of three blue wavy lines above the text 'Antenne BUREAU'. To the left of the main content area is a vertical sidebar with a blue background. It contains the word 'Voorwoord' in yellow, followed by smaller text: 'van Minister Brinkhorst en Staatssecretaris Van Geel'. At the bottom of this sidebar is a decorative graphic of three white wavy lines on a blue background. In the bottom right corner of the main content area, there is a small 'RSS 2.0' icon.

> Burger > Gemeente > Gebouweigenaar > Zorgverlener > Antenne-eigenaar

Antenne register

Zoek

Contact

Info
0900-2683663

Over ons

Pers

Colofon

English

WELKOM BIJ

Voorwoord
van Minister Brinkhorst en
Staatssecretaris Van Geel

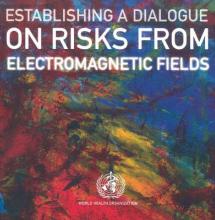
Antenne
BUREAU

Het Antennebureau is hét overheidsloket voor informatie, voorlichting en advies over antennes. Wij zijn er voor burgers, lokale overheden, woningcorporaties, zorgverleners en andere geïnteresseerden. U kunt bij ons terecht met vragen over gezondheid, wet- en regelgeving en techniek. Het Antennebureau beheert ook het Antenneregister, met de locaties en gegevens van alle antennes in Nederland.

Laatste nieuws

- > ME maakt einde aan actie UMTS-mast
- > KPN mag Nozema overnemen
- > Resultaten Zwitserse onderzoek nog niet beschikbaar

RSS 2.0



Hoogfrequente velden

Voor radiofrequente velden lijken de beschikbare wetenschappelijke gegevens erop te wijzen dat blootstelling aan RF-velden met een lage veldsterkte (zoals die worden uitgezonden door mobiele telefoons en hun basisstations) geen nadelige gevolgen voor de gezondheid heeft. Een aantal wetenschappers heeft geringe effecten van het gebruiken van een mobiele telefoon gerapporteerd, zoals veranderingen in hersenactiviteit, reactietijden en slaappatronen. Voorzover deze effecten zijn bevestigd, lijken ze binnen de natuurlijke variaties bij de mens te liggen.

Momenteel zijn de onderzoeksinspanningen gericht op de vraag of *langetermijnblootstelling aan RF-velden met geringe veldsterktes* nadelige gevolgen voor de gezondheid kan hebben - zelfs bij veldsterktes die te gering zijn om een belangrijke temperatuurverhoging teweeg te brengen. Verschillende recente epidemiologische onderzoeken naar gebruikers van mobiele telefoons hebben geen overtuigende aanwijzingen voor een verhoogd risico op hersenkanker opgeleverd. De technologie is echter te jong om effecten op de lange termijn uit te sluiten.

Medisch Contact

Gevoeligheid voor GSM-straling

Publicatie: Nr. 11 - 17 maart 2006

Rubriek: MediSein

Pagina: 445

Extreem gevoelige mensen krijgen wel degelijk hoofdpijn van GSM-signalen. Zonder die signalen krijgen ze echter ook hoofdpijn. Dat berichtte British Medical Journal vorige week online.

Sommige mensen beweren dat ze van het plegen van een mobiel telefoongesprek onmiddellijk hoofdpijn en andere klachten krijgen. Ze zouden lijden aan het nog onbegrepen fenomeen 'elektromagnetische sensitiviteit'. Onderzoekers van het King's College in Londen hebben geprobeerd het waarheidsgehalte hiervan te testen. Onder meer via praatgroepen rekruteerden ze 60 GSM-gevoelige personen en vergeleken die in een reeks tests met 60 controlepersonen. In drie sessies werden de proefpersonen 50 minuten lang blootgesteld aan GSM-straling, niet-pulserende straling of een stralingsloze omgeving. Voor de ontvangst was in de buurt van het linkeroor een antenne gemonteerd. Uit de GSM-gevoelige groep trokken negen personen zich na een sessie terug vanwege ernstige klachten. Zeventien andere sensitieve proefpersonen kregen ook hoofdpijn en vroegen of de test vervroegd kon worden beëindigd.

