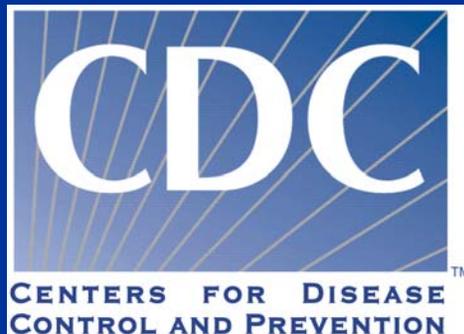
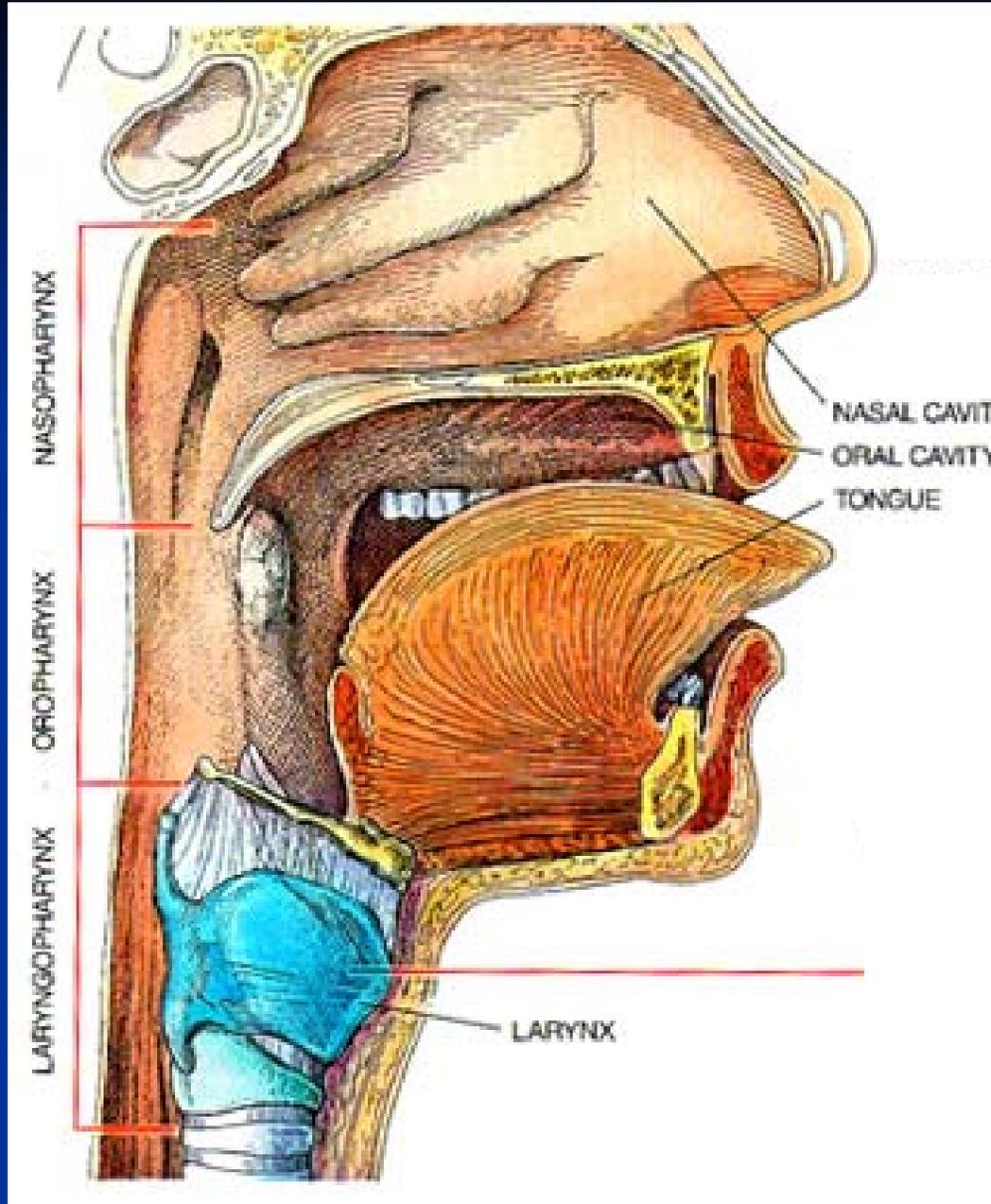