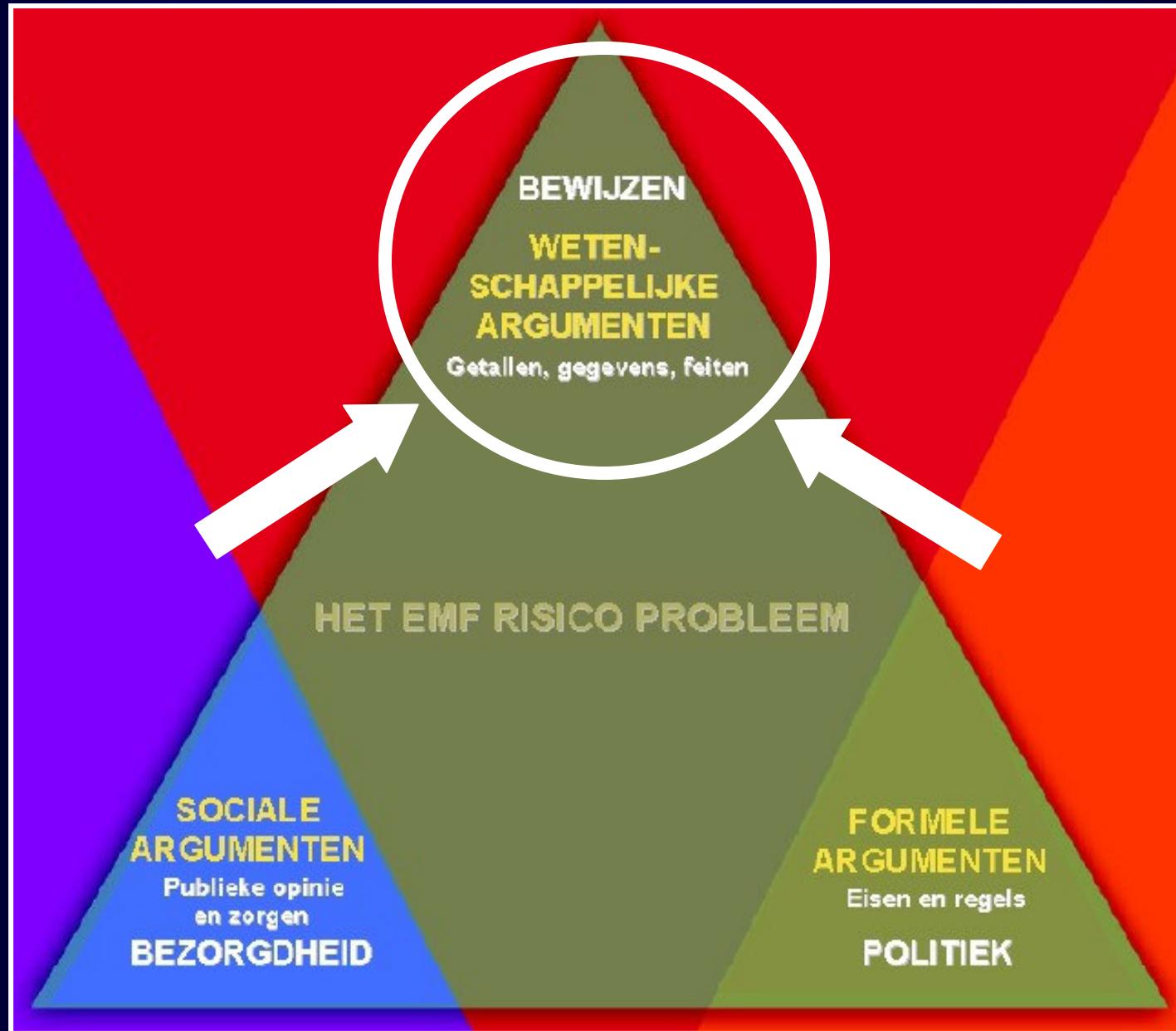
Er bestond geen verband tussen het optreden van klachten en de aard van de straling waaraan de proefpersonen blootstonden. Zeven mensen met hoofdpijn stonden inderdaad bloot aan een GSM-signaal, tien anderen kregen een niet-pulserend signaal en bij negen proefpersonen ontstond de hoofdpijn in afwezigheid van straling. De auteurs vermoeden dat er bij de patiënten sprake is van een 'nocebo-effect', waarbij suggestie echte symptomen veroorzaakt. Artsen moeten mensen met GSM-overgevoeligheid aanmoedigen om andere oorzaken voor hun klachten te zoeken dan elektromagnetische straling, aldus de auteurs. << RC

www.bmjjournals.com Online first, 6 maart 2006

Hersentumoren en de effecten van “straling”:

Wat zijn de invloeden van mobiele telefonie?