Recurrent Respiratory Papillomatosis: A rare HPV 6,11 associated disease



Elizabeth R. Unger PhD, MD
NCZVED
October 25, 2007 ACIP Meeting

Upper Respiratory Tract



www.pitt.edu/~crosen/voice/fig1.jpg

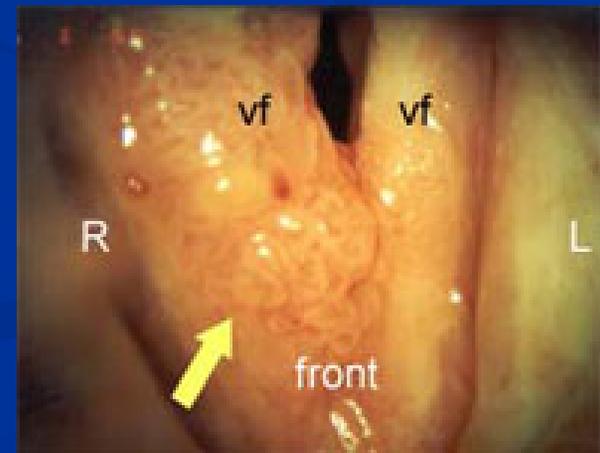
www.endocrinesurgeon.co.uk

Recurrent Respiratory Papillomatosis

- Recurrence following therapy is rule
- Larynx is most frequent site
 - Hoarseness
 - Airway obstruction
- Juvenile and adult modes of onset
 - Both associated with HPV 6/11



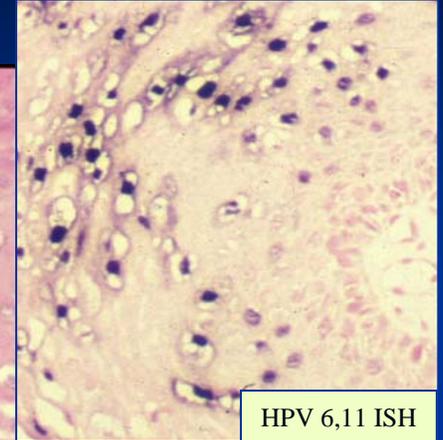
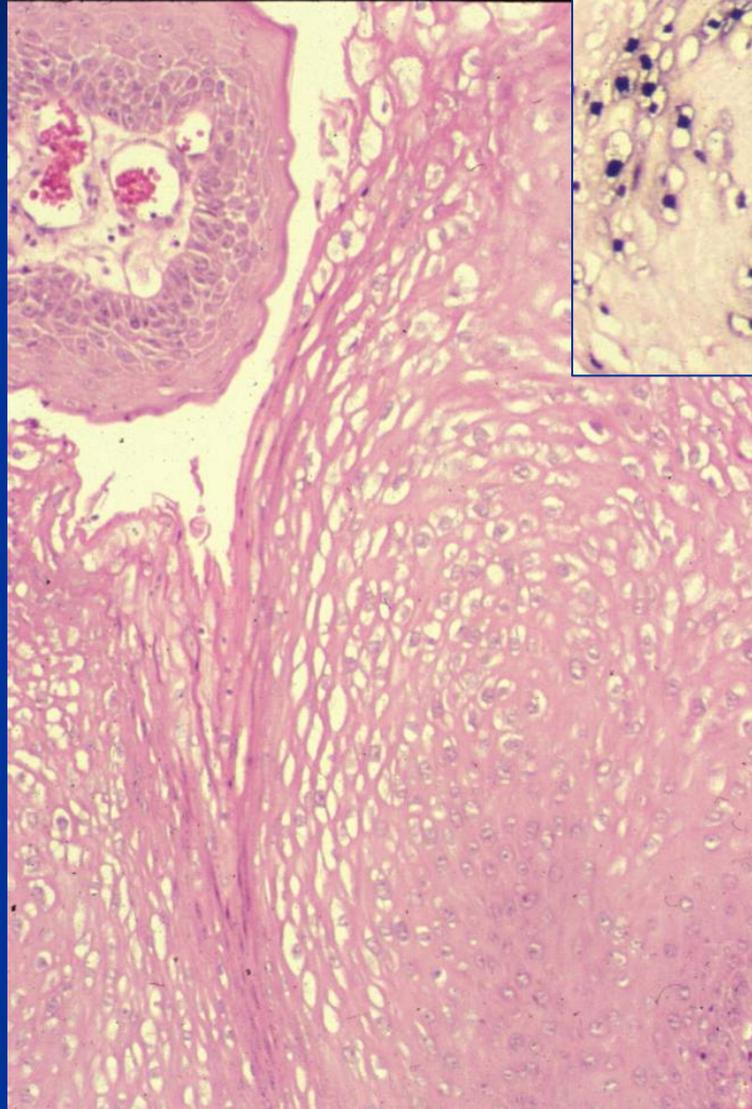
Ref: www.emedicine.com