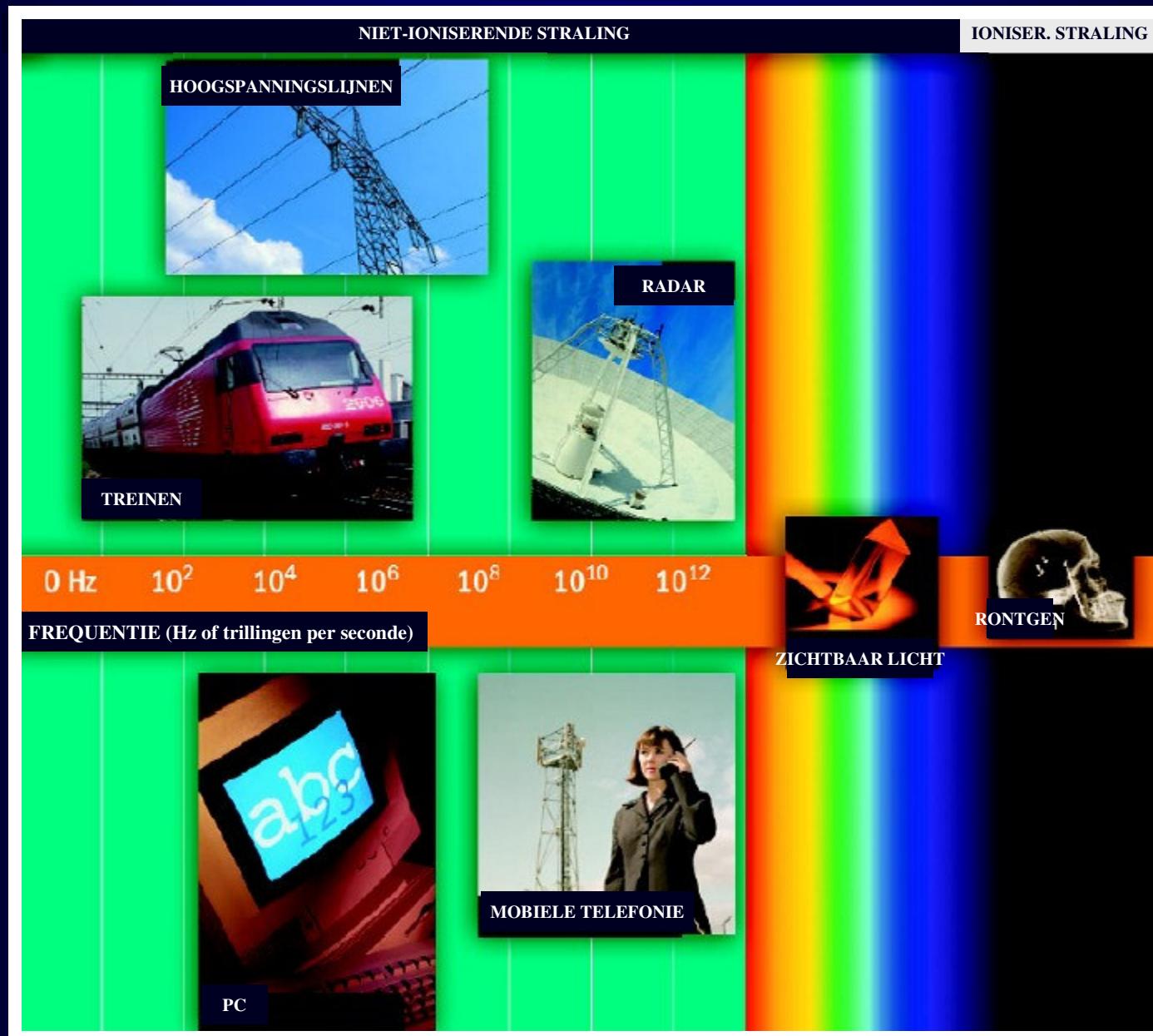
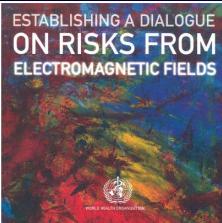
- 1. Hersentumoren**
- 2. Mobiele telefonie**
- 3. Relatie tussen 1 & 2**
- 4. Hoe verder?**



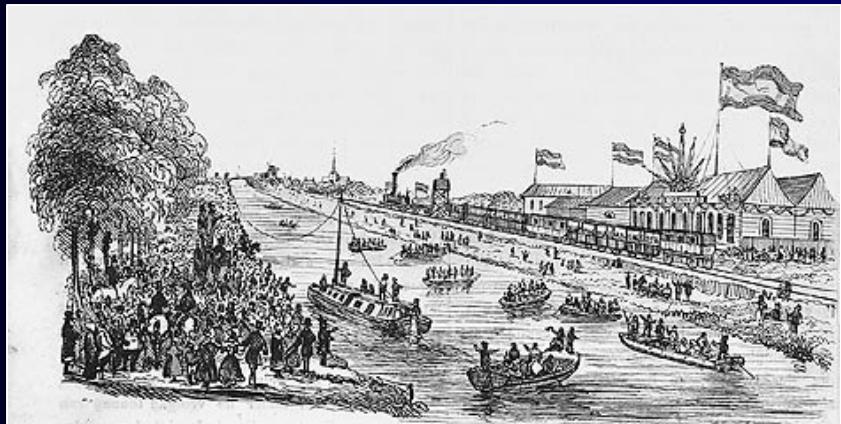
Politie: onderzoek C2000 straling

RIJSWIJK, 16 MAART. De politiebond ANPV eist van minister Remkes van Binnenlandse Zaken een onafhankelijk onderzoek naar het stralingsgevaar van C2000-communicatieapparatuur die de hulpverleningsdiensten nu gebruiken. Aanleiding hiervoor is een aantal gevallen van kanker bij Britse politiemensen op plaatsen waar zij langdurig deze apparatuur droegen. (ANP)