Ref: www.voiceproblems.org

Pathology

- Hyperplastic non-keratinizing squamous epithelium
- Frequent koilocytosis
- Benign



HPV 6,11 ISH

Therapy

- Goal is preservation of airway not “cure” or removal of all papillomas
- Removal of lesion with laser surgery or microdebrider
 - Others: light therapy, interferon, ribavirin, indole-3-carbinol, measles vaccine, cidofovir
- Disease course varies widely
- Lesions recur unpredictably and can spread throughout the respiratory tree
 - Spread to lung is rare, but untreatable event

JORRP Risk Factors

- Intrapartum transmission during birth is presumed mode of infection
 - Clinician observation of “Classic triad”
 - Teen-aged mother, vaginal delivery, first born
 - No direct demonstration of transmission
 - Exposure much more common than disease
- Maternal antenatal history of genital warts is a risk factor
 - Population-based medical record review *
 - 1.2 million births; 3033 mothers with warts
 - 57 cases JORRP – 21 to mothers with warts, 36 to mothers without
 - RR 231 (95% CI 135-395)
 - Cesarean section not protective

*Silverberg MJ et al. Obstet Gynecol 2003;101:645-52

Juvenile Onset RRP

Burden of disease

	Seattle	Atlanta	Joint city 95% CI	# cases in the U.S.*
Incidence (/100,000 p-y children aged <18 years)	0.4	1.1	0.1 - 2.1	80-1500
Prevalence (/100,000 children aged <18 years)	1.7	2.6	1.0 – 4.0	700-3000

* Extrapolating using 1999 U.S. Census data

Armstrong L et al. Clin Infect Dis. 2000;31:107-9.