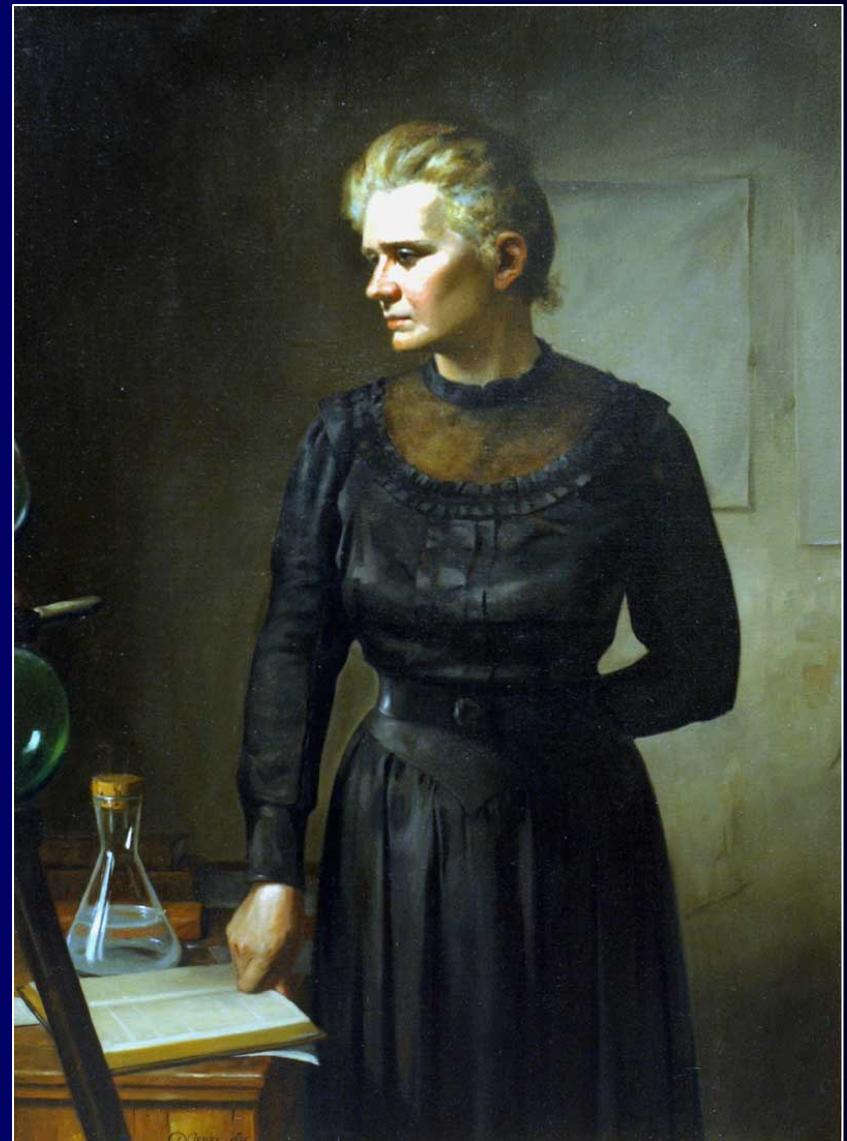
NRC 16 mrt 2006



Trein Amsterdam-Haarlem 1839

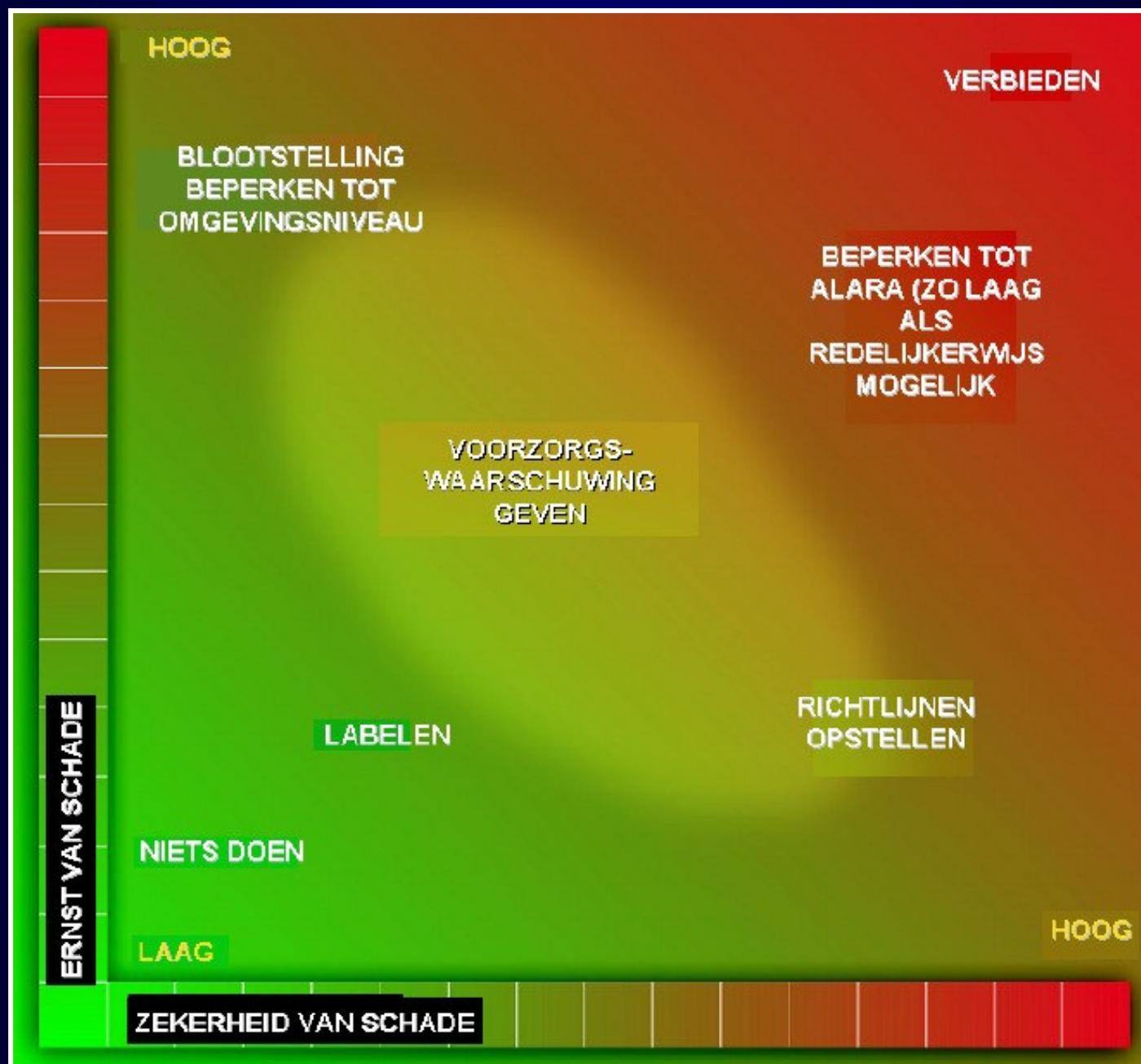
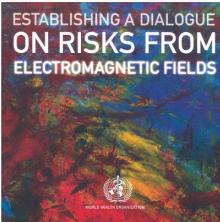


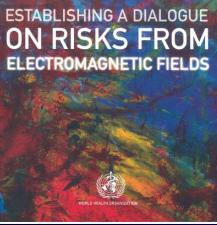
Marie Curie



Forse tegenstand want

- gevaar voor verstikking
- oplopen hersenziekte
- paarden slaan op hol
- koeien geven zure melk
- locomotief ontploft
- trein ontspoort ...





- Maak, om de communicatie te verbeteren, dat u bij zowel officiële als informele gelegenheden beschikbaar bent. Besloten bijeenkomsten kunnen het vertrouwen ondermijnen als niet alle belanghebbenden aanwezig kunnen zijn
- Geef toe dat er onzekerheden zijn, verklaar waarom deze er zijn, en plaats ze binnen de context van wat al bekend is.
- Erken dat vaardigheden op het gebied van risicocommunicatie belangrijk zijn voor alle niveaus van de besluitvormende organisatie, van receptie tot projectmanagement.
- Vermijd onnodige conflicten, maar begrijp dat een persoonlijk of een beleidsbesluit per definitie een tweedeling inhoudt: zo zal iemand besluiten wel of geen woning in de omgeving van een hoogspanningsleiding te kopen.
- Onderken dat u mogelijk geen overeenstemming zult bereiken, zelfs als u goed communiceert.
- Denk eraan dat het in de meeste samenlevingen de maatschappij is die uiteindelijk – maar mogelijk pas na lange tijd - bepaalt wat een aanvaardbaar risico is, niet de overheid of een onderneming.