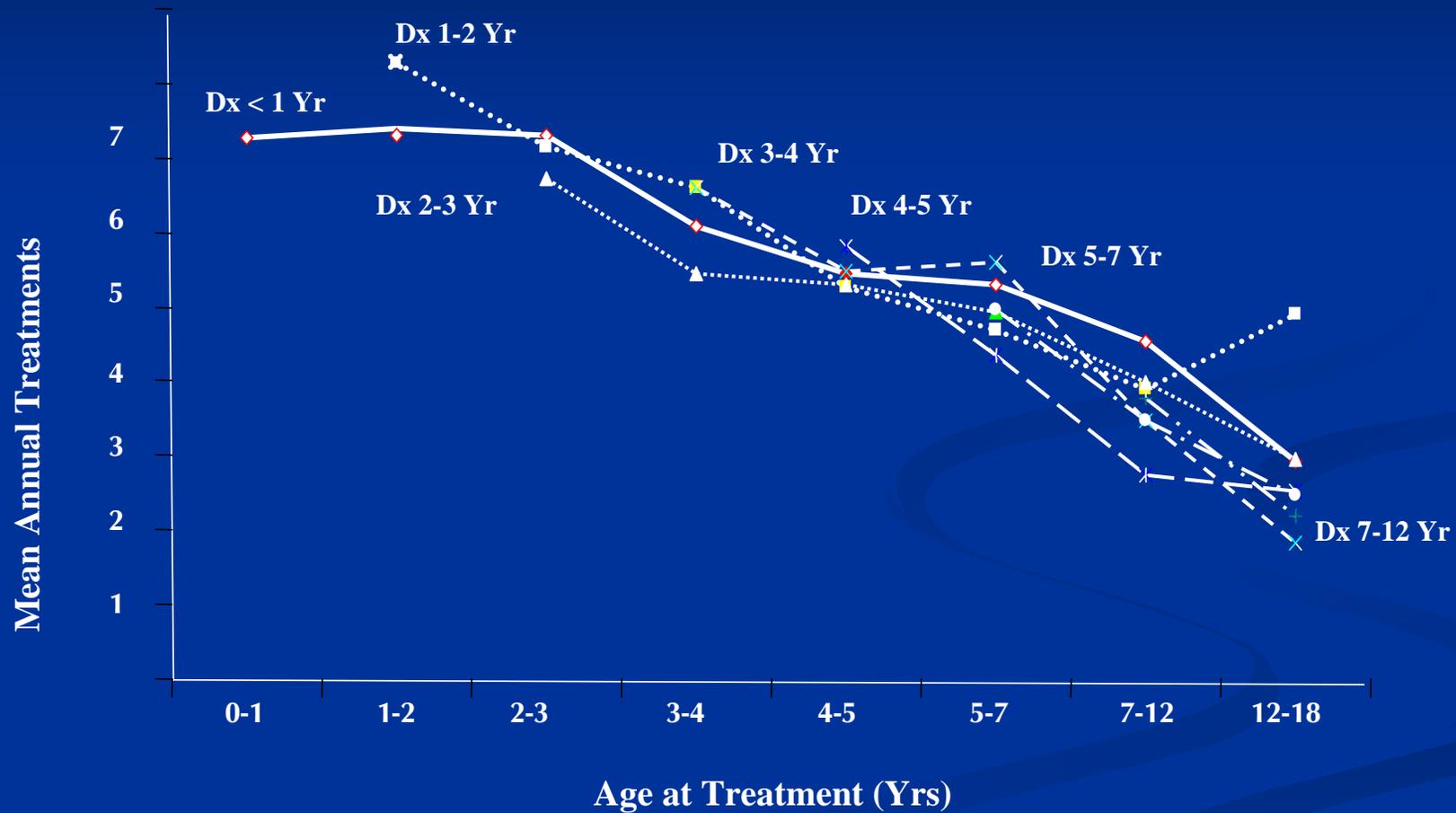
JORRP Registry

CDC and RRP Task Force

- Record review of all children <18 years treated for RRP at 22 tertiary care centers across US
 - Incident and prevalent cases 1996-2002
 - Objective - Determine disease characteristics
- N = 603
 - 50% male, 54% private insurance
 - Median age at diagnosis 3.1 years (mean 4.0 yrs)
 - Range 1 month – 17 years

Annual Treatments

Age at Diagnosis Cohorts



Reeves WC et al. Arch Otolaryngol Head Neck Surg 2003;129:976-82.

JORRP – Cost Estimates

[2006 Dollars]

- Annual cost (single case) = \$42,920
 - Range \$27,430 - \$61,930
- Lifetime cost (single case) = \$153,750
 - Range \$58,140 - \$309,670
- Annual cost in US = \$79 million
 - Range \$19 million - \$186 million

Adapted from Bishai D et al. Otolaryngol Head Neck Surg. 2000;126:935-9 and Armstrong L et al. Clin Infect Dis. 2000;31:107-9.

Adult Onset RRP

- Even less characterized than JORRP
- Only reported incidence estimate based on extrapolation of survey of otolaryngologists with 23% participation (probable over-estimate)*
 - ?Incidence estimate = 1.8/100,000 p-y age>15 years
- No prevalence data
- Risk factors differ from JORRP
 - Increased # lifetime sex partners
 - Orogenital sex

*Derkay CS. Arch Otolaryngol Head Neck Surg. 1995;121:1386-91.

Acknowledgements

- Sara Forhan
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