ALL TODAY'S PRESS RELEASES SEE BELOW

30th Anniversary of First Wireless Cell Phone Call

4th April 2003



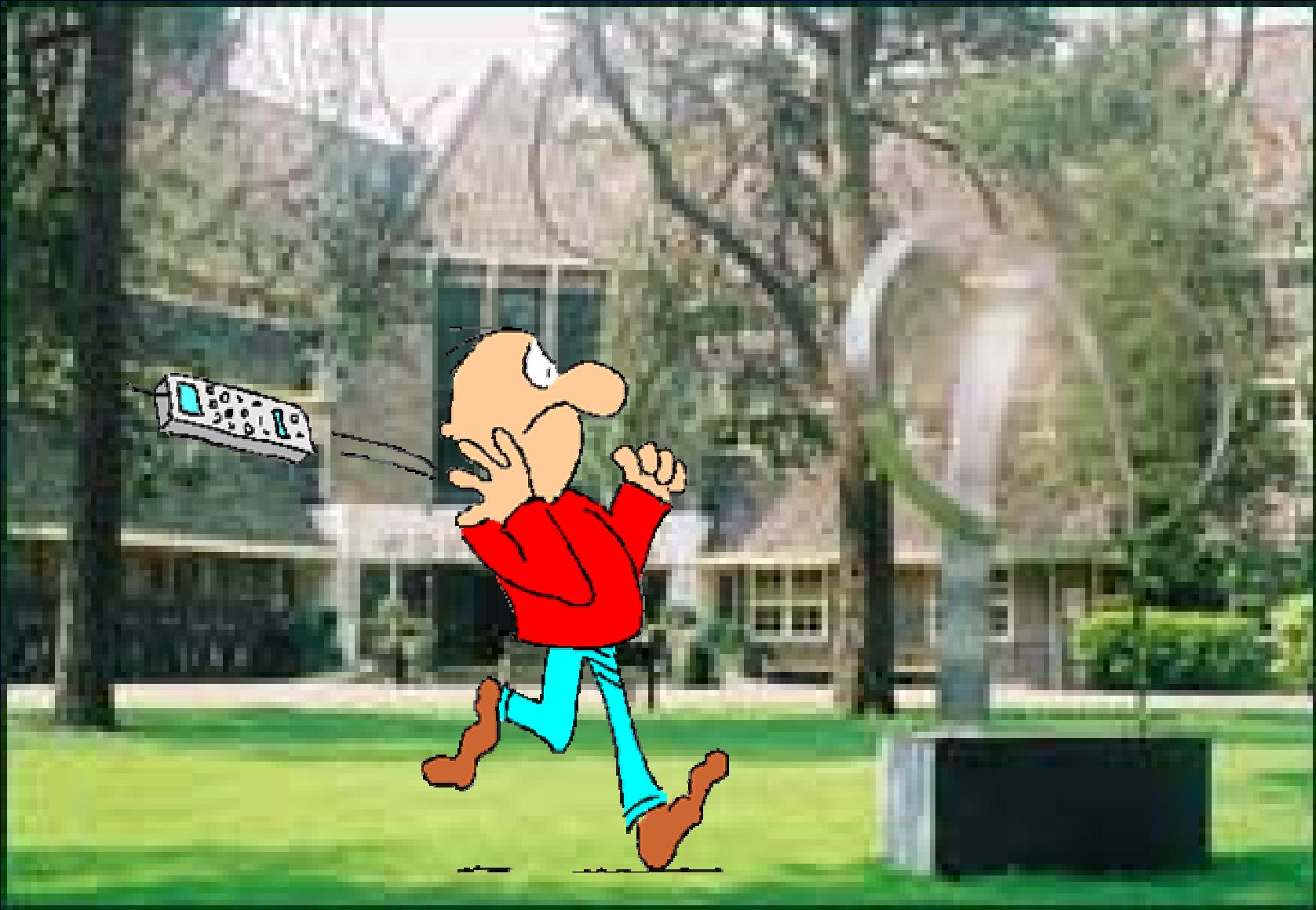
Today marks the 30th anniversary of the first public telephone call placed on a portable cellular phone. Martin Cooper, ArrayComm Inc.'s chairman, CEO and co-founder, placed that call on April 3, 1973, while general manager of Motorola's Communications Systems Division. It was the incarnation of his vision for personal wireless communications, distinct from cellular car phones.

Inset is Martin Cooper, inventor of the handheld cellular phone and now chairman and CEO of ArrayComm, demonstrates the first portable cellular telephone which debuted on April 3, 1973.

That first call, placed to Cooper's rival at AT&T's Bell Labs from the streets of New York City, caused a fundamental technology and communications market shift toward the person and away from the place.

"People want to talk to other people -- not a house, or an office, or a car. Given a choice, people will demand the freedom to communicate wherever they are, unfettered by the infamous copper wire. It is that freedom we sought to vividly demonstrate in 1973," said Cooper.

He added, "As I walked down the street while talking on the phone, sophisticated New Yorkers gaped at the sight of someone actually moving around while making a phone call. Remember that in 1973, there weren't cordless telephones, let alone cellular phones. I made numerous calls, including one where I crossed the street while talking to a New York radio reporter -- probably one of the more dangerous things I have ever done in my life."



Questions?

